Inos

Box and tray

Product information

For internal use

Intended use

This document is intended as an information tool for USM employees and sales partner. It is intended to provide background information on the product.

The document has been designed as an online resource and is continually updated. The latest version is always stored in our ‘Sales Partner Support’ area.

Index

This document will be continually amended based on the current status. The index is respectively amended to ensure it is up-to-date.

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1 Development

Interior Organization for Your Home

The idea that inspired the USM Inos boxes and trays was to give the Modular Furniture Haller a soft, home-like look, making it appealing to use for interior organization. In order to achieve this, USM needed a material that would convey this look and feel.

The Same Material Found in USM Privacy Panels

The USM Inos boxes and trays are made of the same basic material as the USM Privacy Panels: a compressed polyester fleece. Different processing techniques, however, give it a different appearance. They are available in two basic colors: anthracite gray and light gray, which in turn are coordinated with the USM Inos colors graphite black and light gray.

Matched to the Modular Furniture System

As is customary with USM, ensuring that the new product matches the existing products was a key focus. The sizes were designed to match the modular furniture system, resulting in the two system widths of 500 mm and 250 mm, each of which have a system depth of 350 mm. Both heights are also compatible – a tall box is 2/3 of a 350 compartment height and a deep box is 1/3 of a 350 compartment height.
The boxes can be stacked thanks to the matching trays. However, this is not the only use of the trays, as they can also be used independently as a storage space.

Modular System

Matching dividers were developed to separate the boxes into different areas. They divide the depth and the width into a pre-defined grid. The dividers are available in the USM Inos colors graphite black and light gray.

Interior Development Together with Exterior Designers

As with the new table top concept and the USM Privacy Panel, collaboration with atelier oï was key.

Design

The box serves as a skin that brings different elements together, with the furniture on one side and the contents on the other. It also serves as a transition between the furniture’s metal storage space and the metal dividers inside the box.
Inside the box, a grid is visible through more heavily compressed areas. This serves as a visual partition, which, when using the partition panels, becomes a physical partition. The divisions can be attached inside the box using the P cut-outs, increasing the box’s stability.

2 Sales arguments

Modularity, matching the system dimensions of USM

Interior organization for the home

Stackability

Combinability

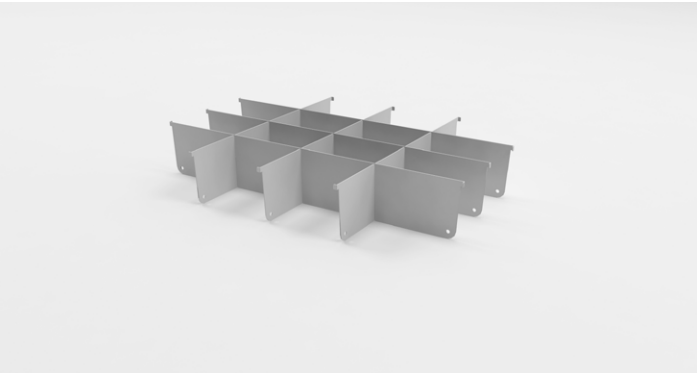
3 Characteristics

3.1 Box structure

The boxes are made of conical, deep drawn, pressed polyester fleece. Cuts have been made in the interior of the boxes to accommodate the partitions for the interior organization of individual boxes. Additionally, a pillow effect is formed on the base.

3.2 Interior organization using sheets

To divide the boxes into smaller sections, partitions can be used. These are stabilized by the incisions in the box.



3.3 Stackability

Trays can be used to stack multiple boxes atop one another. The radius of the tray base goes around the inside of the lower box and the depression in the top of the tray serves as a base for the upper box.
The tray is not only useful for stacking but it can also be used to close a box, or freely as a support for small items.

3.4 Combinability

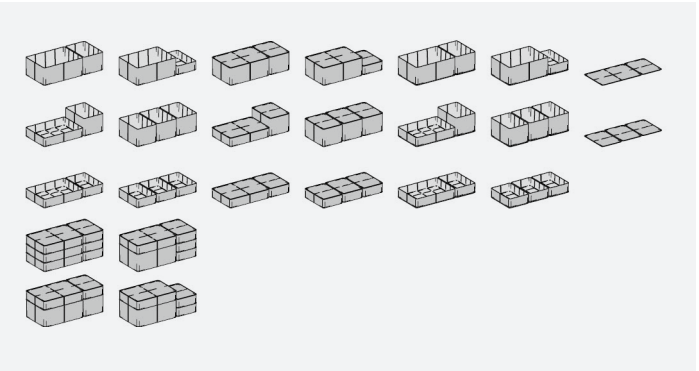
Thanks to the two widths of 250 and 500, there are several possible combinations.

In order to achieve a width of 750,
the following combinations can be used:

— 3 boxes high / low 250
— 1 box high / low 250 + 1 box high / low 500

In order to achieve a height of 350,
the following combinations can be used:

— 3 boxes low 250 / 500
— 1 box high 250 / 500 + 1 box low 250 /500



3.5 Grid

The grid for the USM Inos Box and Tray was developed on the basis of the most-commonly sold USM Modular Furniture Haller dimension of 750 x 350 x 350 mm.

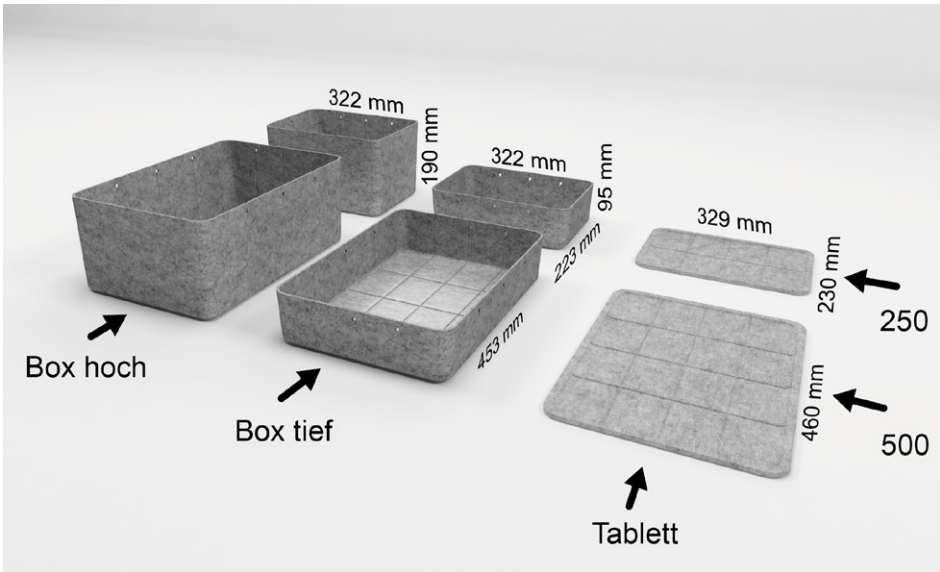
Thanks to the four sizes

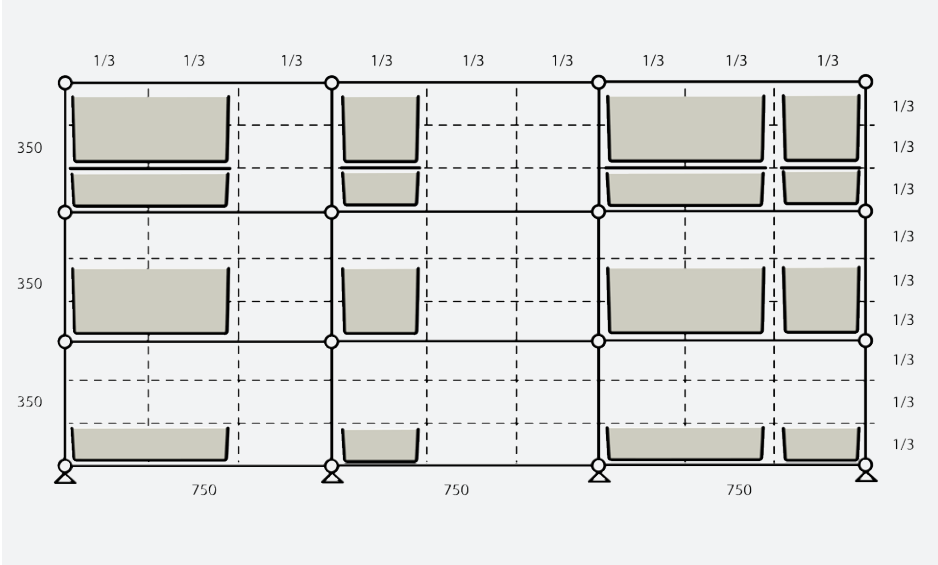
— 453 x 322 x 190 mm = Box high 500
— 223 x 322 x 190 mm = Box high 250
— 453 x 322 x 95 mm = Box low 500
— 223 x 322 x 95 mm = Box low 250

associated to the two tray formats

— 460 x 329 mm = Tray 500
— 230 x 329 mm = Tray 250

the USM Inos Box and Tray can be freely configured in the USM grid with 250 mm width, 350 mm depth and 1/3 of 350 mm height.





