

MEISER[®]

Grating



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MEISER Press Locked Grating

Grating is a structural element that has a high load-bearing capacity with a low dead weight and a high level of transparency. The positive-fitting connection of the bearing bars and cross bars with the surround make the grating not only a very stable, but also visually attractive product. The applications are very diverse, as grating is used everywhere in industry and architecture. As an extremely robust, safe yet light platform flooring, the grating is indispensable in all areas of heavy indus-

try. Grating is installed in refineries, power stations, steel mills, mines and on oil platforms. Every steelworker, metalworker and fitter needs grating in his trade. Grating is being used increasingly more in the logistics industry as platform flooring and shelves. Architects and building owners appreciate the grating as a product which is both aesthetically pleasing and functional – be this as decorative facade cladding, a suspended ceiling or sun shield. MEISER offers the largest range of grating world-



CAR SHIP SYLT

wide. The diversity of possible applications also requires an unusually large variety of products. Together with our customers we select the right grating from our range. Grating is almost always relevant to safety, and we are well aware of this responsibility. When one is standing high up on a „breezy“ platform made of MEISER grating, one understands the importance of quality and reliability. We set the highest standards for our products – from the planning stage to delivery. MEISER grating is 100 %

made by MEISER. More than 80 % of all grating are made to measure at our two factories in the Saarland and Vogtland for our customers. Our employees will be pleased to support and advise you with planning your projects. Static calculations and quantity surveys also form part of our scope of services.

MEISER grating – sustainable concepts.

Bearing bars

Bearing bars are load-bearing, vertical flat bars which run parallel to one another from one support to the next.



Cross bars

The cross bars run at right angles to the bearing bars, connecting them together through compression and/or welding at the crossover points.



Edge banding

All grating is banded as a rule by flat bars, T-shaped sections or U-shaped sections.

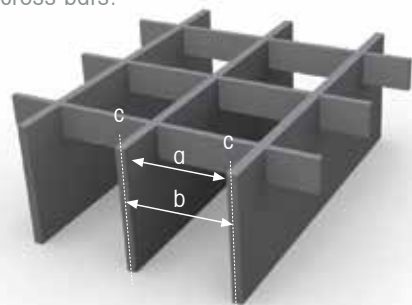


Mesh width

(a) the clear distance between the bearing bars or the cross bars.

Mesh spacing

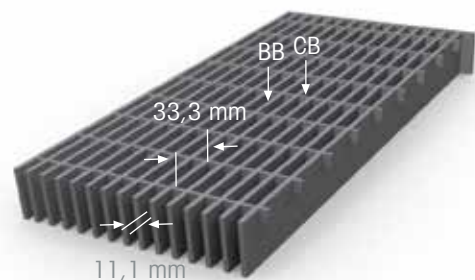
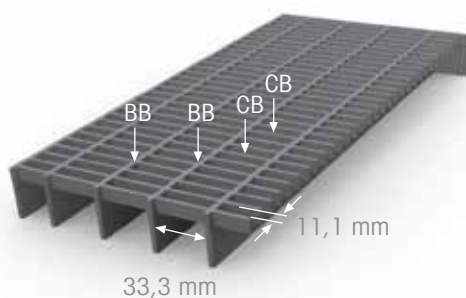
(b) distance from centre to centre of bearing bars or the cross bars.



Mesh size

The mesh size is largely determined by the mesh spacing, whereby the distance between the bearing bars (BB) and cross bars (CB) can be different. In all tables the first value is the distance between of the bearing bars, the second

value is the distance between the cross bars. We would like to illustrate this here using an example of 33.3 x 11.1 and 11.1 x 33.3 (distance from the centre of the bar to the centre of the bar).



Support beam centres

Is the centre-to-centre distance of the support in the direction of the bearing bar.

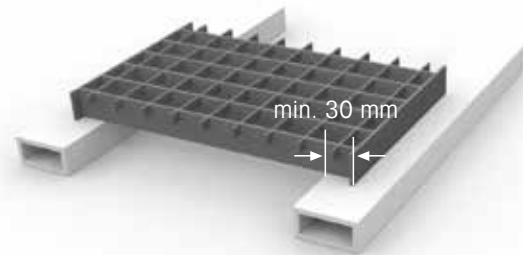
Clear Span

Is the clear distance between two supports.



Grating landing

The term „grating landing“ is used to describe the length of the bearing bar ends which lie on the support structure. It should correspond to the height of the bearing bars, but also be at minimum of 30 mm.



Installation / Erection clearance

The installation clearance is used during assembly to compensate for tolerances between the steel structure and grating.



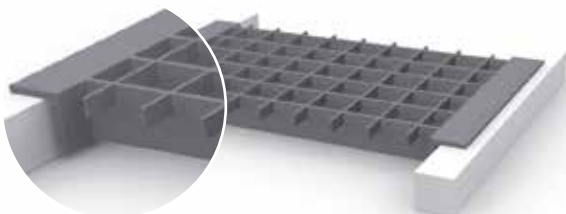
Cut-outs

If the total length of the cutout is less than 0.5 mm, we call this a „Small Cut-Out“.



Angle collar

A bracket welded on one or more sides to the grating. The span of the bracket should correspond at least to the height of the bearing bar in this version.



Z-shaped section / MEISER special angle collar

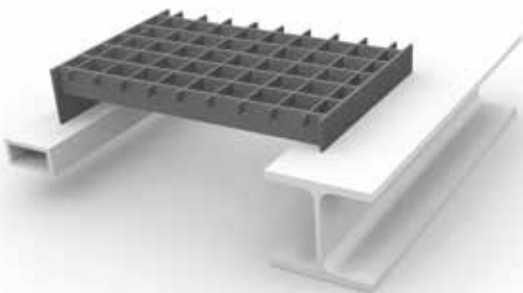
Angle section with two folds, similar to the angle collar, in which the section protrudes into a notch in the bearing bar.





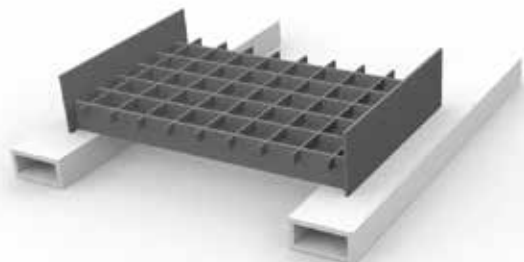
Deep Banding

Reinforced and raised edge surround downwards, e.g. in order to achieve a certain installation height.



Kick Plate

A raised surround plate, also known as a toe plate, is welded on, increases safety when walked on and protects against sliding at the grating edge. This is necessary if the clearance between the grating and the adjacent component is more than 30 mm.

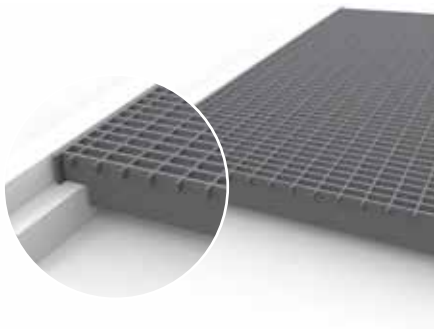




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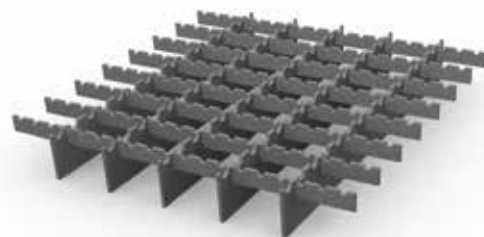
Notched bearing bar

Special notching of the bearing bars and the panel banding bars local to the support structure (notches should be not more than half the height of the bearing bars).



Anti-skid-properties (Serrations)

Notching of bearing and cross bars to increase slip resistance.



MEISER has its own slitting plants, wire drawing devices and cold rolling centres. We are therefore able to design a grating exactly in accordance with the requirements and wishes of our customers. Here, oversizing makes little sense, while undersizing must be avoided under all circumstances. The ideal combination of material thickness and height, associated with the matching steel quality, ensures the greatest possible economic benefits. That is our aspiration - not more and not less. We would like to explain the best-known versions to you below:

Steel grades

S 235 JR (DIN EN 10025-2)

S235JR has proven its worth due to its good weldability, malleability and strength.

S 275 JR (DIN EN 10025)

S275 JR displays comparable product characteristics to S235, although it stands out due to its somewhat higher tensile strength and resilience.

S 355 JR (DIN EN 10025)

The most important steels in the building industry are not only the well-known concrete steels, but also the steel grades S235JR and S355JR.

All of the materials referred to have no passive layer and therefore have to be protected against corrosion. Indoors a primer with an additional coat of paint is sufficient for this. At least hot dip galvanisation is required out of doors.

High-grade steel

The material non-rusting high-grade steel combines beneficial properties which have today become indispensable for many fields of application. Nevertheless, it is important to know which types of high-grade steel are particularly suitable for the intended purpose, since there is no universal material that can be used everywhere. Two generic terms are generally used in Germany: V2A or 1.4301 is a high-grade steel that is often found in everyday use, for example in the construction of bani-

Aluminium

Aluminium has been increasingly used over the past few years as a construction material. Its numerous beneficial properties make aluminium an interesting and competitive alternative to steel, and in the list of the most commonly used metals it is behind steel in second position.

COR-TEN

Under the actual rust layer, COR-TEN steels form a particularly dense barrier layer as a result of weathering, which consists of adhesive sulphates or phosphates and protects the component against further corrosion. A distinction is made between Corten A and Corten B. Corten B ASTM A 588 material no. 1.8963, EN 10027-1: S 355J2W is not phosphorus-alloyed, ap-

Material no.	Tensile strength	Yield strength	Elongation at rupture*
	Rm N/mm ² min.	ReL N/mm ² min.	
1.0038	360 - 510	≥ 235	26%

Material no.	Tensile strength	Yield strength	Elongation at rupture*
	Rm N/mm ² min.	ReL N/mm ² min.	
1.0044	430 - 580	≥ 275	23%

Material no.	Tensile strength	Yield strength	Elongation at rupture*
	Rm N/mm ² min.	ReL N/mm ² min.	
1.0045	510 - 680	≥ 355	22%

* Data applicable for product thickness from 3 mm to 40 mm and longitudinal test specimen with $L_0=5,65 \cdot S_0$

sters, vehicles and sinks. V4A or 1.4571 is similar to V2A, but is additionally alloyed with 2 % molybdenum (Mo). This means that the high-grade steel is more resistant to corrosion in chloride-containing media. V4A high-grade steel is used in areas, for example, which come into permanent contact with salt water, in swimming baths and the chemical industry. It is also possible to pickle and polish the surface of high-grade steel. This process is described in detail on the following page.

The specific weight of aluminium is only 2.7 kg/dm (approx. 1/3 of the weight of steel), which in conjunction with its relatively high strength and good welding properties means that in many applications it enables significant weight savings compared to steel structures.

proved by the building authorities, can be readily welded and offers good cold and hot workability. Owing to its insensitivity to the effects of the weather and its characteristic patina, COR-TEN steel is also used to provide highlights in architecture, for example in the case of facade cladding.

Galvanised products in general

Our galvanising plants in Limbach and Oelsnitz are among the most modern hot-dip galvanising plants in Europe. The systems' modern design allows MEISER to operate completely without pollutants.

Every product to be galvanised is first picked up autonomously by the traverse and guided through the plant. During the previous production step, oils and fats are used on the gratings to reduce machine wear. Before the gratings can be galvanised, however, their surface must be free of any contamination. Likewise, they must also be freed from all rust particles and metal dust. To do this, the grates pass through a series of rinsing and acid tanks. This chemical pre-treatment is an environmentally sensitive process and takes place in a fully enclosed area; during this process the environment is protected, as all emissions are fed into a complex filter system. The fully automated system now moves the workpieces to the zinc tanks. In the zinc bath the grates are coated with liquid metal heated to a temperature of 450 degrees. An exhaust air and dust filter system are used here to protect both people and the environment. In this way, we create a safe and modern working environment for our employees. Hot-dip galvanising provides our products with many years of corrosion protection and is the final step in the manufacturing process. Now, that they have undergone a highly efficient finishing process, they are on their way to you, our customers.



TOP: GALVANISING PLANT LIMBACH
BOTTOM: GALVANISING PLANT OELSnitz



Surface refinement

MEISER grating is characterised by durability and high quality. This crucially depends on the correct surface treatment. In this respect we offer our customers numerous possibilities - be this with the focus on functionality or aesthetics. For the selection of the surface treatment there are various factors which are decisive: the personal preferences of our customer, their budget and questions of corrosion protection.

Hot dip galvanising

MEISER grating manufactured from mild steel is usually hot dip galvanised. In our new plants in Limbach and Oelsnitz, which we put into operation in 2011 and 2020, this is carried out in accordance with the specifications of DIN EN ISO 1461. State-of-the-art galvanising and environmental technology guarantee long-term corrosion protection which is able to withstand the usual mechanical and chemical stresses without problems.



Powder coating

If you would like to have your grating supplied in various colours, powder coating is the least expensive and most durable solution. In this process the grating is initially degreased in immersion baths, pickled and zinc-phosphated. Then the powder coating material is applied electrostatically and baked at approximately 180° C.



Particularly durable corrosion protection is offered by the MEISER DUPLEX coating, which consists of hot dip galvanising with subsequent powder coating. The powder coating is available in all possible RAL colours in various degrees of gloss and surface structures. Moreover, we are able to provide the necessary layer thicknesses for all feasible applications from C1 to C5-M.

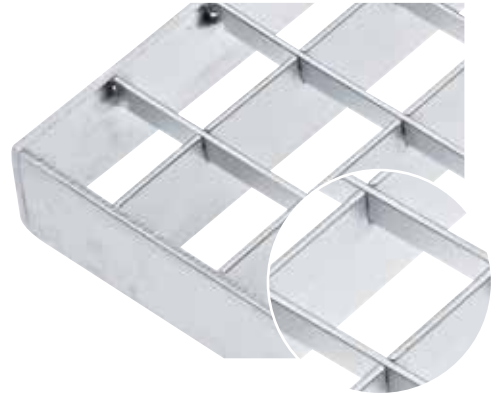
Pickling (high-grade steel)

MEISER high-grade steel grating is usually pickled after production, as during manufacture the welding process results in scale and discolouration, which in turn represent potential points of attack for corrosion. In the pickling process the grating is immersed in a pickling bath, as a result of which they are provided with a metallically pure and protected surface.



Electro-chemical-polishing (high-grade steel)

The electropolishing process represents a reversal of the electroplating process. Under the influence of direct current, metal is removed in an electrolyte from the anodic surface of the workpiece. The result is smooth and shiny surfaces which display a high level of corrosion resistance and is very easy to clean.



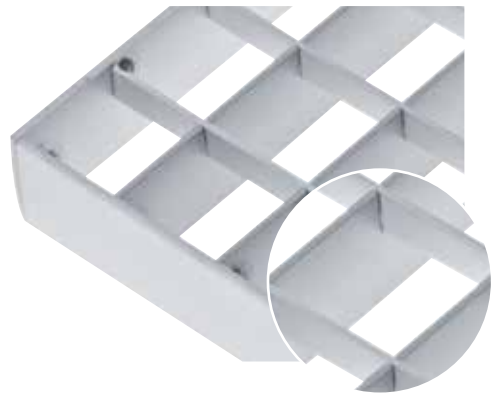
Glass bead blasting

Through the use of glass beads as blasting material, MEISER grating made of chrome steel and aluminium are further refined. Blasting techniques serve to specifically create matt or semi-gloss surfaces and to cover surface defects in the material. The resulting semi-gloss effect is permanently retained. The surface is cleaned of adhesive foreign particles and also strengthened, as a result of which its durability may be prolonged.



Anodising (aluminium)

MEISER grating made of aluminium is anodised as standard in order to prevent oxidation. In the anodising process, which as a rule is carried out in an immersion bath, the material is initially degreased and pickled before the actual anodising process is performed. Here, the chemical process of electrolysis is used, with an oxidised protective layer being created on the aluminium. This can be coloured if the natural aluminium colour is not desired.

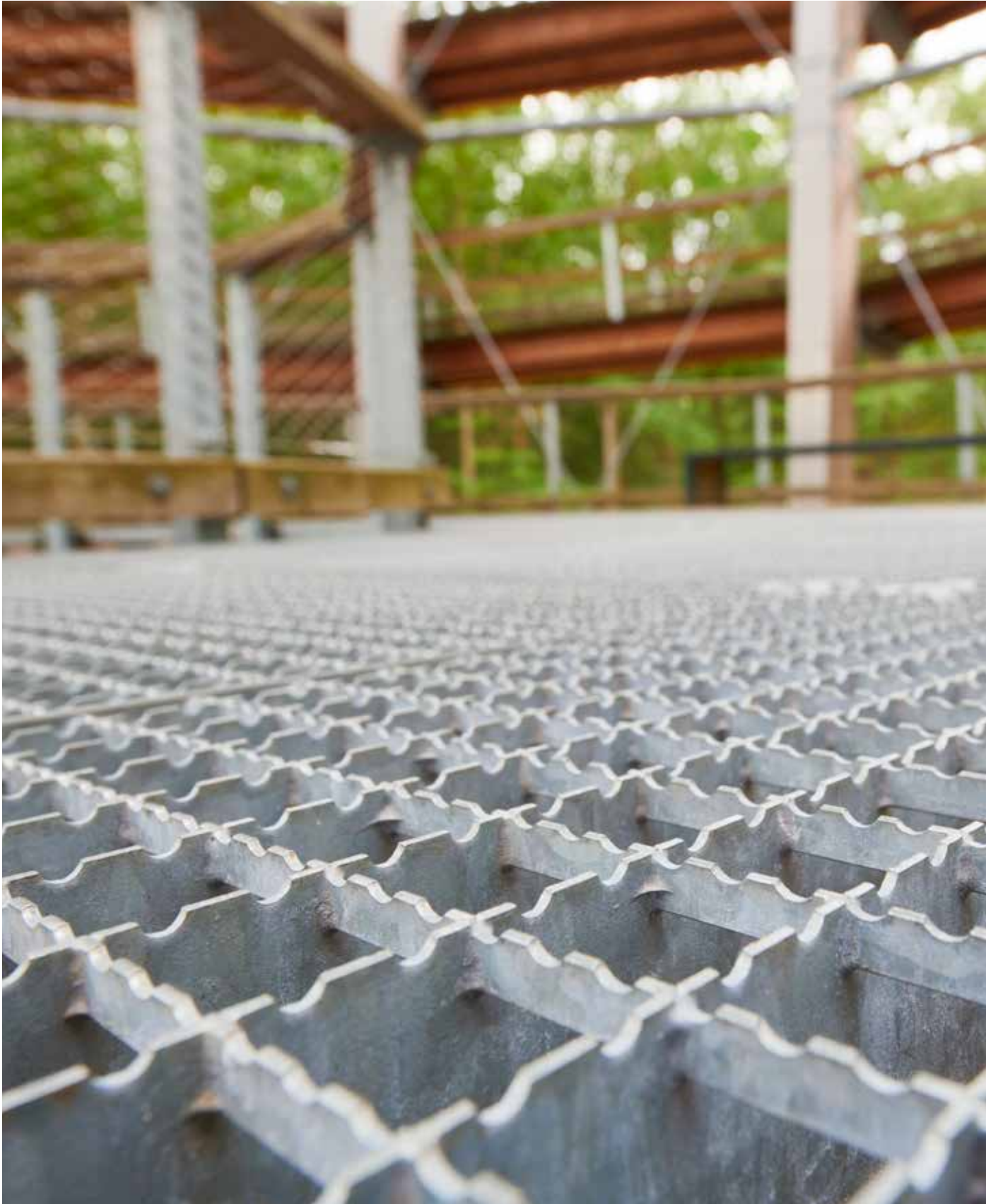


Cathodic immersion bath coating (CDC)

CDC is a good combination of corrosion protection, quality, cost-effective and environmental friendly. Corrosion protection that offers good resistance to mechanical and chemical stress. The underlying physical principle in electro-coating consists in attracting materials with opposite charges and producing very good adhesion as a result.

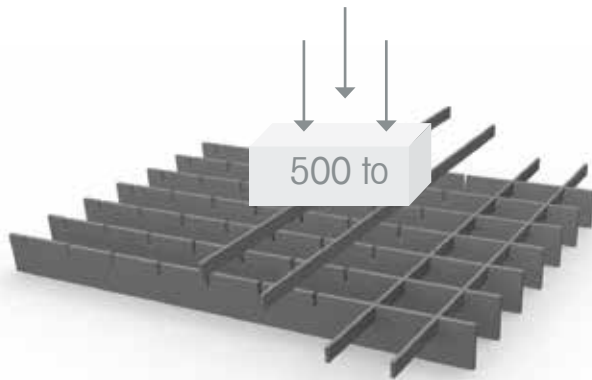
Before the coating process a direct current is applied to the workpiece, which is subsequently immersed in a coating bath with oppositely charged coating particles. In order to achieve maximum resistance of the coating, the film subsequently hardens at approximately 180° Celsius in the baking oven. Various layer thicknesses are possible, although the colour selection is limited.







————— PRESS LOCKED
GRATING



MEISER Press Locked Grating

The press locked grating is the most commonly used type of grating in many European countries today. Thanks to a production technology which differs significantly from that used for the press welded grating, and which enables a much greater variety of products, this type of grating provides for an almost unlimited number of applications. Its design allows for great flexibility regarding the mesh size and the height and thickness of the bearing bars. In combination with the variety of materials from which press locked grating can be manufactured, we produce grating that are exactly in line with the customer's wishes and the intended use. We do not claim that the press locked grating is the better grating, but it is certainly the more attractive and individually customised grating compared to the press welded grating.

For a press locked grating, the cross bars – which as a rule are made of cold-rolled flat steel – are pressed into the previously punched-out bearing bars. The bearing bars are designed as T-shaped or flat sections, and are attached by means of automatic resistance welding. If there is an increased risk of slipping, press locked grating can be manufactured in an anti-skid design. For this, the bearing and/or cross bars are notched on the upper side. With press locked grating, the opposite end meshes are usually of equal size. But here, too, applies what has been said above: there is almost no limit to the imaginable uses and designs of press locked grating.

Common mesh spacing for bearing bars from 2 to 3 mm									
Bearing bar	Cross bar								
11,1	11,1	16,65	-	22,2	33,3	44,4	49,95	66,6	99,9
21	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
22,2	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
33,3	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
44,4	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
55,5	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
66,6	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9
99,9	11,1	16,65	21,0	22,2	33,3	44,4	49,95	66,6	99,9

Common mesh spacing for bearing bars from 4 to 5 mm								
Bearing bar	Cross bar							
21	16,65	22,2	33,3	44,4	50	66,6	99,9	
25	16,65	22,2	33,3	44,4	50	66,6	99,9	
33,3	16,65	22,2	33,3	44,4	50	66,6	99,9	
50	16,65	22,2	33,3	44,4	50	66,6	99,9	
66,6	16,65	22,2	33,3	44,4	50	66,6	99,9	
99,9	16,65	22,2	33,3	44,4	50	66,6	99,9	

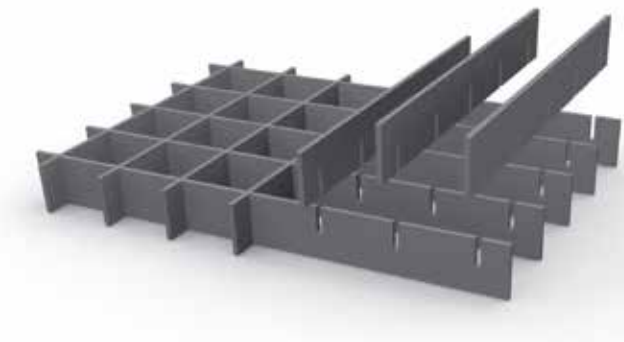
We will of course be pleased to fulfil any special wishes that you may have!

Standard bearing bar profiles

Bearing bar			
2 mm	3 mm	4 mm	5 mm
20/2	20/3	-	-
25/2	25/3	25/4	25/5
30/2	30/3	30/4	30/5
35/2	35/3	35/4	35/5
40/2	40/3	40/4	40/5
45/2	45/3	45/4	45/5
50/2	50/3	50/4	50/5
-	60/3	60/4	60/5
-	70/3	70/4	70/5
-	80/3	80/4	80/5
-	90/3	90/4	90/5
-	100/3	100/4	100/5
-	-	-	110/5
-	-	-	120/5
-	-	-	130/5
-	-	-	140/5
-	-	-	150/5
-	-	-	160/5
-	-	-	170/5

The possible uses of grating is very varied. It is possible to find a suitable design for every application. Besides the conventional press locked grating or press welded grating, there is also a great variety of special solutions, which we would like to present to you in greater detail below. Heavy duty grating can be driven over by heavy equipment, while full grating or finned

grating are increasingly finding favour among architects, as with this type of grating it is possible to create certain highlights in the design of the facade. The possible applications and the design of grating is almost limitless. We will be pleased to advise you so that together we can find the perfect solution for your application.



Full Grating

Full grating bear this name because the bearing and cross bars have the same cross-section and are therefore of equal height. A bearing bar is one whose ends are both supported and whose underside is not slotted. The advantage compared to the normal press locked grating is its improved screening and the attractive design.

Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm	Bearing bar 5 mm
25/2	25/3	-
30/2	30/3	30/5
35/2	35/3	35/5
40/2	40/3	40/5
45/2	45/3	45/5
50/2	50/3	50/5
-	60/3	60/5
-	70/3	70/5
-	80/3	-
-	90/3	-
-	100/3	-

Common mesh spacing for bearing bars from 2 to 3 mm					
Tragstab	Füllstab				
22,2	16,65	22,2	-	44,4	66,6
33,3	16,65	22,2	33,3	-	66,6
44,4	16,65	22,2	-	44,4	-
66,6	16,65	22,2	33,3	-	66,6

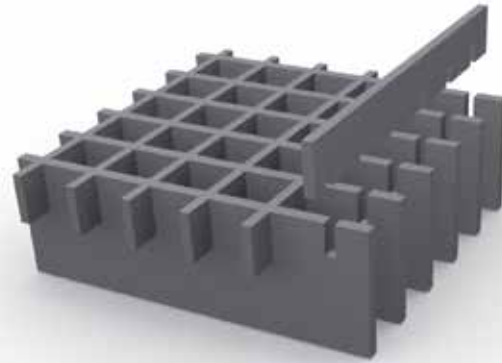
Common mesh spacing for bearing bars 5 mm				
Bearing bar	Cross bar			
33,3	16,65	33,3	66,6	99,9
66,6	16,65	33,3	66,6	-
99,9	16,65	33,3	-	99,9

Heavy duty grating

From the name you can guess the intended application of the MEISER heavy duty grating. This is press locked grating with particularly deep and/or thick bearing bars. The dimensions of the cross bar are adapted accordingly.