4 Field of use

Possible variants in use

USM Inos Box and Tray can be used in diverse areas.

By using the partitions, the boxes can be divided as needed and used for storing flatware.

In the living room, the boxes can be used as a magazine rack as well as for small items, such as sunglasses or a mobile phone. Each box can be neatly closed by placing a tray on top.

The boxes can even be used in dressing rooms. They can separate underwear from socks, for example.

And if the kids like to play with LEGO® or other toys with lots of individual components, the boxes can also be used for that purpose.

In the bathroom the boxes can be used, for example, to store towels in one box and various creams and sprays in another.

The trays can additionally be used to store private items in public spaces. When the individual boxes are closed, the contents are no longer visible to all and are also protected from dust.

Single trays can also be used deliberately to place, for example, fashion accessories or a vase on top.

Depending on taste, the boxes and trays can be combined in and on the furniture. In doing so they can be stacked or be left deliberately open, with space for items to peek out.

The boxes fit into the respective system dimensions of the furniture: For example, a box 500 and a box 250 in a 750 piece of furniture.

If single items need to be stored on the furniture the boxes can be used and, if appropriate, closed with a tray.

5 Individual parts and component groups

5.1 Box high 250 / 500

Set-up and use

The boxes high 250 / 500 are made of deep drawn, pressed polyester fleece.

The boxes high have a height of 190 mm, which corresponds to approximately 2/3 of the compartment height for the best-selling modular furniture system's dimensions of 750 x 350 x 350.

Dimensions and weight

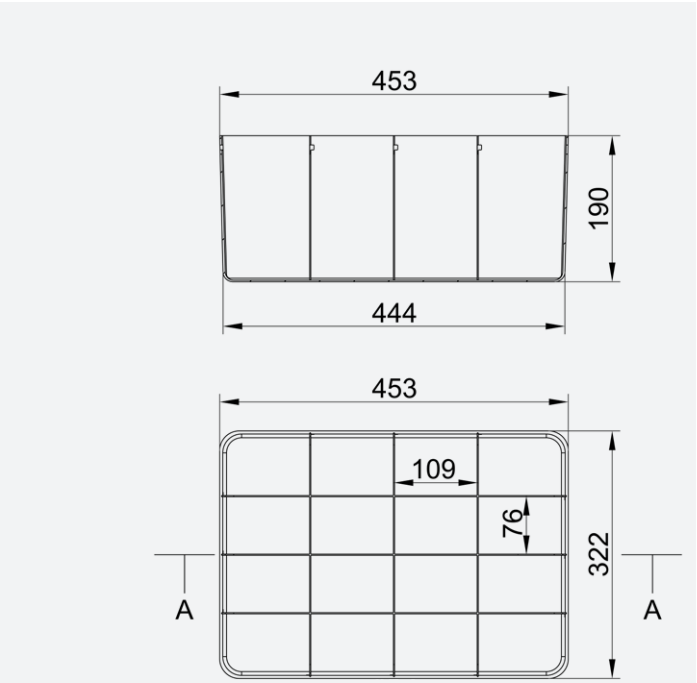
There are two width measurements:

System dimension	True to scale
500	453 mm
250	223 mm

Depth:	322 mm
Height:	190 mm
Wall thickness:	4-6 mm

Weight:

Box high 500:	approx. 825 g
Box high 250:	approx. 500 g



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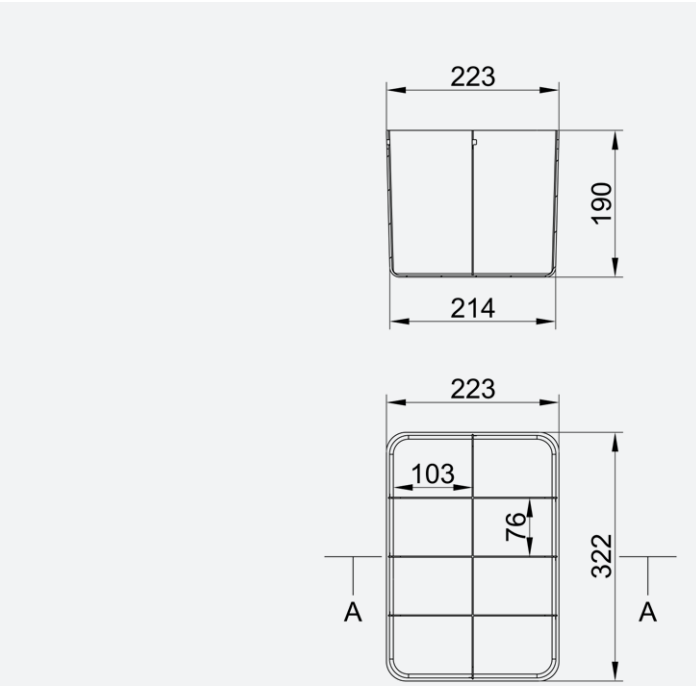

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5.2 Box low 250 / 500

Set-up and use

The boxes low 250 / 500 are made of deep drawn, pressed polyester fleece.

The boxes low have a height of 95 mm, which corresponds to approximately 1/3 of the compartment height for the best-selling modular furniture system's dimensions of 750 x 350 x 350.

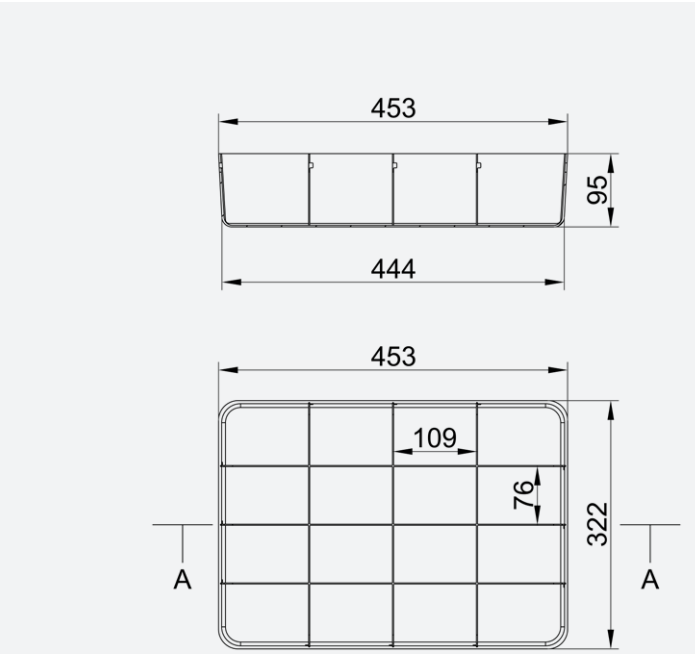
Dimensions and weight

There are two width measurements:

System dimension	True to scale
500	453 mm
250	223 mm

Depth:	322 mm
Height:	95 mm
Wall thickness:	4-6 mm

Weight:	
Box low 500:	ca. 575g
Box low 250:	ca. 250g



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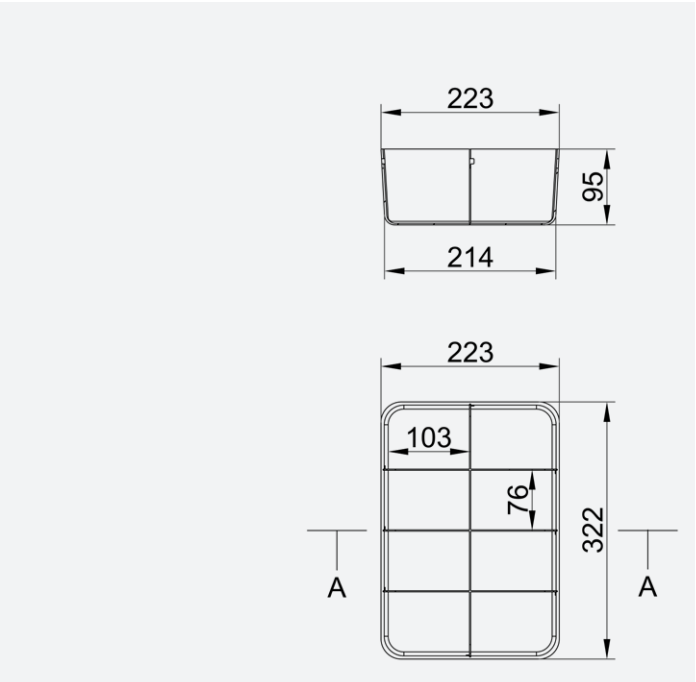

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5.3 Tray 250 / 500

Set-up and use

The trays 250 / 500 are made of pressed polyester fleece.

The trays have a height of 9 mm, with which three 250 / 500 deep boxes, including the trays, can be stacked into a 350 mm high piece of furniture.

Dimensions and weight

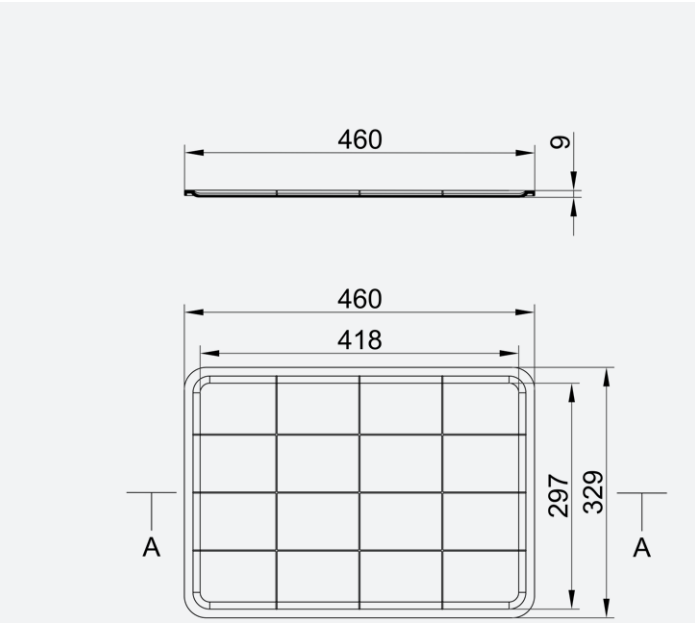
There are two width measurements:

System dimension	True to scale
500	460 mm
250	230 mm

Depth:	329 mm
Height:	9 mm

Weight:

Tray 500:	approx. 350g
Tray 250:	approx. 175g



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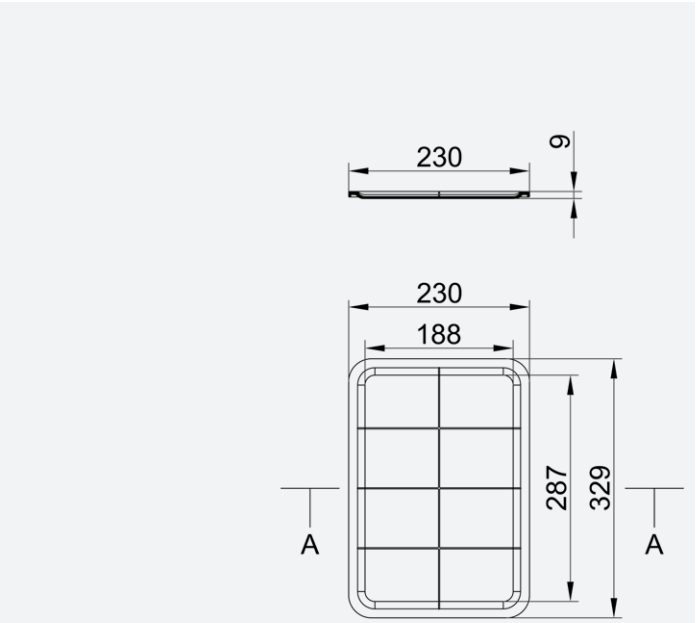

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5.4 Partition 500 / 350 / 250

Set-up and use

The partitions 500 / 350 / 250 are made of powder-coated sheet metal and are used to organize the individual boxes.

Dimensions and weight

In order to divide the different boxes in longitudinal and transverse directions, three width dimensions are available:

System dimension	True to scale
500	455 / 454 mm
350	324 / 323 mm
250	225 / 224 mm

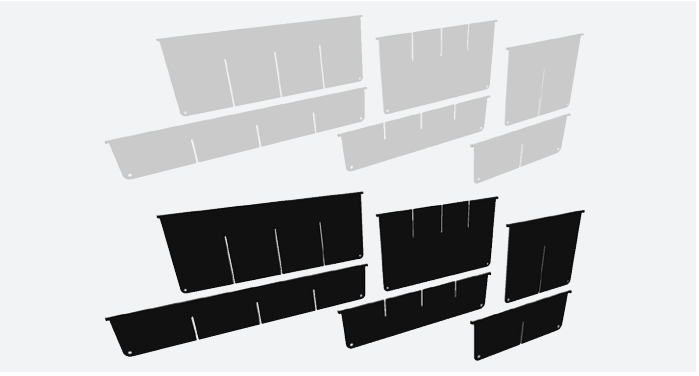
and two height dimensions:

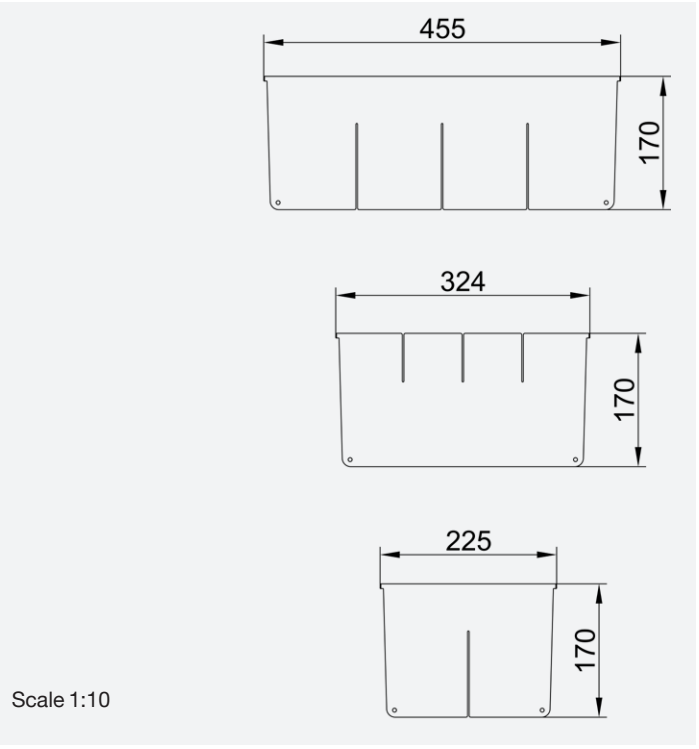
high	170 mm
low	75 mm

Thickness: 1 mm

Weight

Partition high 500:	ca. 580g
Partition high 350:	ca. 400g
Partition high 250:	ca. 270g
Partition low 500:	ca. 250g
Partition low 350:	ca. 160g
Partition low 250:	ca. 110g