Counter gear teeth during the pressing process gives the MEISER heavy duty grating additional stability, so that surface loads of more than 50 tonnes and wheel loads of 10 tonnes can be withstood without difficulty.

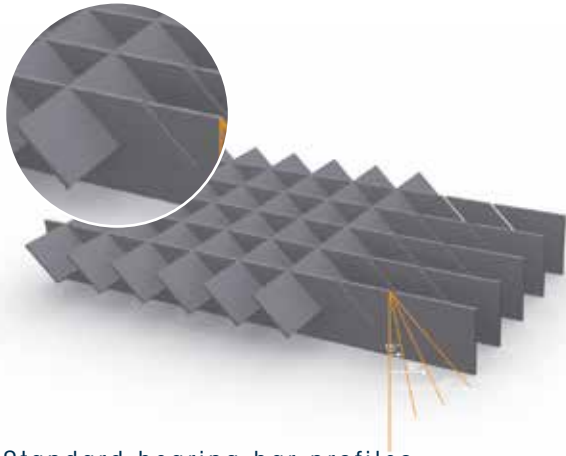
We adapt the exact design from case to case to the width between supports and the intended use. Production in high-grade steel is also possible.



Standard bearing bar profiles

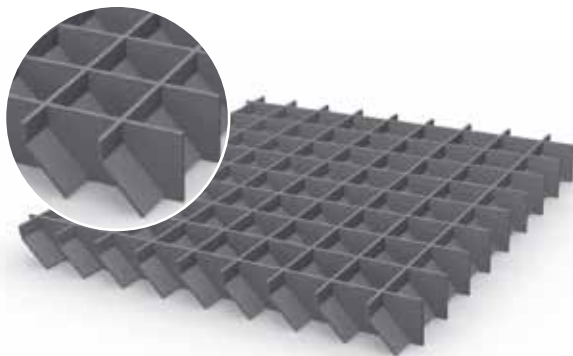
Bearing bar 8 mm	Bearing bar 10 mm	Bearing bar 12 mm
80/8	80/10	-
90/8	90/10	-
100/8	100/10	100/12
110/8	110/10	110/12
120/8	120/10	120/12
130/8	130/10	130/12
140/8	140/10	140/12
150/8	150/10	150/12
-	-	160/12
-	-	170/12
-	-	180/12
-	-	190/12
-	-	200/12

Common mesh spacing			
Bearing bar	Cross bar		
25	50	75	100
50	50	75	100
75	50	75	100
100	50	75	100



Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm
30/2	30/3
35/2	35/3
40/2	40/3
45/2	45/3
50/2	50/3
-	60/3
-	70/3
-	80/3
-	90/3
-	100/3



Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm
30/2	30/3
35/2	35/3
40/2	40/3
45/2	45/3
50/2	50/3

First size mentioned = bearing bar direction; external grating dimensions

Louvre Grating

Less transparency is sometimes what is required. In these cases the louvre grating is used. There are a large number of applications, which are not restricted only to floor coverings in the case of bridges, walkways and crossovers. As a sun shield or cladding element, the louvre grating is also used in the case of ventilation grilles, facades and suspended ceilings.

MEISER offers louvre grating in steel, aluminium and high-grade steel. The cross bars can be pressed in at an angle of 15°, 30° or 45°, so that varying degrees of transparency can be achieved. Please note in your planning that for this type of grating we are only able to produce cross bar lengths of up to 1,500 mm.

Note: A 15° crossbar inclination is technically only possible with a bearing bar thickness of 3 mm. Please contact us in advance.

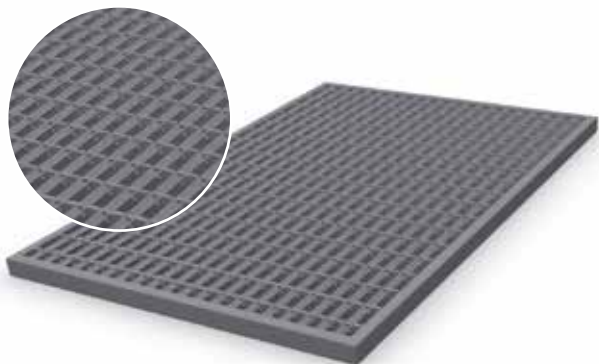
Common mesh spacing			
Bearing bar	Cross bar		
33,3	22,2	33,3	66,6
66,6	22,2	33,3	66,6
99,9	22,2	33,3	66,6

Full Press Locked Louvre Grating

This special design of the louvre grating combines the technical properties of a conventional press locked grating and full grating with the attractive design of a louvre grating. The full press locked louvre grating is particularly suitable not only as facade cladding, but also as a crossover or walkway covering due to its static advantages.

The angle of the cross bars can be freely selected in this version. The load-bearing capacity of the full press locked louvre grating benefits from the very small punch depth of the bearing bars, which is only 10 mm. MEISER offers the full press locked louvre grating in steel, aluminium and high-grade steel. A notching in the bearing bars is possible, so that this version also offers a high level of slip resistance. Please note in your planning that for this type of grating we can only produce cross bar lengths up to 1,250 mm.

Common mesh spacing				
Bearing bar	Cross bar			
22,2	22,2	33,3	44,4	66,6
33,3	22,2	33,3	44,4	66,6
44,4	22,2	33,3	44,4	66,6
66,6	22,2	33,3	44,4	66,6
99,9	22,2	33,3	44,4	66,6



Patent Grating

The MEISER patent grating is produced with a patented punch press connection, surrounded with a U-shaped section and hot dip galvanised. The V-shaped cross bars produce a high degree of stiffness and an outstanding wiping effect.

The patent grating is therefore primarily used as a high-quality boot scraper and an extremely stable and resilient light well grating. A suitable angle frame with punched wall anchors can be supplied upon request.

The patent grating is produced exclusively by MEISER.

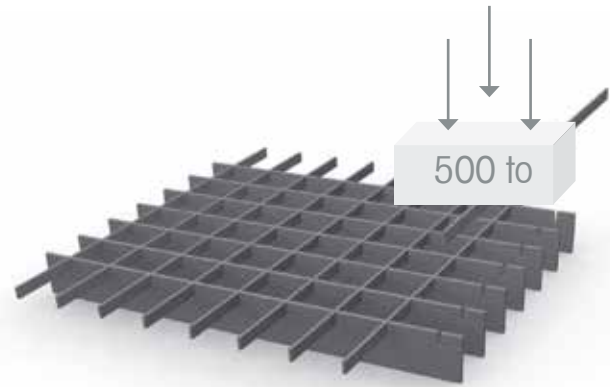
Mesh width	Grating height	Bearing bar
31/24 mm	20 mm	2 mm



Ultra Grating

MEISER developed the ultra grating many years ago in order to offer cut-to-size companies an alternative to the conventional press welded mats in the form of a press locked grating design. Specially developed joining technology guarantees a solid connection between the bearing and cross bars. The ultra grating mat is therefore ideally suited for further processing, as it is almost impossible for the cross bars to become loose during sawing.

The ultra grating mat is also available in cross bar lengths up to 1,500 mm, so that the offcuts are significantly smaller in comparison to the press welded mat. The ultra grating mat is always trimmed and available in our stock programme in various mesh spacing and sizes. Upon request, the cross bar side can also be edged.



Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm
25/2	25/3
30/2	30/3
35/2	35/3
40/2	40/3

Common mesh spacing

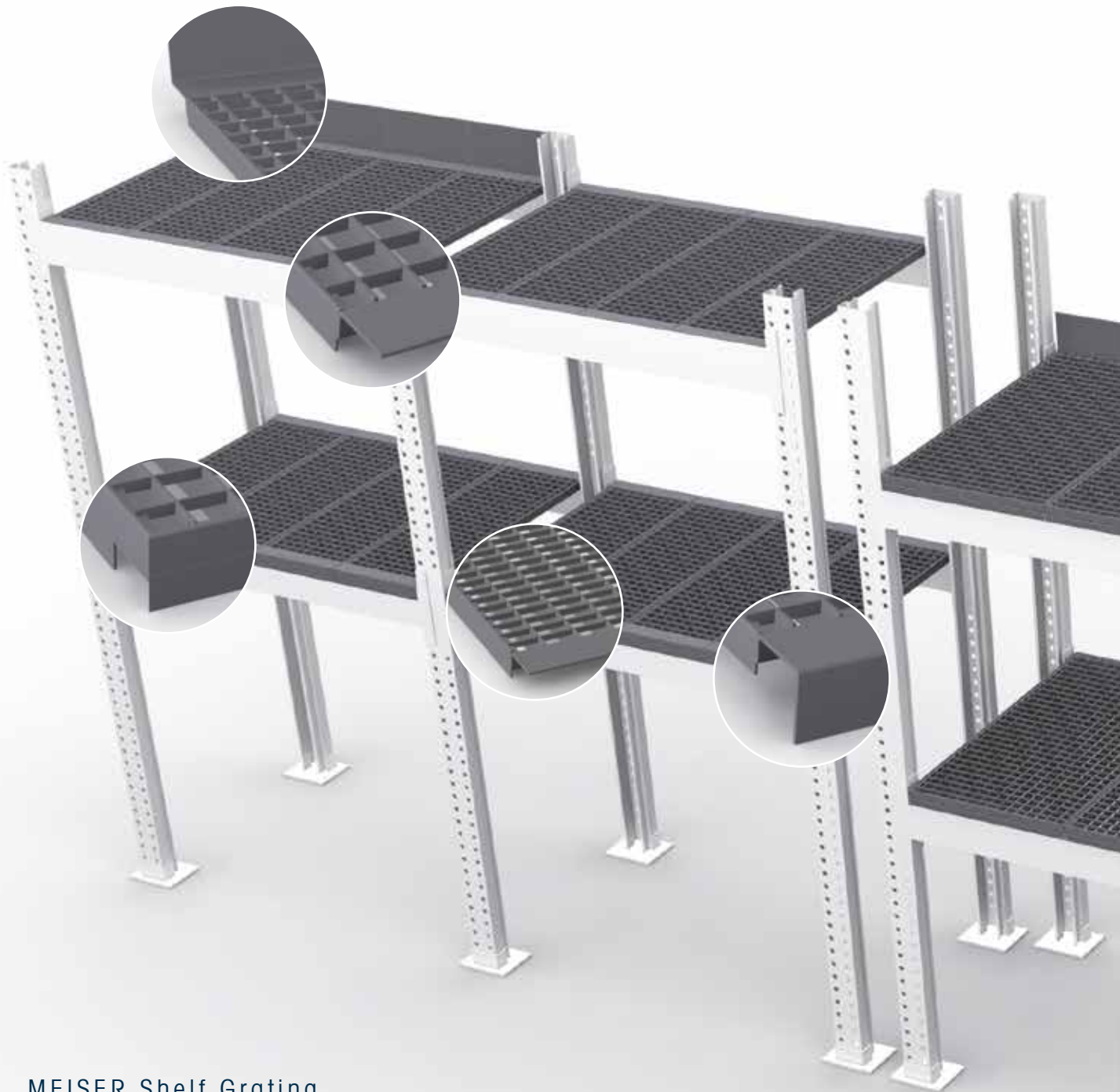
Bearing bar	Cross bar		
33,3	33,3	66,6	99,9
66,6	33,3	66,6	99,9







SHELF GRATING



MEISER Shelf Grating

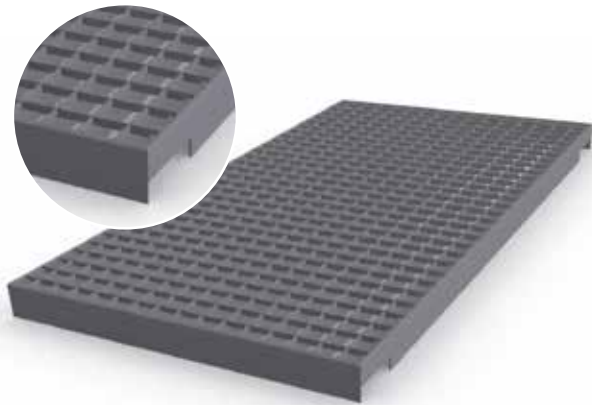
MEISER shelf grating offers decisive advantages within logistics systems compared to other shelf coverings. In addition to their durability, they are above all permeable to light and water. This is a key feature when sprinkler systems are used. The high degree of transparency of the grating means that plenty of light is able to enter, thus providing high brightness levels in the logistics system; moreover, the items stored on the shelves can be identified from below.

Ingenious detailed solutions mean that the grating is easily installed and offers the additional integrated benefits. On the following pages we present our solutions, which have been developed together with the leading suppliers of logistics systems.



Loose-fitting designs

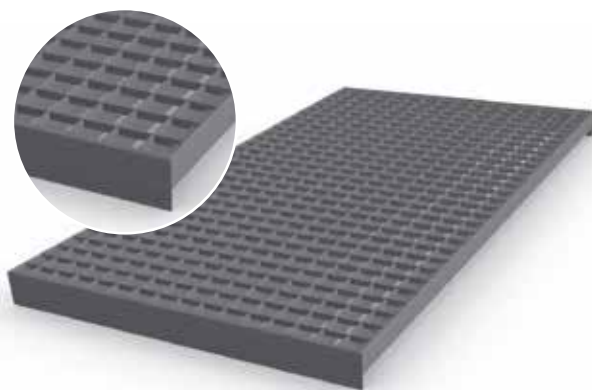
These versions of the MEISER shelf grating can be easily locked in place on the cross-members of the shelf structure. To this purpose, the T-shaped section surround, which is extended downwards, is provided with notches that are specifically adapted to the width of the cross-member.



The notches are punched up to the height of the bearing bars, so that the bearing bars are located flush on the cross-member and help to improve the statics. Further specific adjustments can be carried out, which are described below.

Shelf grating with notched T-shaped section bearing bars

This is the standard design, which can be manufactured at low cost and which is suitable for various shelves of the same depth, but with different cross-members.



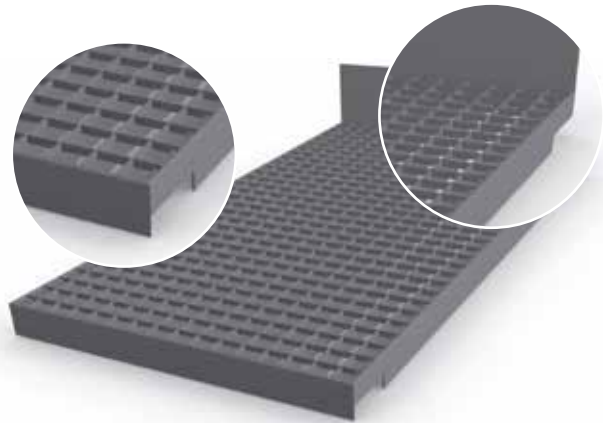
Shelf grating, bearing bar with raised edge surround

This grating has a raised edge surround, albeit only at the ends of the bearing bars. The locking function is therefore less pronounced, but the possible applications are somewhat more flexible, as it is not necessary to use a specific cross-member width.

Shelf grating, notched with push-through protection

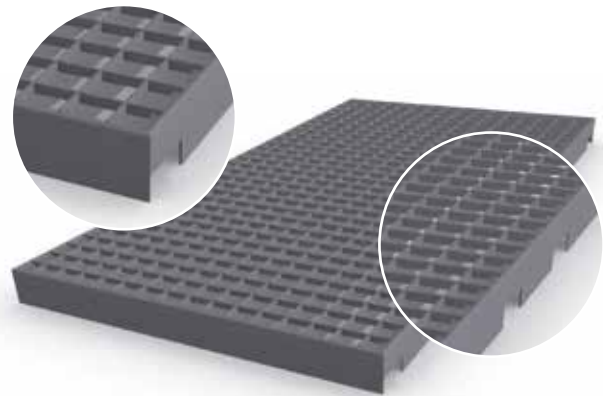
Push-through protection is an important safety element in shelf systems. If this has to be installed separately, it is associated with considerable costs.

MEISER has a shelf grating with integrated push-through protection in its range. The rear is edged with a reinforced flat bars, the height of which can be freely selected.



Shelf grating with additional notches in the area of the rests for double shelves

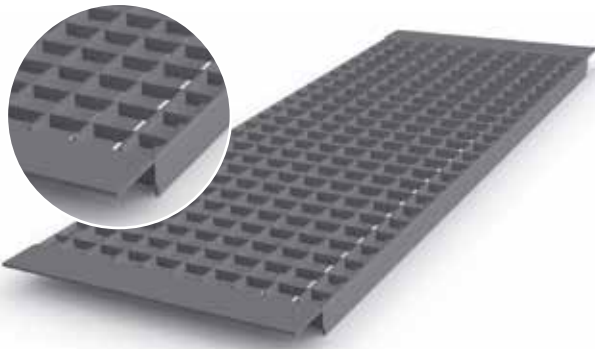
For so-called double shelves, MEISER has also developed a special type of grating. Additional notches allow a continuous connection across the double shelves. This grating can also be quickly installed.



Inserted Designs

In addition to the loose-fitting versions, MEISER has also developed this solution. Here, the ends of the bearing bars are enclosed with a Z-shaped special section that is connected to the bearing bars by means of an automatic resistance welding process. This shelf grating is also very resilient as a result.

An important advantage of the inserted shelf grating is the improved effective height of the shelf spaces. Since this shelf grating is suspended between the longitudinal girders, the insertion height of a shelf is not reduced by the grating itself.



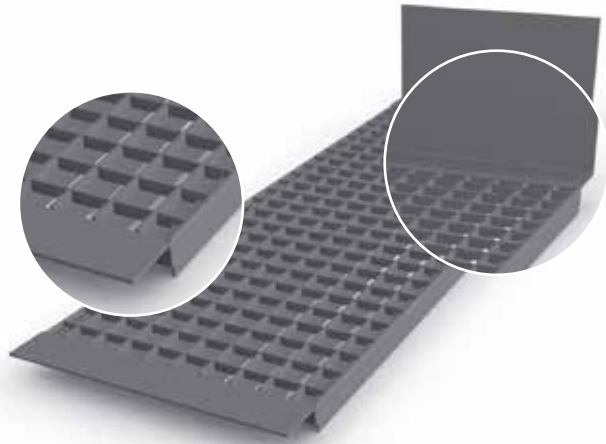
Shelf grating with Z-shaped angle section surround / MEISER special angle collar

This is the most common design of the inserted shelf grating. The angle collar used is a rolled section of our own design, which is inserted into the bearing bars and additionally welded.



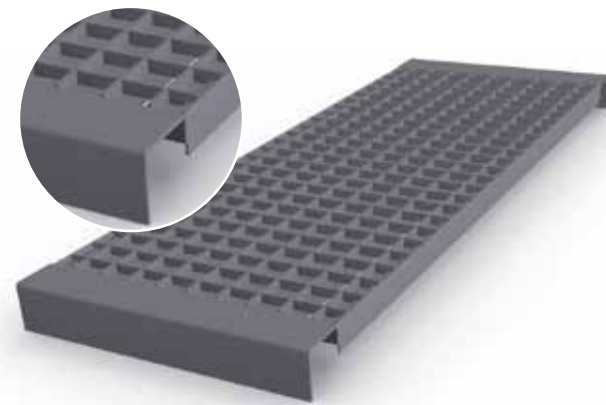
Shelf gratings with Z-shaped angle section surround and push-through protection

The inserted shelf grating is also available with push-through protection. In this case the Z-shaped special section is supplemented by an additional section, which prevents the goods from being pushed through.



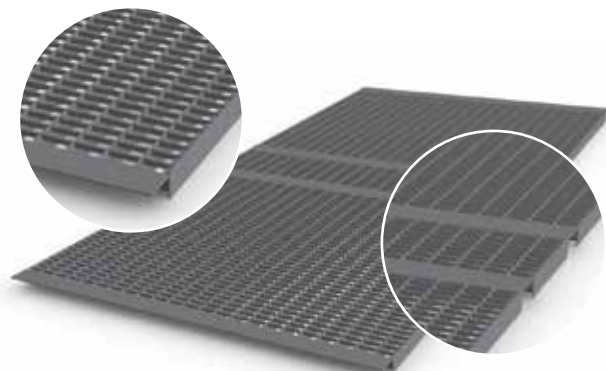
Shelf grating with U-shaped section surround

In this version, a rolled U-shaped section is welded to the ends of the bearing bars. The grating therefore lies within the shelves and is also locked with the cross-members by means of the U-shaped section. Additional safety will therefore be provided if the shelves are subjected to excessive loads.



Grating for Double Shelves

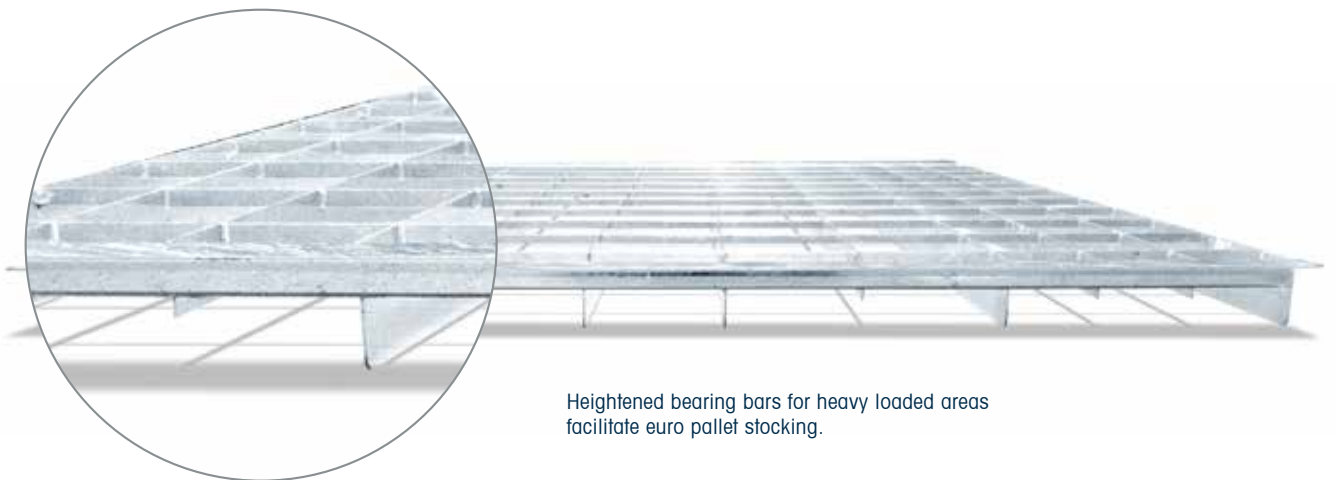
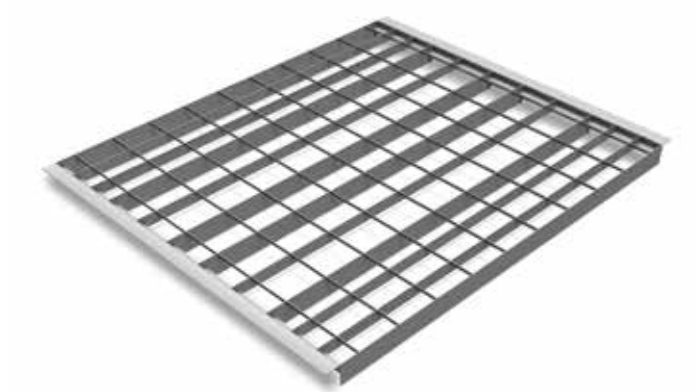
This shelf grating element consists of two grating panels which are connected by a U-shaped section in the central area of the rests to form a unit. This creates a continuous connection across the double shelves, with the full shelf height being retained.



MEISER Modul – Strong. Light. Reliable.

Standard gratings are usually provided with bearing bars of equal size. Storage racks though are often loaded with load carriers which are hardly moved so that some bearing bars are never strained. Due to fix dimensions and the implementation of higher and consequently more resilient bearing bars at positions where a higher payload can be expected, and lower bearing bars at less strained positions, a very light shelf grating can be realized.

Precise loading conditions and allowed payloads are already known. The modules are optimally designed for the use of euro pallets or half euro pallets, placed lengthwise or crosswise, and different, evenly distributed payloads.



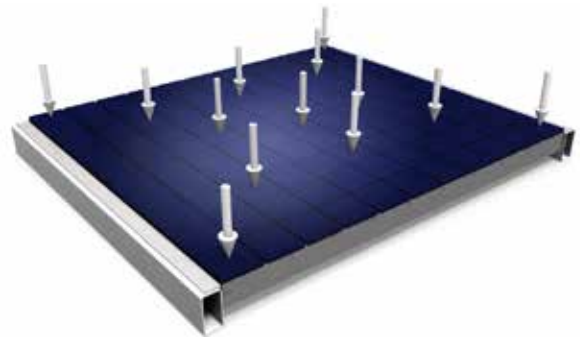
Heightened bearing bars for heavy loaded areas facilitate euro pallet stocking.