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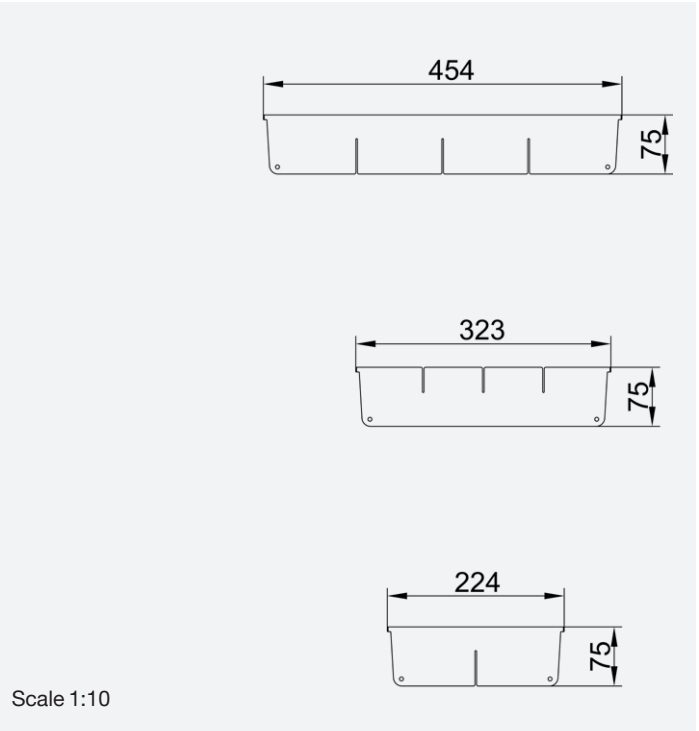

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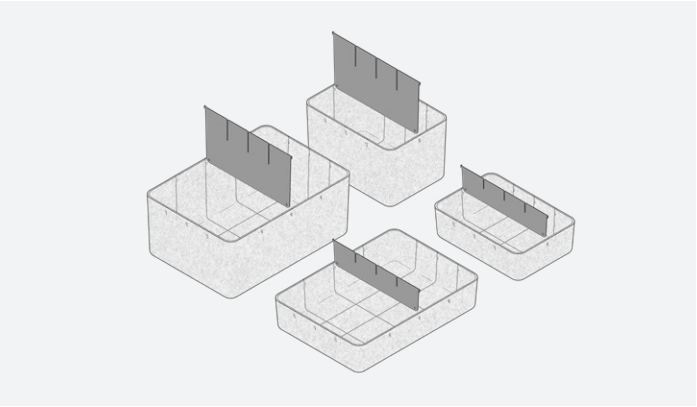
6 Assembly information

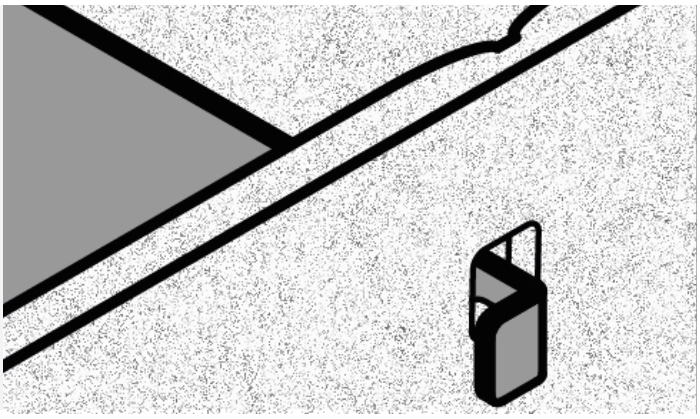
6.1 Part connections

Connection of the partitions to the boxes

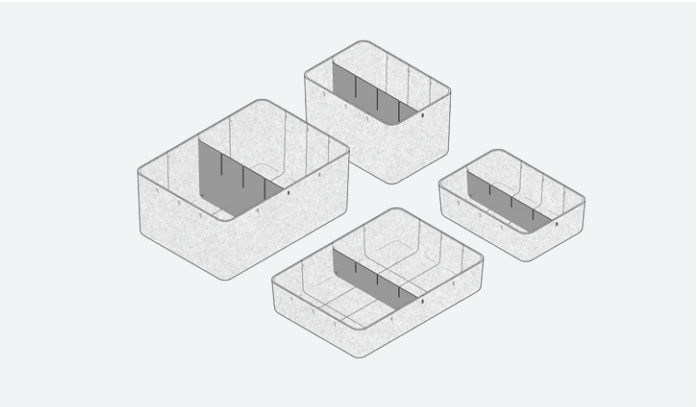
As a first step, the partitions high / low 350 are pushed downward. These partitions are used for both box sizes 250 and 500.



Next, the 90° rotators are inserted into the P-cutouts on both sides. It is important that the rotators be completely pushed through the cutouts.



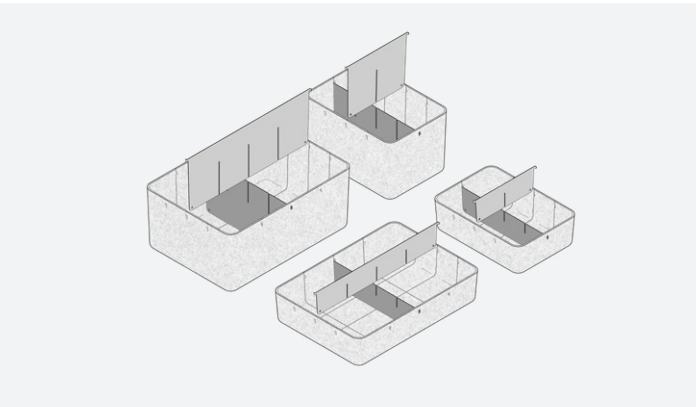
Now the partitions high / low 350 can be pushed downward into the integrated slots of the P-cutouts, up to the limit stop. Care must be taken that the partitions high / low 350 are fitted completely into the grooves of the box both on the sides and below.



Finally, the remaining partitions may be inserted:

— the partitions high / low 500 for the boxes high / low 500
— the partitions high / low 250 for the boxes high / low 250

Care must be taken that the partitions are inserted into one another using the slots.



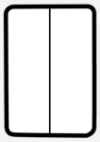
6.2 Assembly symbols

The insertion of the separations into the boxes is carried out by the sales partners or end customers.

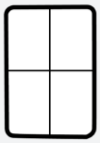
Box low 250 = set 10–15 / Box high 250 = set 20–25