Load table and type overview

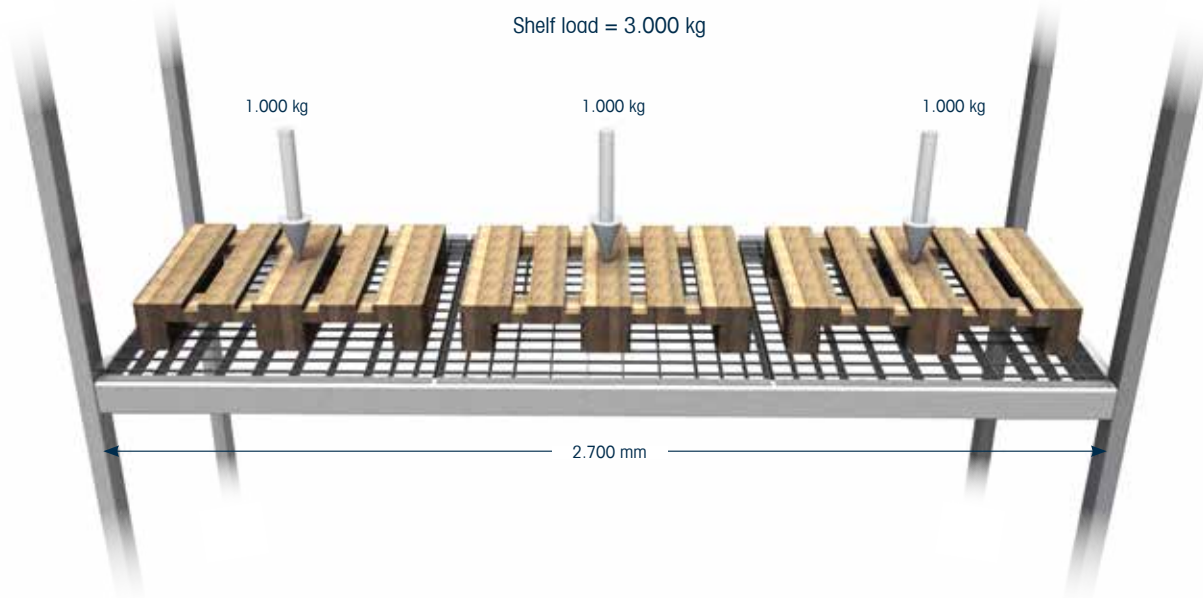
Payload (kg/grating)	Clear level/ bay depth (mm)	Width (mm)	Height (mm)	Material thickness (mm)	Mesh (mm)	
					BB	CB
1250	900 (895)	890	60	1,7	66(99)	66
	950 (945)	890	60	1,7		
	1000 (995)	890	60	1,7		
1000	900 (895)	890	60	1,5	66(99)	66
	950 (945)	890	60	1,5		
	1000 (995)	890	60	1,5		
800	900 (895)	890	55	1,5	66(99)	99
	950 (945)	890	55	1,5		
	1000 (995)	890	55	1,5		
500	900 (895)	890	50	1,5	66(99)	99
	950 (945)	890	50	1,5		
	1000 (995)	890	50	1,5		

MEISER produces 3 different grating types, each in 6 load categories. You will find the different types in the table, ordered downwards by maximum load.

The horizontal side of the Z-shaped profile is 40 mm for all grating types.



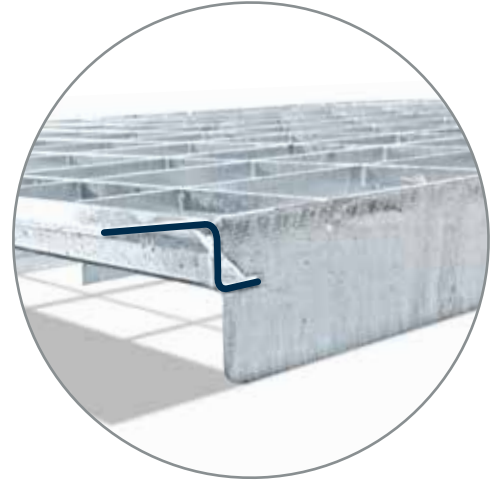
The composition of the MEISER module permits an evenly distributed payload.



Application example of 3 MEISER Modul gratings, 995 x 890 mm, hot dip galvanized, with a max. payload of 1.000 kg each.

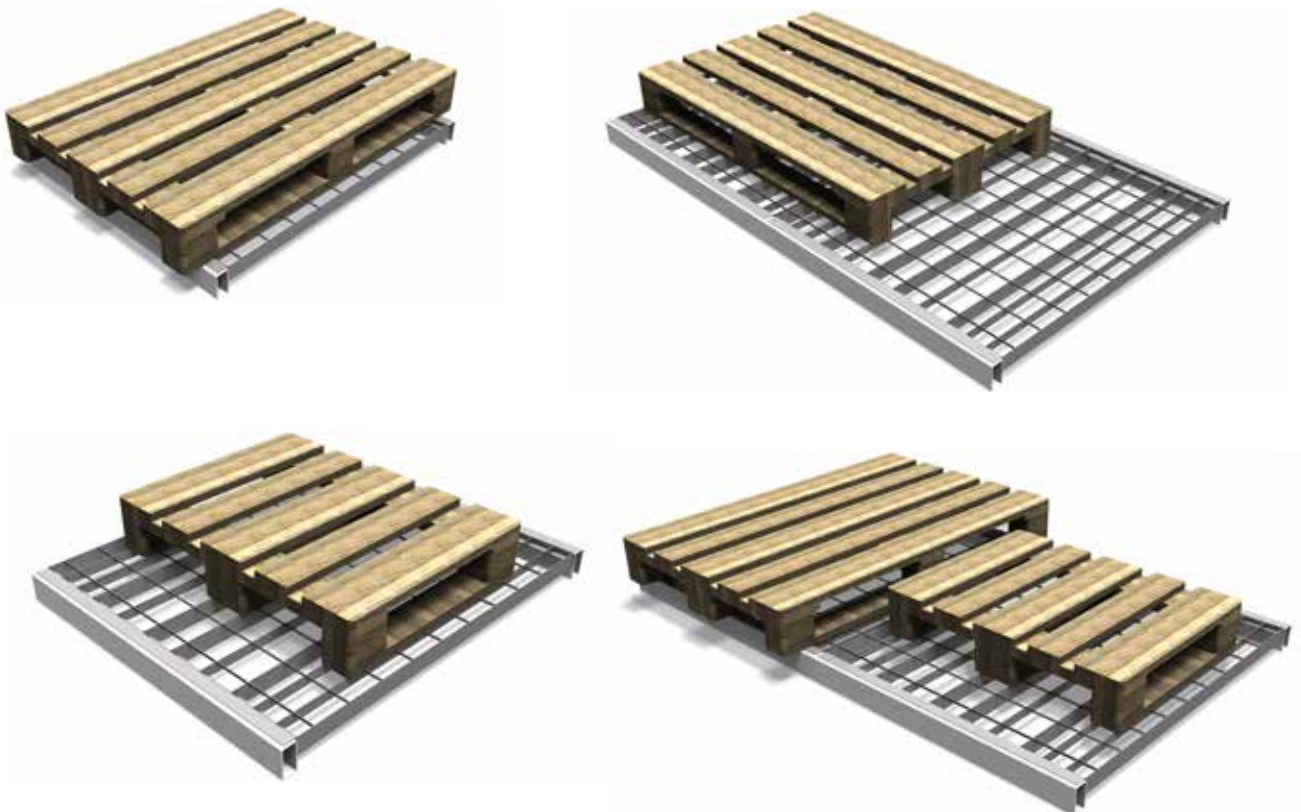
Advantages of the MEISER Modul

- provided with a Z-profile to insert the shelf grating (overlying installation height max. 2 mm)
- Simple choice of the load category (see table)
- Current dimensions for most shelves e. g. 1800 (2 parts), 2700 (3 parts), 3600 (4 parts)
- Fast delivery for stock products (small quantities on call order within 48h, large quantities on request)
- suitable for sprinkler systems (open cross section > 90%)
- little deflection under load (deflection < $L/200$)
=> in accordance to DIN EN15635
- low weight
- cost-efficient
- easily determine the maximum shelf load



With the Z-Profile ist is possible to insert the shelf grating.

Possibilities to store euro pallets and half euro pallets

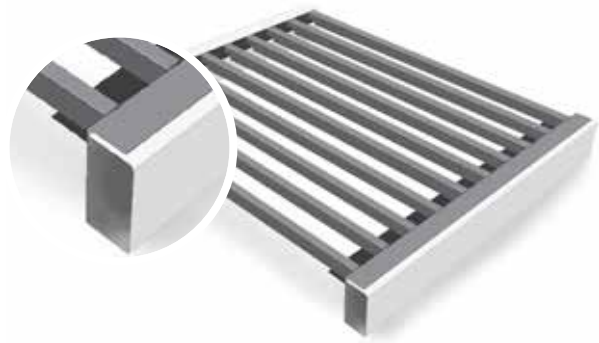


Product Specifications for U-Channel Shelf Grating

MEISER has always been at the forefront for reliability and progress. In our most recently developed product, the U-Channel grating, these two characteristics were impressively combined. MEISER has developed a grating which is capable of bearing up to 200* times its own weight.

This shelf grating was specifically developed for handling cardboard boxes. This patented design makes it possible to move these boxes on the deburred U-Channels without damaging them.

* Best theoretical ratio of distributed load in [kg / m²] to weight in [kg].



The U-Channel

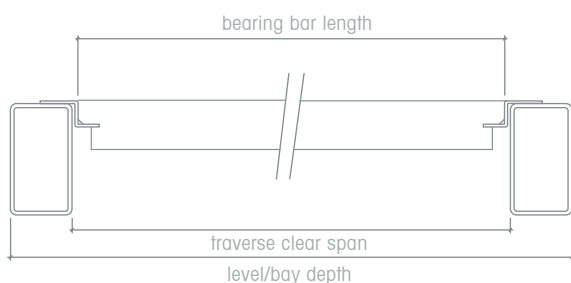
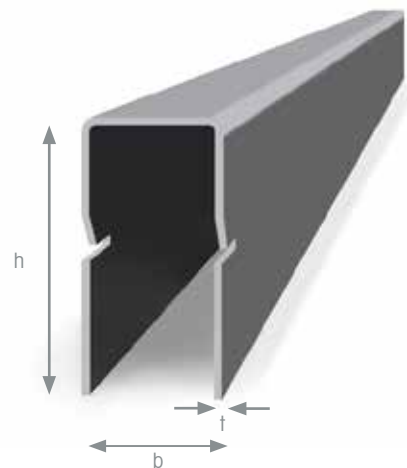
Bending strength and safety are crucial criteria in the construction of shelving or racking systems. The U-Channel undoubtedly lives up to these demanding standards.

The example below shows the U-Channel 20x30x1.

Width w = 20 mm

Height h = 30 mm - 40 mm

Thickness t = 1 mm



Inlaid shelf gratings

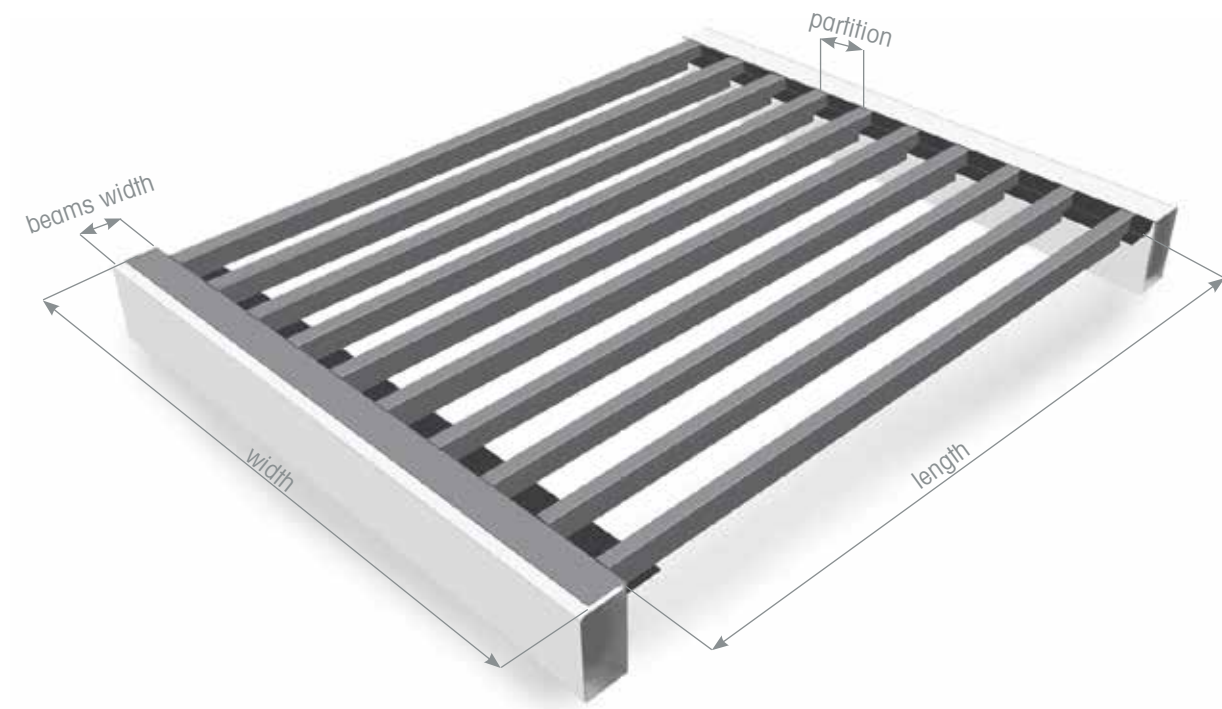
Inlaid product versions with z-profile are only offered with a pre-galvanized surface.

Grating Dimensions

The length of the grating also describes the length of the u-profile and corresponds to the (free) span of the shelf system. The U-channel shelf gratings are available in dimensions from 700 mm up to 1700 mm.

The width of the grating corresponds to the scheduled width of the shelf system, or portion thereof. This dimension indicates the pieces of U-profiles, which depends to the responsible partition of the bars. The most shelf systems will be manufactured in two or three parts. Shelf gratings are available with a width from 100 mm up to 1600 mm. However, the number of U-profiles is limited to 10 profiles per grating.

The partition of the profiles / bars is normally specified from axial dimension to axial dimension and is at least 70 mm. The „free span“ between each u-profile equals the axial dimension minus 20 mm. The span of each u-profile can be adjusted variable, so different axial dimensions within a grating can be realized. With bigger and smaller profile distances, the profile can support those areas where the load is the highest.



You have some special requirements to the MEISER U-channel shelf grating?
Contact us, we develop individual solutions for your shelf system.

Safety

If you choose to opt for a U-Channel shelf grating, you can be certain to receive a sophisticated product. Thanks to our own product development department there will be no weak

points. Prior to every order our structural engineers calculate the optimal structure of the grating and test it under real-life conditions to ensure its safe usage.

Layout and Performance

The new shelf grating not only looks good but also brings with it additional advantages:

- Open cross-section > 70%
- Perfect drainage for use in sprinkler-systems
- Ideal for handling loose cartons and boxes
- Variable dimensions possible
- Flat surface
- Low net weight
- High safety in case of accidental overload
- Simple installation
- Complies with requirements of DIN EN 15635

You need a shelf system that has to meet special requirements?

We develop tailor-made solutions based on your specifications.

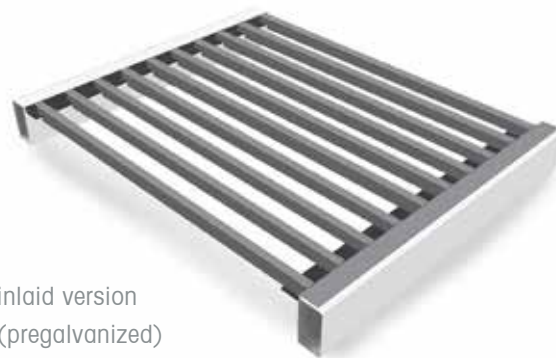


Product Versions

In order to meet the requirements of our customers, we have developed different versions of the U-Channel grating.

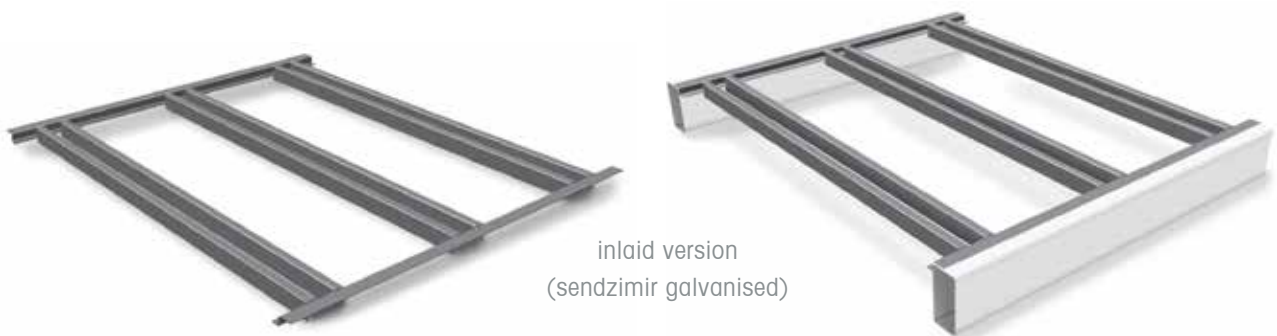
Standard-Version

This grating was specifically developed to store cardboard boxes with loads up to 1000 kg UDL. The loose-fitting version always has an upbulding height of 20 mm. The inserted version builds up max. 2mm on the beams.



Pallet-Version

This grating has been optimized for the support of Euro pallets and is only available in the inlaid version. It guarantees safe storage up to 1000 kg per pallet.

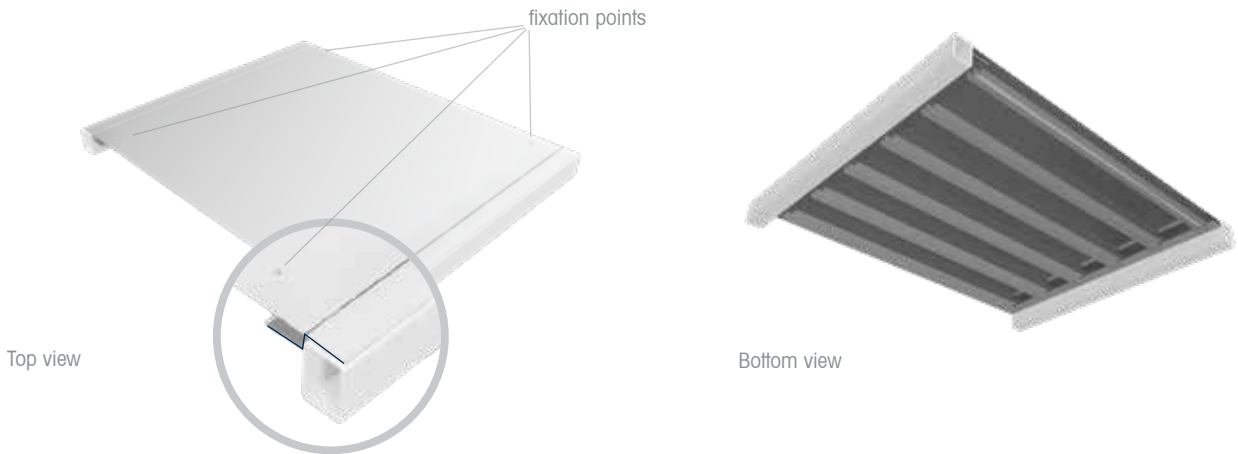


Versions with heat sink sheet metal

This grating was specifically developed for the fire protection requirements required by law. A 0.8 mm thick and pregalvanized smooth sheet metal is applied to the U-channels or, in the case of gratings, on the Z-profiles and thus functions as a heat sink.

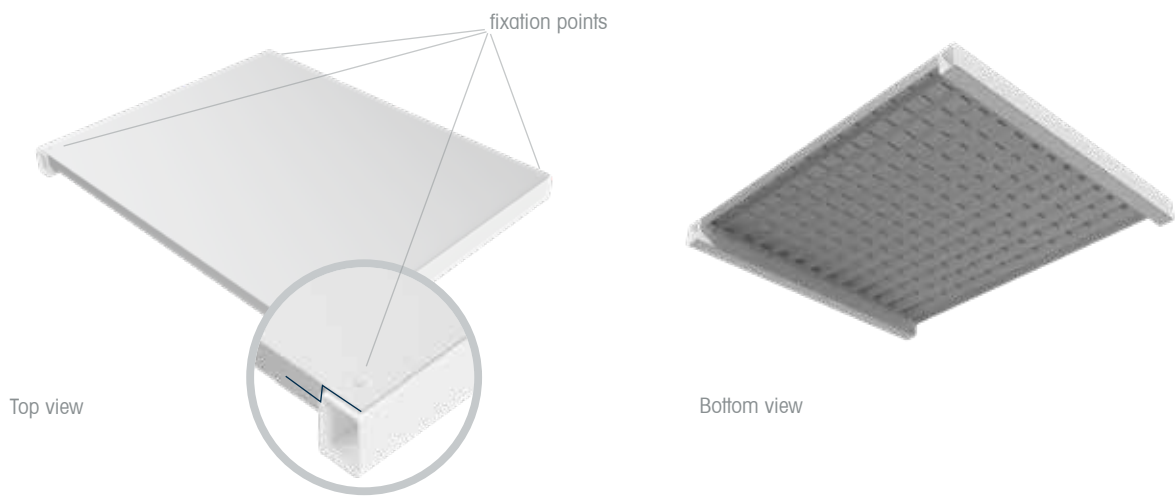
U-Channel-Version

(pregalvanized)



Grating-Version

(hot dip galvanized or pregalvanized)



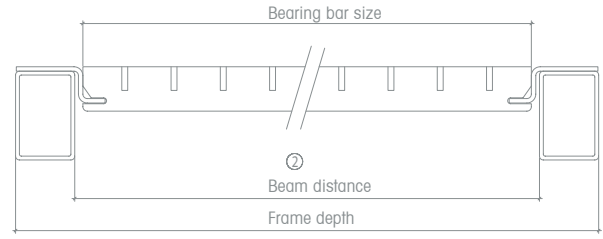
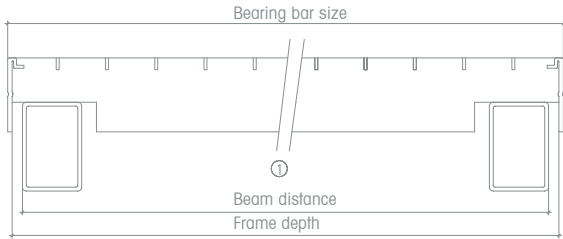


Checklist

Shelf Grating

Please use the checklist as a fax template to facilitate the ordering process.

Offer number/Project number _____



SHELF GRATING LOOSE-FITTING

SHELF GRATING INSERTED

Project data

Postcode/ZIP area _____ Delivery date _____ Contact person _____ Date _____

Grating Versions

- Loose-fitting grating with displacement prevention
- 30 x 30 mm
- Inserted grating with angle collar
- 30 x 60 mm

Mesh widths

- With specification
- No specification, to be optimised

Load Bearing

- per shelf (frame depth _____ mm x beam length _____ mm)
- _____ kg shelf load
- per m²
- Point loading

Bearing bar BB

- BB specification: _____
- BB optimised according to load

Dimensions				
Shelf load	Frame depth	Beam length		Quantity



Shelf
grating





————— PRESS WELDED
GRATING



Press Welded Grating

MEISER press welded grating is traditionally used in many areas of industry. The continuous welding of each individual intersection point of the bearing bar and cross bar produces an extremely stable and hard-wearing structure. The cross bars normally used in the press welded grating are twisted square wires, which are resistance welded to the bearing bars.

This is carried out under high pressure using automatic resistance welding. Manufacture is carried out on production lines that have been developed by ourselves, where we can produce made-to-measure grating panels without waste and in accordance with our customer wishes. This is achieved by the fact that our machines can produce panels with cross bar lengths of up to 1,250 mm, whilst other more conventional machines are restricted to 1,000 mm. Utilising our larger panel widths can give savings of up to 20 % in the number of fixings

required which obviously translates into bigger savings in installation time and labour costs. MEISER press welded grating is primarily used in the oil and gas industry, petro-chemical industry, mining industry and in power

Common mesh spacing							
Bearing bar	Cross bar						
15,08	-	-	-	38,1	50,8	76,2	101,6
17,15	-	-	-	38,1	50,8	76,2	101,6
20,77	-	24,0	-	38,1	50,8	76,2	101,6*
23,69	-	24,0	-	38,1	50,8	76,2	101,6*
25,00	-	-	-	-	-	76,2	101,6
30,15	-	-	-	38,1	50,8	76,2	101,6
33,00	-	-	31,75	-	-	-	-
34,30	19,25	24,0	-	38,1	50,8	76,2	101,6
41,45	-	24,0	-	38,1	50,8	76,2	101,6
45,23	-	-	-	38,1	50,8	76,2	101,6
51,45	-	-	-	38,1	50,8	76,2	101,6
60,30	-	24,0	-	38,1	50,8	76,2	101,6
68,60	-	24,0	-	38,1	50,8	76,2	101,6

*available with restrictions



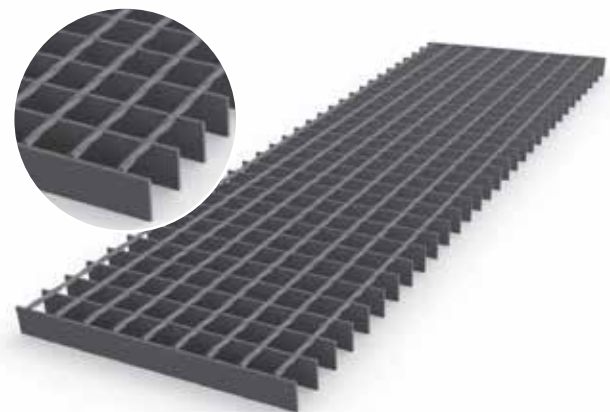
CELLULOSIC ETHANOL PLANT, STRAUBING

stations. Where strong shearing forces occur and platform flooring has to be changed frequently, the superiority of the press welded grating comes into its own. Steel fabricators also appreciate the press welded grating, whose stability is ideally suited to the subsequent working of materials. MEISER press welded grating panels are

normally banded with flat sections and can be produced in V2A and V4A with round or ribbed cross bars. Upon request, for grating manufactured in mild steel, the cross bars can be supplied in the size 7 mm (twisted) or 8 mm (ribbed).

Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm	Bearing bar 4 mm	Bearing bar 5 mm
20/2	20/3	20/4	20/5
25/2	25/3	25/4	25/5
30/2	30/3	30/4	30/5
35/2	35/3	35/4	35/5
40/2	40/3	40/4	40/5
45/2	45/3	45/4	45/5
50/2	50/3	50/4	50/5
-	60/3	60/4	60/5
-	70/3	70/4	70/5
-	80/3	80/4	80/5





Very narrow mesh spacing, less than 15.08 mm, which is sometimes required for safety reasons, cannot be produced for the press welded grating. If it is important to prevent the passage of small parts from platforms, a close-mesh press locked grating is the first choice. However, MEISER can address this restriction with respect to press welded grating by supplementing the standard press welded grating upon

request with perforated sheets. These are arranged between the bearing bars and welded to the cross bar. A ball with a diameter of 9 mm, i.e. a reference size that is often used, cannot fall through such a grating. Saarbahn GmbH in Saarbrücken has installed this type of press welded grating in its two-storey workshop halls in order to protect employees on the lower floor against falling objects.