set 10 / set 20

set 11 / set 21

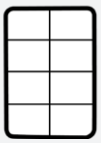


set 12 / set 22



set 13 / set 23

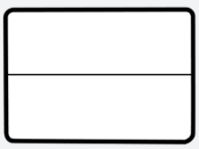
set 14 / set 24



set 15 / set 25

Box low 500 = set 30–38 / Box high 500 = set 40–48

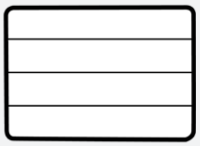
set 30 / set 40



set 31 / set 41

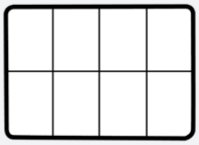
set 32 / set 42

set 33 / set 43

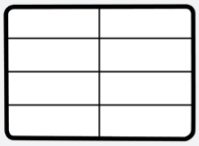


set 34 / set 44

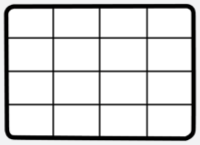
set 35 / set 45



set 36 / set 46



set 37 / set 47



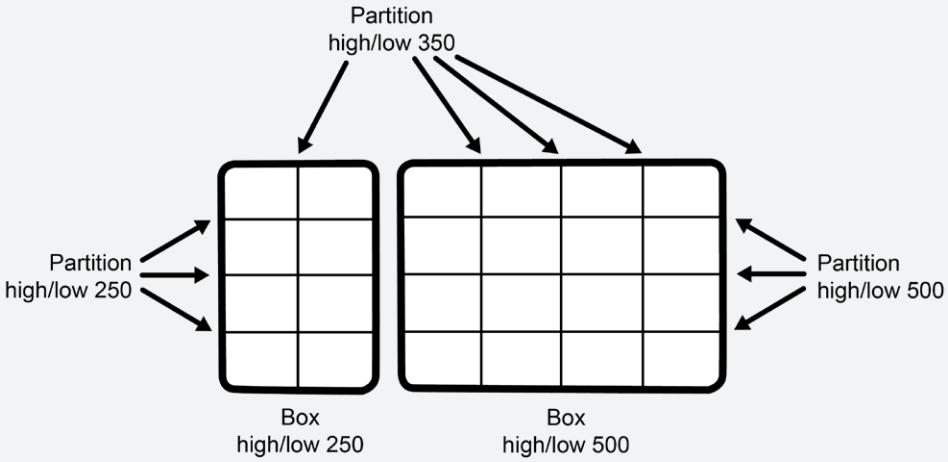
set 38 / set 48

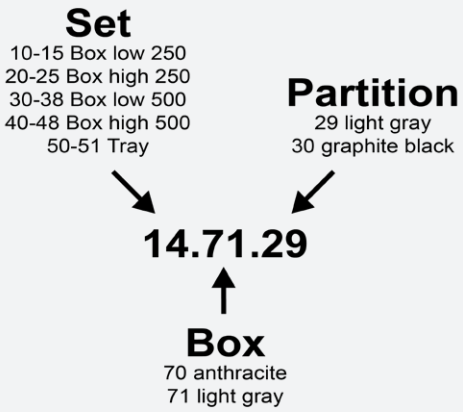
Tray 250 = set 50 / Tray 500 = set 51

set 50

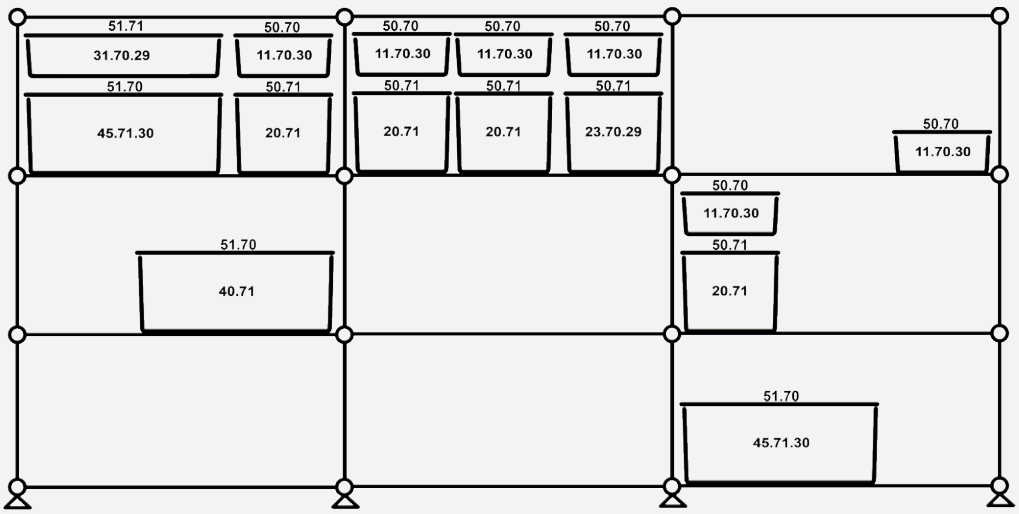
set 51

Imagery





Example



6.3 The most important constructing rules

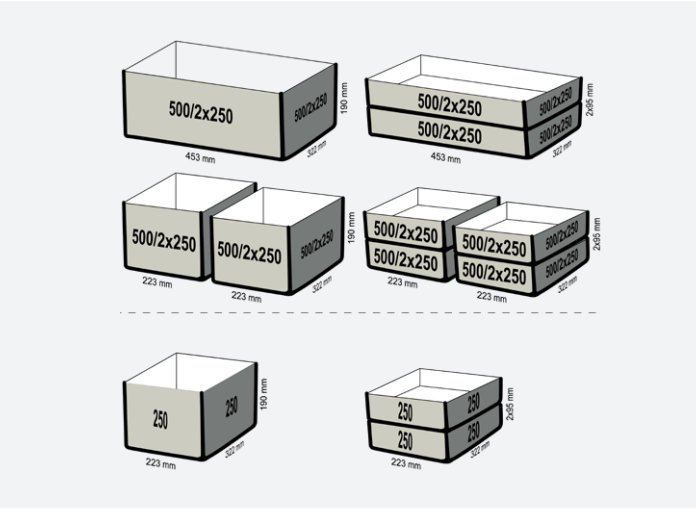
Imagery

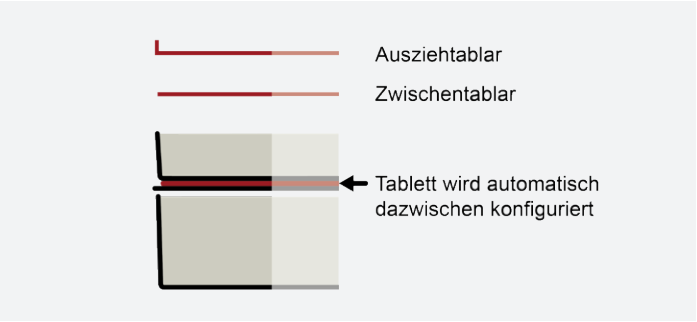
Depending on the system width and depth, the boxes may be automatically rotated in the virtual. USM. This means, for example, that in the system depth of 500 the boxes are mostly fitted with the 350 depth as the width. This can be identified from the symbolism; the 350 deep are shown in anthracite gray, the 250 and 500 wide are shown in medium gray.

In the following chart, the combinations are represented by the biggest possible boxes. However, instead of using the biggest possible boxes (in height or width) smaller boxes can be used in combination:

— 1 x Box high 500 = 2 x Box high 250
— 1 x Box low 500 = 2 x Box low 250
— 1 x Box high 500 = 2 x Box low 500
— 1 x Box high 250 = 2 x Box low 250

In the following chart these combination alternatives are recognizable by the label “500 / 2 x 250”. When stacking the boxes, a tray is automatically configured in between (red line between tablet and upper box).



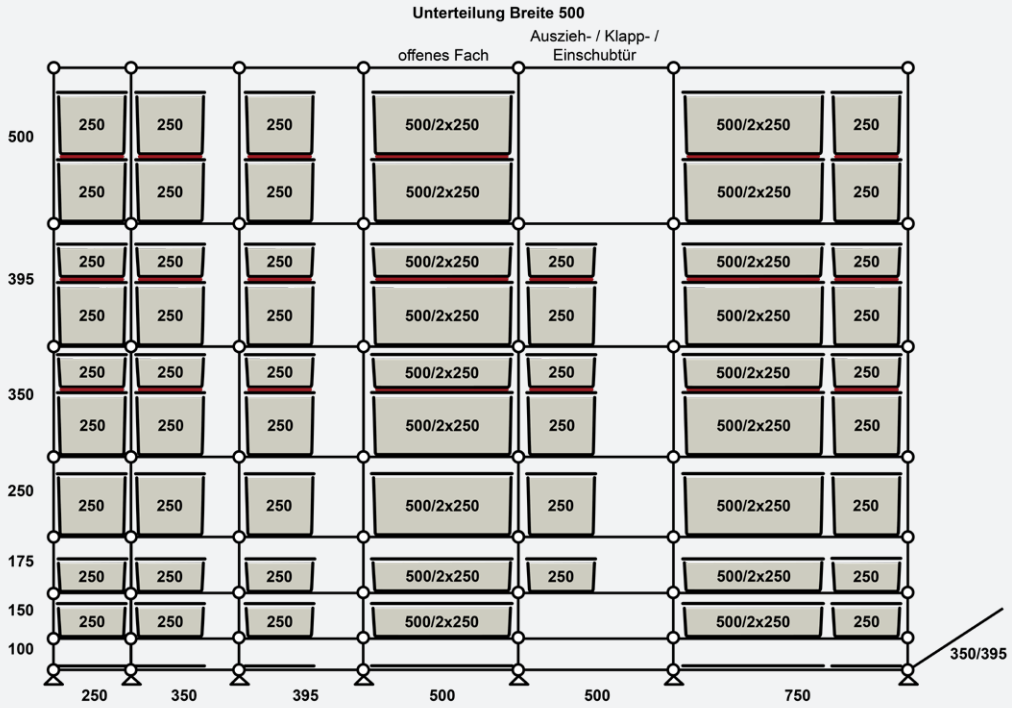


Depth 500

Open compartment, extension, drop-down and flip-up door

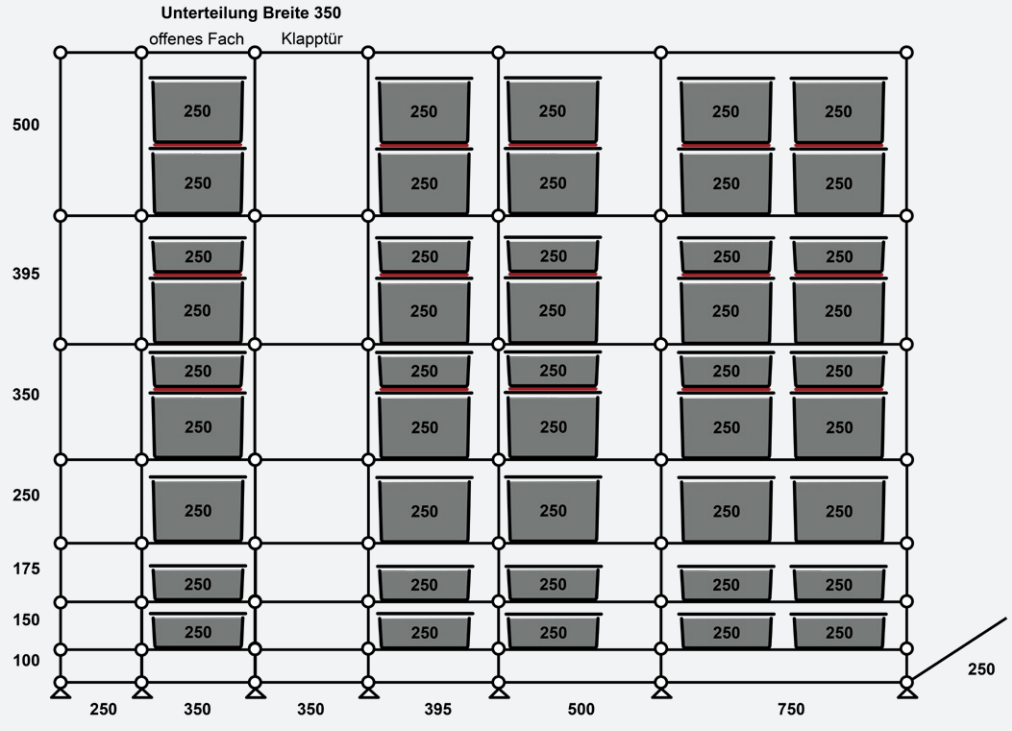
Depth 395 / 350

Open compartment, extension, drop-down and flip-up door



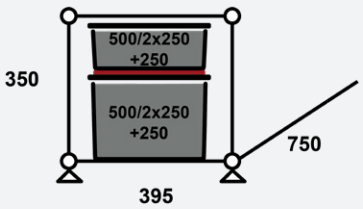
Depth 250

Open compartment and drop-down door

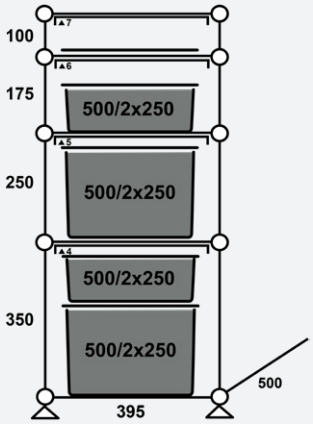


Depth 750

Open compartment,
extension door

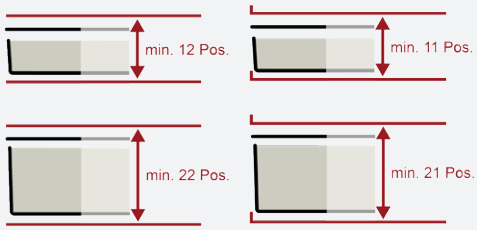


Mobile pedestal

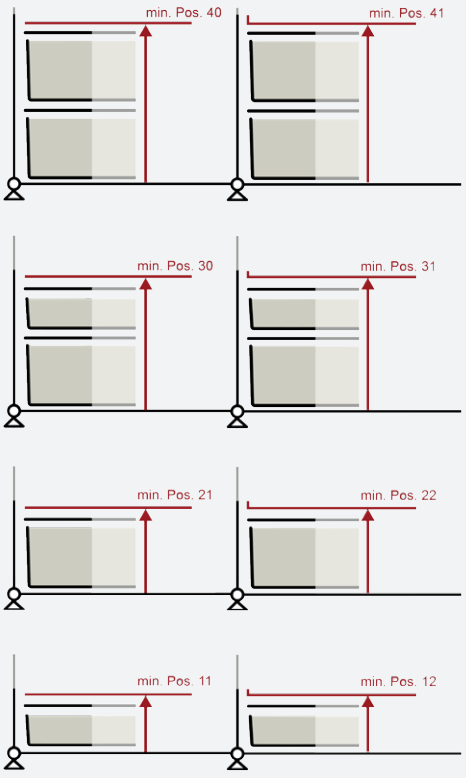


AExtending / intermediate shelf

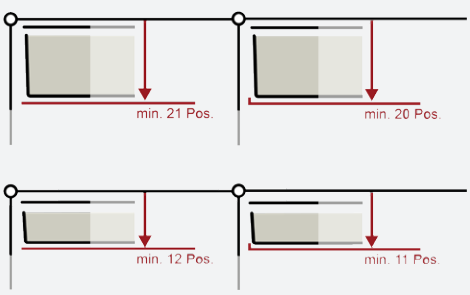
Distance between shelves
Minimum clamping holder positions



Minimum height of shelf position
Box under shelf



Minimum distance of shelf to cover sheet
Box on shelf



Additional building guidelines

— Stacking of boxes on and off the furniture:
max. 3 boxes on each other and max. height of stack = 500 mm

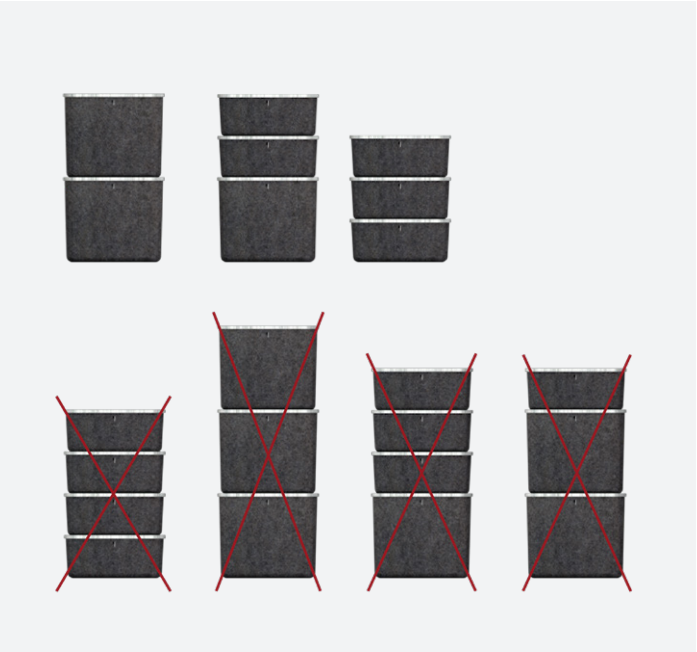
— In metal box inserts, no boxes and trays can be inserted (no need)

— In addition to a hanging file basket, a box with a width (322 mm) can be installed.
A furniture depth of 500 means 1 x box high / low 500 or 2 x box high / low 250, otherwise only 1 x box high/low 250.

— The CD and DVD tray can be combined with the boxes and trays.
For this purpose, there are different grid systems with predetermined position options.

— The card-index A4 - A7 box can be combined with the boxes and trays.
For this purpose, there are different grid systems with predetermined position options.

Other construction rules are stored in virtual.USM.