The Sunliquid demonstration plant of Clariant AG is currently the largest plant in Germany for the production of bio-ethanol. The hazards associated with the production of bio-ethanol require high safety standards, which are fully met by MEISER press welded

grating. Not only their low flammability, but also their resistance to chemicals speak in favour of the use of MEISER press welded grating in the production of bio-ethanol.



Press
Welded
Grating

The production of polysilicon requires strict safety precautions and is associated with a potential hazard to employees and the environment. At the PV Crystalox Solar

PLC factory, MEISER press welded grating forms the ideal basis, particularly in the outdoor area, for safe working and the safe handling of hazardous substances.

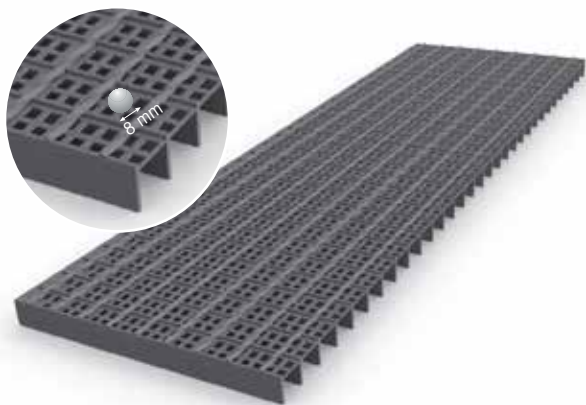


Inside Rügen Bridge, MEISER press welded grating used as safe walking routes. The good anti-skid properties and

high torsional stiffness of the press locked grating is ideal for use in bridge building.

As with the press locked grating, the press welded grating is also available in numerous versions. We are aware of country and customer-specific requirements and are implemented in accordance with the relevant standards. It is often the case that the clear mesh width plays an important role from the aspect of safety. As the press welded grating cannot provide the fine mesh grid of a press

locked grating owing to the manufacturing process, other versions have been developed which take into account the safety requirements. This guarantees that a test ball with a specific diameter cannot fall through. Special welding regulations can of course also be implemented by us.



MEISER Press Welded Grating

In the case of press welded grating, it is not possible to produce very small mesh widths for technical reasons. If the customer requires the use of press welded grating but would nevertheless like to ensure that the grating is 8 mm ball proof, then this is the grating that should be used. By welding perforated sheets with an aperture of not more than 8 mm between the bearing bars, it is possible to produce a very "close-meshed" grating for a reasonable cost. This grating corresponds to the Spanish standard no. 486/1997 (BO 23rd April 1997, no. 97/1997).

Common mesh spacing

Bearing bar	Cross bar	
34,30	38,1	50,8

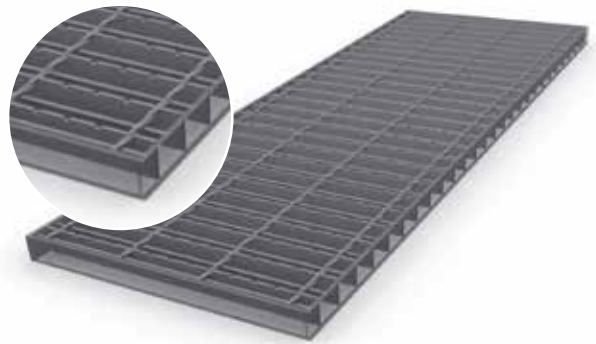
Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm
25/2	25/3
30/2	30/3
40/2	40/3

MEISER Offshore Press Welded Grating

This type of grating has been specially designed for use in the offshore oil and gas industry. The background to this is the specification is that a test ball with a diameter of 15 mm must not fall through the grating. In order to guarantee this, an intermediate round bar is welded parallel and centrally between the bearing bars to the underside of the twisted square cross bars using the automatic resistance welding method. This provides the offshore grating with additional stability, which is very useful in the harsh conditions on offshore oil rigs.

Common mesh spacing	
Bearing bar	Cross bar
34,30	101,6
38,28	101,6



Standard bearing bar profiles

Bearing bar 3 mm	Bearing bar 5 mm
25/3	25/5
30/3	30/5
35/3	35/5
40/3	40/5
45/3	45/5
50/3	50/5
60/3	60/5

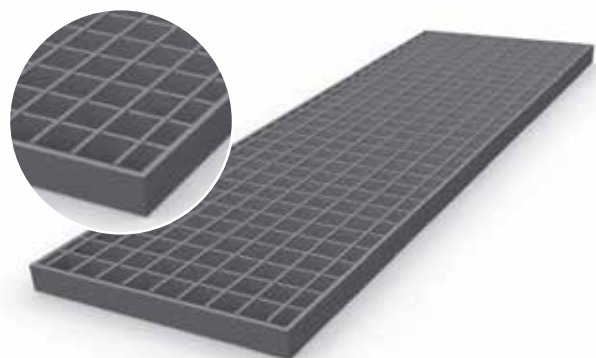
MEISER Press Welded Grating with Smooth Round Bars

The classical press welded grating is produced with twisted square bars, which offer a certain degree of slip resistance. If aesthetic aspects are important, it is also possible to use smooth round bars as cross bars.

This version is possible for all common mesh spacing.

Common mesh spacing							
Bearing bar	Cross bar						
15,08	-	-	-	38,1	50,8	76,2	101,6
17,15	-	-	-	38,1	50,8	76,2	101,6
20,77	-	24,0	-	38,1	50,8	76,2	101,6*
23,69	-	24,0	-	38,1	50,8	76,2	101,6*
25,00	-	-	-	-	-	76,2	101,6
30,15	-	-	-	38,1	50,8	76,2	101,6
33,00	-	-	31,75	-	-	-	-
34,30	19,25	24,0	-	38,1	50,8	76,2	101,6
41,45	-	24,0	-	38,1	50,8	76,2	101,6
45,23	-	-	-	38,1	50,8	76,2	101,6
51,45	-	-	-	38,1	50,8	76,2	101,6
60,30	-	24,0	-	38,1	50,8	76,2	101,6
68,60	-	24,0	-	38,1	50,8	76,2	101,6

*available with restrictions



Standard bearing bar profiles

Bearing bar 2 mm	Bearing bar 3 mm	Bearing bar 4 mm	Bearing bar 5 mm
25/2	25/3	25/4	25/5
30/2	30/3	30/4	30/5
35/2	35/3	35/4	35/5
40/2	40/3	40/4	40/5
45/2	45/3	45/4	45/5
-	50/3	50/4	50/5
-	60/3	60/4	60/5
-	70/3	70/4	70/5
-	-	80/4	80/5



STAIR TREADS

TOP, LEFT TO RIGHT:
LIGHTHOUSES, GLÜCKSTADT
TOWN HALL, KELKHEIM;
UNIVERSITY, MANNHEIM
BOTTOM: APARTMENT BUILDING, HAMBURG



Stair treads

MEISER stair treads are manufactured from grating incorporating endplates and non-slip safety nosing to their leading edge. The tread as an essential safety element of all types of staircases must always function correctly, be it during everyday intensive use on the access path to a ski lift, or where subjected to extreme loads, if, for example, the staircase is used in an uncontrolled manner as an escape route by many people during a fire. MEISER is aware of this responsibility and has designed

its stair treads accordingly. The extended, perforated safety nosing fulfils and even exceeds the latest regulations. It provides additional stability, reduces the maximum depth of the opening to 120 mm and fulfils safety class R11. At the request of the customer, the nosing can also be made of a special section, e.g. a non-slip steel flooring plate or a sanded steel angle. The safety endplates have a pronounced bead, which interlocks with the bearing bars. This prevents the endplate from tear-



OBSERVATION TOWER GOBELWARTE, GREIN

ing off prematurely if it is subjected to significant excess loads and causing the tread to fail. The tread surface of the MEISER stair treads can be designed individually. As a matter of principle, stair treads can be produced as press locked grating treads and press welded grating treads. The mesh spacing and height of the bearing bar are determined by the effective width and the customer's requirements. Of course we know what is required in the case of publicly accessible staircases. The stair

treads are produced in accordance with the specifications of DIN 24531-1 and provide for a corresponding hole pattern in the endplates. Individual hole patterns are of course possible, as well as notched bearing bars and cross bars, so that slip resistance up to class R13 is possible. It goes without saying that stair treads can also be designed in aluminium and high-grade steel; special designs allow stair tread widths of up to 4,000 mm.



Spiral staircases from MEISER are both futuristic in design and safe to use. The modern cladding created from gratings is complemented by elegantly curved spiral

staircases. They connect the three floors of this residential complex in Ingolstadt while providing maximum support.



Elegance in steel in Oranienburg near Berlin; this spiral staircase, used as an escape route, extends over three floors. A total of three colour-coated versions of this

design were installed on the glass façade of the production hall.



Escape and rescue stairs from MEISER are practical, simple and safe. A straight staircase with grating steps is used in this school building in the town of Norden. In ac-

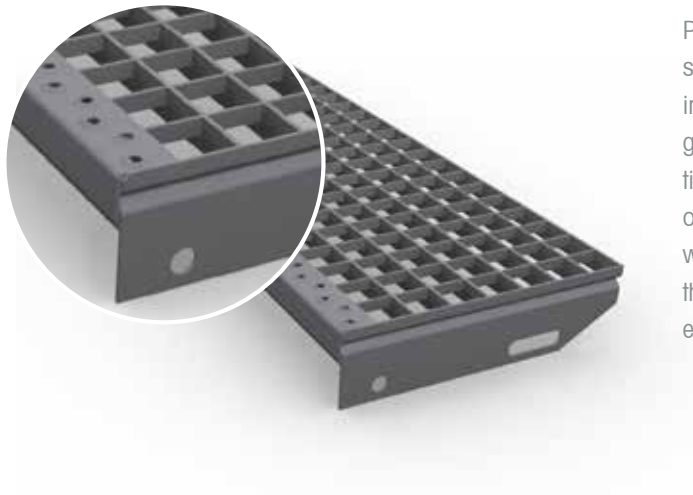
cordance with current guidelines and existing structural conditions, we adapt our stairs to your needs.

Stair
Treads



Aiming high redefined: in Nuremberg a gigantic spiral staircase from MEISER sits on the outer shell of this heat storage tank and reaches a height of 70 metres.

Pre-assembled elements make assembly on site easier and save time.



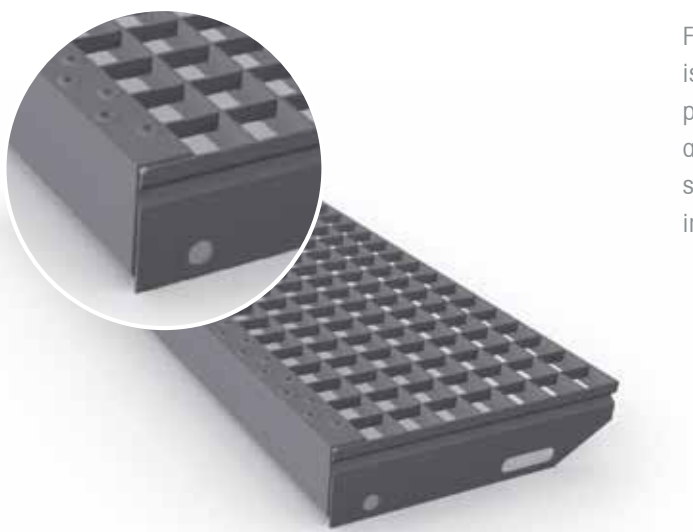
Press Locked Grating Treads

Press locked grating treads can be produced from mild steel, high-grade steel and aluminium. They are produced in accordance with the same principle as for press locked grating. It is possible to provide these stair treads with anti-skid-properties up to R13 by including special notches on the bearing bars and cross bars. Even very large tread widths can be produced by designing the bearing bars in the same way as heavy duty grating. Thus it is possible for even extreme loads to be reliably absorbed.



Press Welded Grating Treads

Press welded grating treads can be produced from mild steel and high-grade steel. Here too, production is based on the process used for the manufacture of press welded grating. It is possible to provide this tread design with anti-skid-properties up to R12.

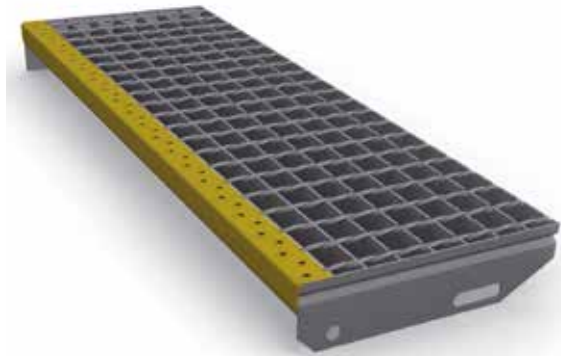


Endplates

For standard stair treads, the safety endplate with bead is generally used. However, upon request a special endplate with a different drill-hole size can be attached. From a bearing bar height of 50 x 3 mm upwards the drill-hole size should be coordinated in all cases in order to avoid installation problems.