6.4 Handling

The load limits must be complied with when using the USM Inos Box and Tray.
Do not load more than 10 kg of surface weight onto the USM Inos Box. The load limit of the USM Inos Tray is 2.5 kg of surface weight.

As soon as the boxes and trays are resting on a hard surface (e.g., in or on a USM Haller furniture unit), they can be loaded with a higher weight.
However, the boxes and trays may not be carried or moved while bearing this higher load.

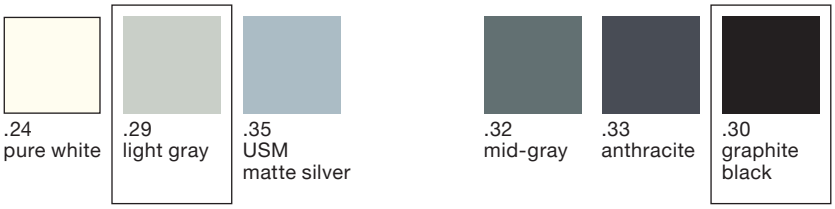
For stability and load-bearing purposes, we recommend that no more than three boxes be stacked on top of each other (see 6.3 The most important constructing rules).

The total weight distributed across all boxes and trays in a stack may not exceed 20 kg.

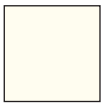
7 Colors and materials

In the USM color and material concept are highlighted the available surfaces for USM Inos Box and Tray.

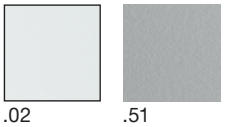
Steel powder coated



MDF powder coated



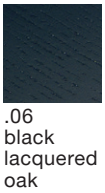
Laminate



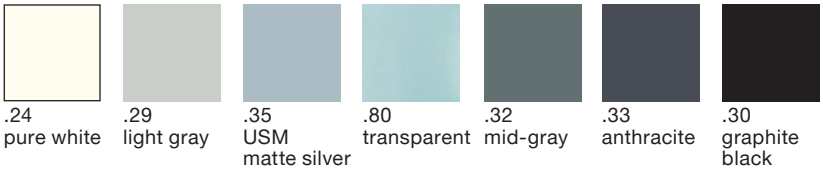
Fenix

Linoleum

Veneers

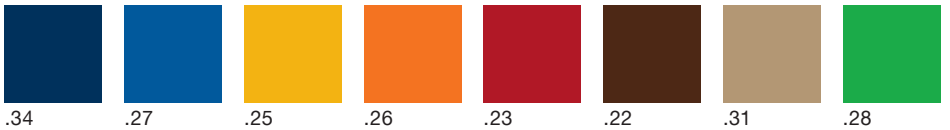


Clear glass

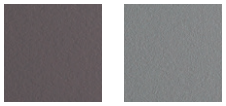


Etched glass

Fleece



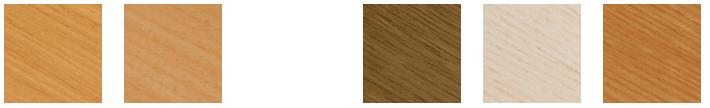
.34 steel blue | .27 gentian blue | .25 golden yellow | .26 pure orange | .23 USM ruby red | .22 USM brown | .31 USM beige | .28 USM green



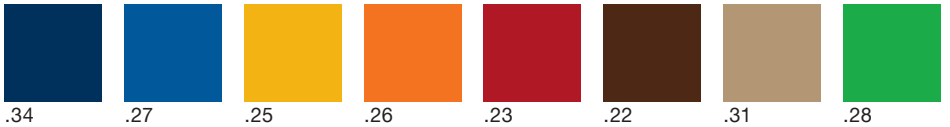
.53 dark warm gray | .52 light mid-gray

.58 Grigio Londra

.45 Mauve | .44 Pebble

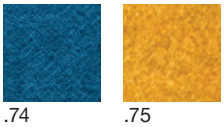


.16 natural oiled oak | .05 natural lacquered beech | .17 brown oiled oak | .15 white oiled oak | .07 natural lacquered oak



.34 steel blue | .27 gentian blue | .25 golden yellow | .26 pure orange | .23 USM ruby red | .22 USM brown | .31 USM beige | .28 USM green

.34 steel blue



.74 blue | .75 yellow

.73 green

8 Production process

Production of the Box and Tray

To obtain the desired effect of the boxes and tray in terms of color and stability, various fibers must be mixed during fleece production:

— Melting fibers which melt during the heating process and solidify again during the pressing process by cooling. They contribute to form consistency.

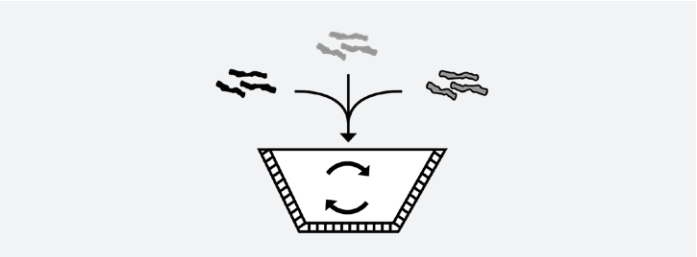
— Black and white fibers which provide the desired mélange effect.

Mixing conditions

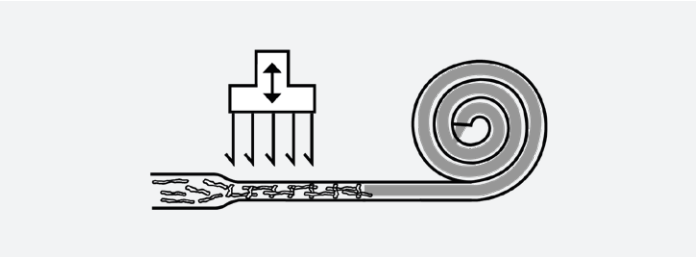
Anthracite
60% black fibers
40% white fibers

Light gray
5% black fibers
95% white fibers

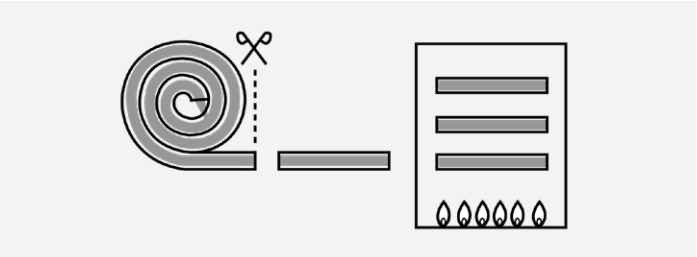
1. Mixing process
In this production step, the various fibers are mixed:
Melting fibers, black fibers and white fibers.



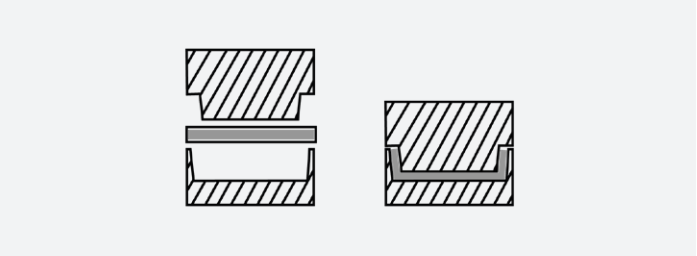
2. Needling
Using a needle board, the individual fibers are needled together. The result is a fleece roll.



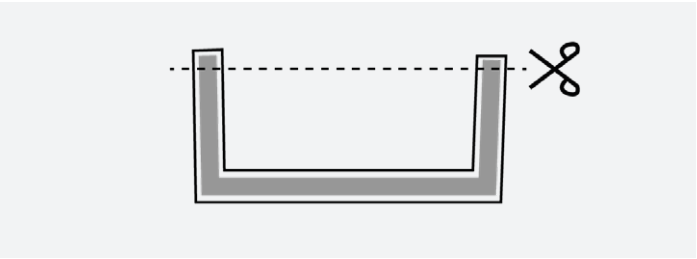
3. Cutting and heating
To prepare the pressing process, the fleece is cut to length and heated to the required temperature until the melting fibers have melted.



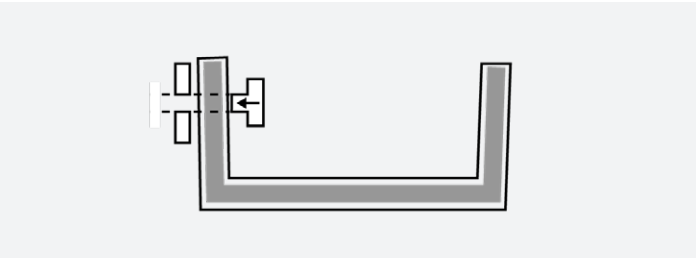
4. Pressing
Using a specifically produced pressing form, the heated fleece is deep drawn and pressed into the desired form.
It is important that the pressing mold be held at a constant temperature with the aid of integrated heating and cooling loops.



5. Cutting
After pressing, the cooled boxes are cut into the appropriate height.



6. Punching
The P-cutouts are generated with a hydraulic punching device.



7. Logo/Packaging
Finally, the logo is burned-in with a branding iron.
The box / the tray is now ready and will be packaged.

9 Maintenance and care

The prerequisite is proper handling, in accordance with the intended use and material.

Note
A damaged surface may influence appearance, fire behavior, light and friction resistance, as well as maintenance and care.

The following cleaning types are recommended:

Regular care
The boxes and trays can be freed of dust and mild dirt with a vacuum cleaner. Vacuum attachments with brushes should be avoided. The rest of the parts (metal or plastic) can be cleaned with a damp cloth.

Intensive cleaning
In case of more severe dirt, a damp cloth can be used for cleaning, and if needed, also gentle cleaning agents. One should rub as little as possible, since the surface may otherwise become altered.

Note
Cleaning with cleaning agents may affect the appearance, fire behavior, light and friction resistance.

If fibers are detached, they should not be ripped off, since this will result in more fibers becoming detached. Here, it is recommended that the detached fibers be cut off carefully.

Reference
Cleaning instructions for the USM products are filed in USM Sales Partner Support.

10 Certificates, standards and measuring parameters

10.1 Flammability

When testing fire behavior according to DIN EN 13501-1, flammability is analyzed. Here, an external fire source that acts on the USM Inos Box and Tray for a certain amount of time, is assumed.
The fire development (grades A - F), the smoke development (s1 - s3), and burning droplets or debris (d0 - d2) will be assessed.

Fire development

A1:	nonflammable, without combustible material content
A2:	nonflammable with combustible material content, to flame retardant
B – C:	flame retardant
D:	normally combustible
E:	normally combustible and maintains itselfst
F:	easily flammable

Smoke development

s1:	no / little smoke production
s2:	limited smoke production
s3:	unlimited smoke production

Droplets / Debris

d0:	no droplets / debris
d1:	limited droplets / debris
d2:	strong droplets / debris

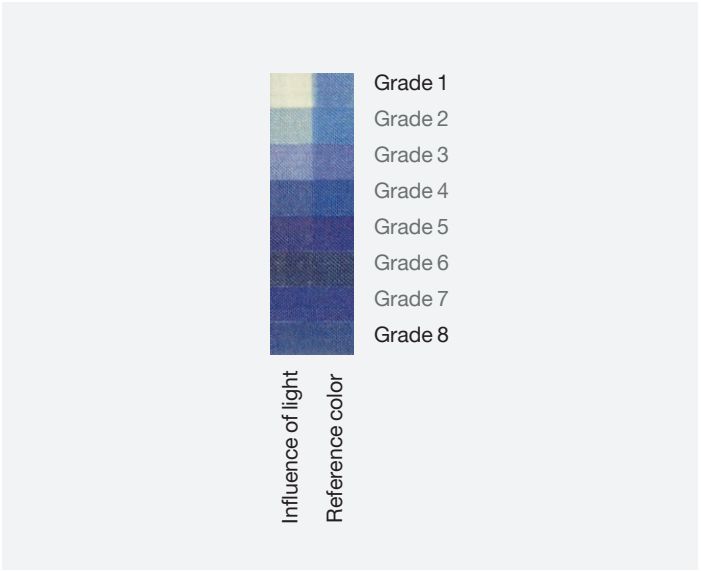
Note
A slightly flammable building material of class F may only be installed in a building when it is connected to another building material so that the composite material is no longer easily flammable.

Certification
The USM Inos Box and Tray passed the test as per DIN EN 13501-1 with the following result:
E: normally combustible and maintains itselfst

10.2 Light resistance

When testing light resistance as per ISO 105-B02, the constancy of the color is tested under the influence of light. Here, the test item is irradiated for a certain amount of time under a defined UV lamp. Using a so-called blue scale (see illustration), the following classifications are issued:

Grade scale:
Grade 1 = insufficient
Grade 8 = very good



Note
In order to obtain the most optimal light resistance when using the USM Inos Box and Tray, use in sunlight and light with a high proportion of UV should be avoided insofar as possible.

Measuring results
The USM Inos Box and Tray passed ISO 105-B02 as follows:

Anthracite:	Grade 7-8
Light gray:	Grade 7-8

10.3 Friction resistance

Friction resistance as per ISO 105-X12 describes resistance of a color to friction or fading/bleeding of color. Testing takes place with a precisely defined body which rubs on the panel under corresponding pressure and speed crosswise and lengthwise to the fibers in the panel.

The tests were done wet once and dry once. They were evaluated using the following grade scale:

Grade scale:
Grade 1 = insufficient
Grade 5 = very good

Measuring results
The USM Inos Box and Tray passed ISO 105-X12 as follows:

	Dry	Wet
Anthracite:	Note 4-5	Note 4–5
Light gray:	Note 4–5	Note 4–5

10.4 Odor test

The odor test as per SNV 195 651 takes place in a closed system. After being subjected to the influences of time, temperature and humidity, the samples are subjected to a sensory odor test.
When assessing the odor intensity, at least six trained testing persons provide their assessment according to the following grade scale, independently of each other:

Grade scale:
Grade 1 = odorless
Grade 2 = weak odor
Grade 3 = average odor
Grade 4 = strong odor
Grade 5 = very strong odor

Measuring results
The USM Inos Box and Tray passed SNV 195 651 as follows:

Anthracite:	Note 2–3
Light gray:	Note 2–3

10.5 Skin compatibility / Emission testing

Testing for harmful substances according to Oeko-Tex® is performed on the basis of the following test parameters:

— legally banned substances
— legally controlled substances
— known hazardous substances that are not yet explicitly recognized by the legislator, however
— parameters for health care

The certified articles fulfill the requirements of Annex XVII of REACH (incl. the use of azo-dyes, nickel, etc.) that are in effect, as well as the American requirements regarding lead content (total) in children‘s articles (CPSIA, excepting accessories made from glass).

Textile products are tested, among other things, for formaldehyde, pesticides, extractable heavy metals, organic chlorine carriers, and preservatives such as tetra- and pentachlorophenol. Also, a review of textiles for (legally banned) carcinogenic MAK amines from special azo dyes, as well as dyes that have a scientifically proven allergenic potential. In addition, all checked items must have a skin-friendly pH value and good color fastness.

Product controls are carried out on at least 25% of all Oeko-Tex® certificates annually.

Measuring results
The fleece was manufactured by producers according to Oeko-Tex® 100, product class II for products with direct contact to skin, and has demonstrated that the human ecological requirements of the standard are met.

11 FAQs

Can the USM Inos Box and Tray be recycled for disposal?

The fleece consist of PES. This can be transformed into PET, so that the boxes and trays could theoretically be disposed of with PET.

Are the USM Inos Box and Tray made from recycled material?

No. Recycled fibers have lower quality and therefore do not meet the quality demands of USM and its customers.

Can the USM Inos Box and Tray be cleaned in the dishwasher?

No, this is not recommended. The material absorbs the liquid and then takes a long time to dry. In addition, many dishwashers utilize a high temperature, whereby the bi-component fibers melt back and the boxes and trays become deformed.

If heavily contaminated, we recommend hand washing with temperature up to 40 degrees.

What happens when USM Inos Box and Tray are dropped?

The boxes are made of PES, whereby they have some absorption, and can accommodate small blows. However, they should not come into contact with sharp objects. Additionally, the material may crease when falling from a great height directly onto the edge.

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