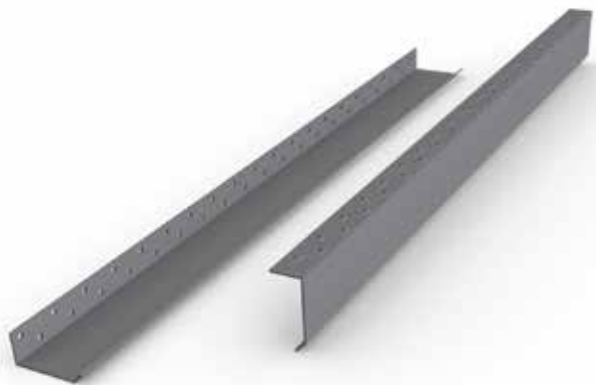
SAFETY ENDPLATE WITH BEAD

Conspicuous safety:
Press-locked grating
treads with a powder-coat-
ed nosing and increased
slip resistance.



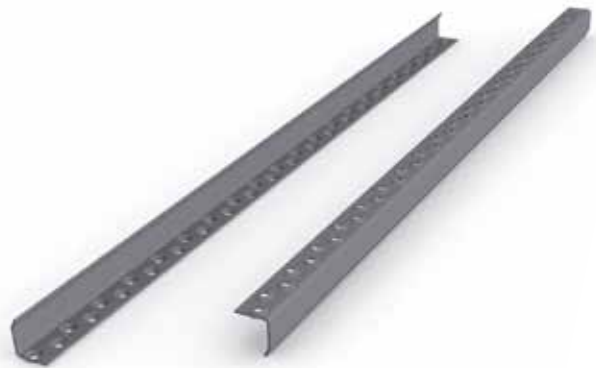
Raised safety nosing

For the purposes of slip resistance and in order to increase their load-bearing capacity, stair treads are provided on the front edge with a perforated, specially shaped angle section. This so-called nosing is welded together with the endplate and the bearing bar and contributes to reinforcing the stair tread. It can also be produced from non-slip steel flooring or checker plate. We comply with specific customer wishes as well as with deviating foreign standards.



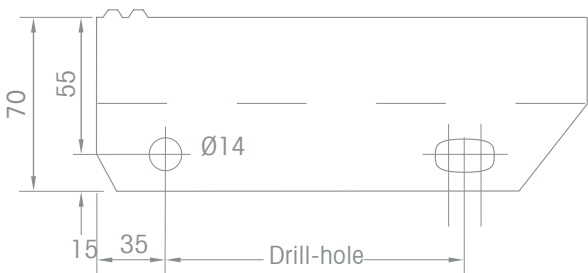
Safety nosing 70 mm

In the case of publicly accessible staircases, regulations are increasingly specifying a maximum clearance of 120 mm between the treads. We have taken this specification into account with a 70 mm-high nosing and therefore fulfil ÖNORM B 5371, which in the case of pitches of up to 190 mm permits a maximum step-through height of 120 mm.

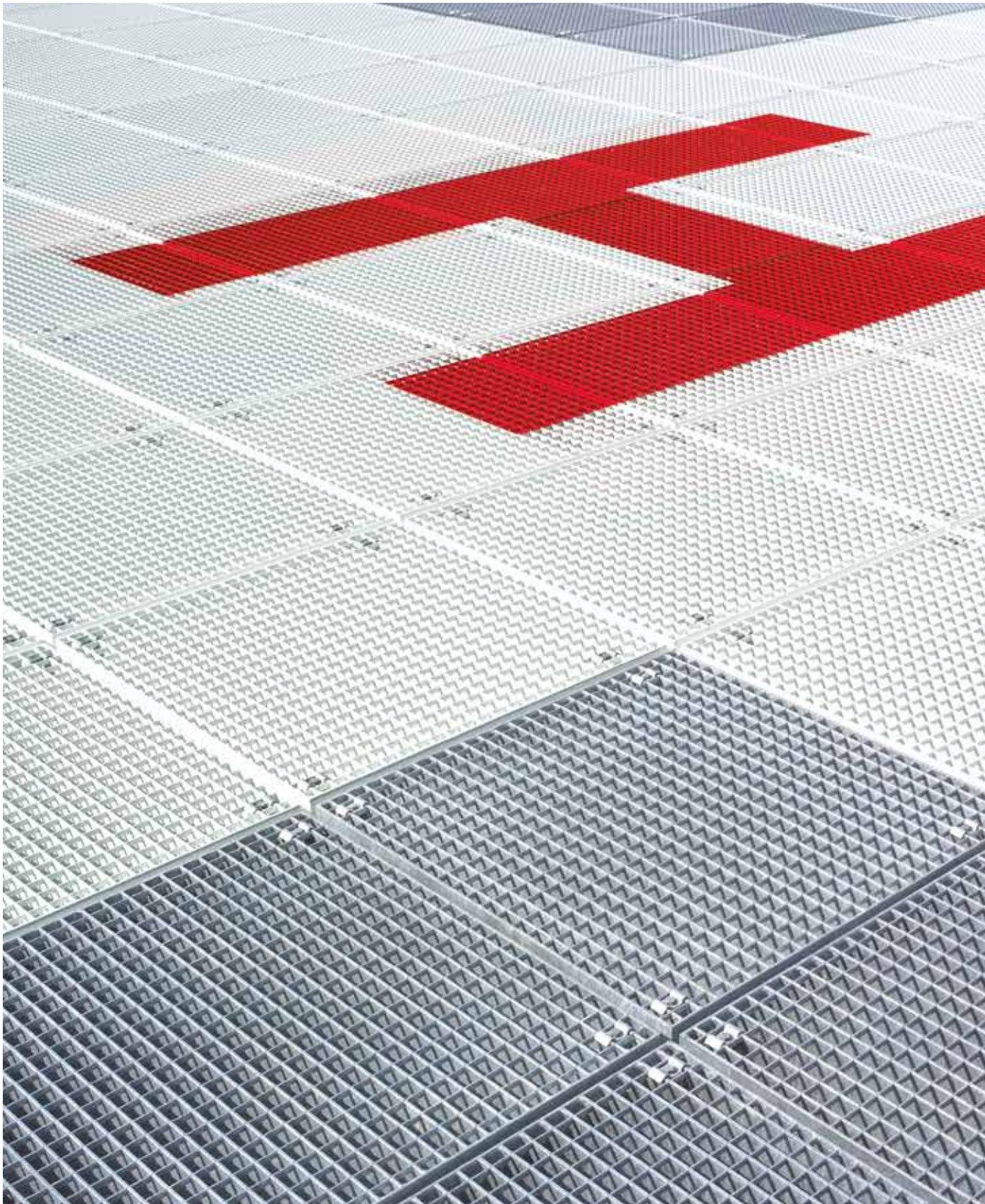


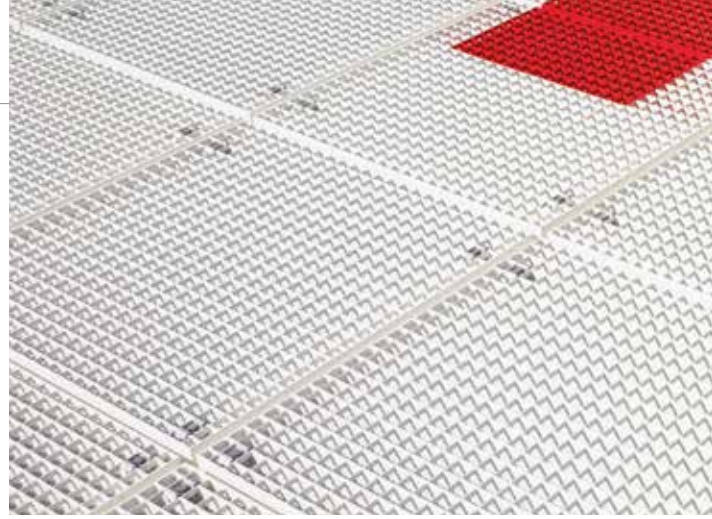
Safety nosing, perforated

Stair tread endplates with DIN standard drill-hole up to 40 mm cross bar height	
Length [mm]	Drill-hole
240	120
270	150
305	180



HEIGHT OF THE CLIPS 70 MM

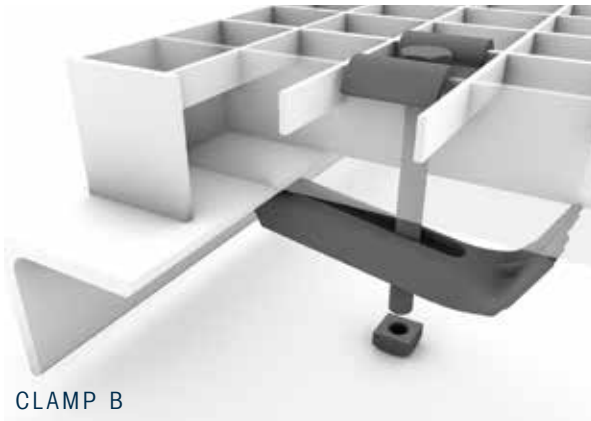




FIXING CLIPS

MEISER grating fixing clips are an important part of our service. The grating can only fulfil its function properly if it is correctly attached, as otherwise accidents can quickly happen. MEISER has the proper fixing clip for every application, from the simple standard clamp to the customised individual solution MEISER produces many clamps itself, but also works together with well-known fastening specialists.

Together with the HILTI company, the XMGR clamp has been developed, which is insensitive to vibrations and offers enormous installation advantages. On the following pages we show you the most common safety systems, which in most cases represent a good and low-cost solution.



Clamp B

Consisting of a saddle top clip, clamp lower part, M8x60 hexagon screws and M8 square nut.

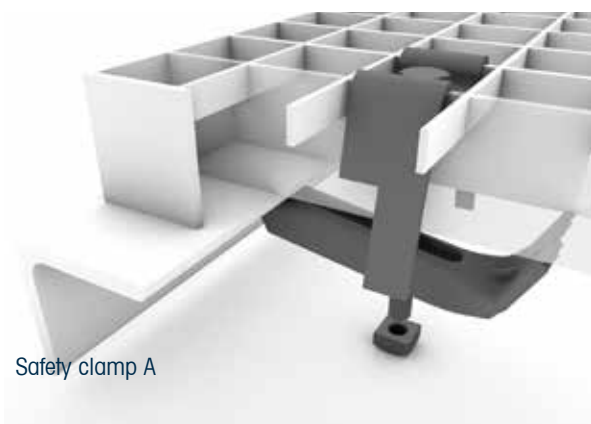
galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M0531	33 x 33	33 x 33
M0531	34 x 38	34 x 38



Clamp B 10

Consisting of a stirrup top clip, hexagon socket screw, clip lower part and nut.

galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M2331	33 x 11	33 x 11
M2231	33 x 21	33 x 21



Safety clamp A

Consisting of safety upper part, clamp lower part, hexagon screw and square nut.

galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M0731	34 x 38	34 x 38

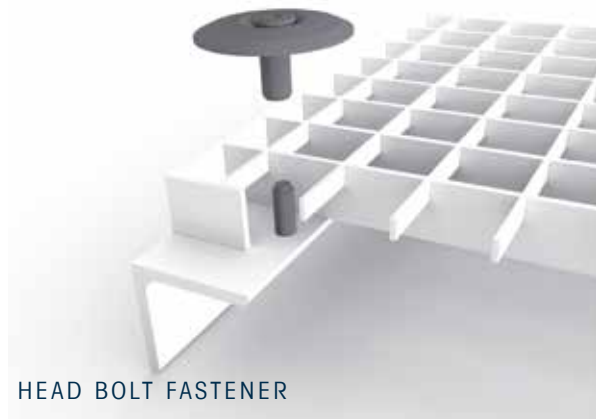


Head bolt fastener

Consisting of head bolts and retaining flange; for highly corrosive environments (e.g. offshore), also available as X-BT; pre-mounted version X-GR RU.

galvanised		V4A
Designation	Mesh width [mm]	Mesh width [mm]
X-FCM + X-M8	22 x 22 – 44 x 44	22 x 22 – 44 x 44
X-FCM + X-BT	22 x 22 – 44 x 44	22 x 22 – 44 x 44
X-GR-RU	33 x 33	-

The illustrations are not assembly instructions.

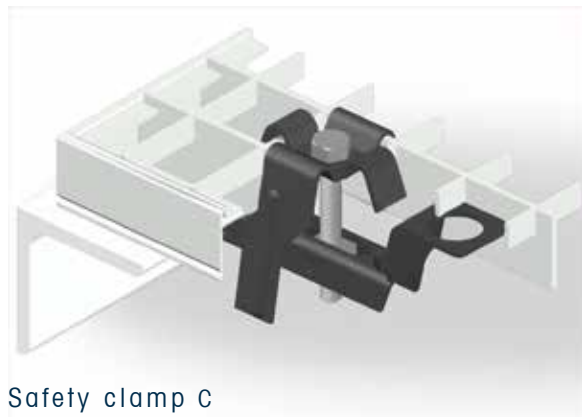


HEAD BOLT FASTENER

Safety clamp C

Consisting of safety upper part, clamp lower part, hexagon screw and square nut.

galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M2133	33 x 33	34 x 38

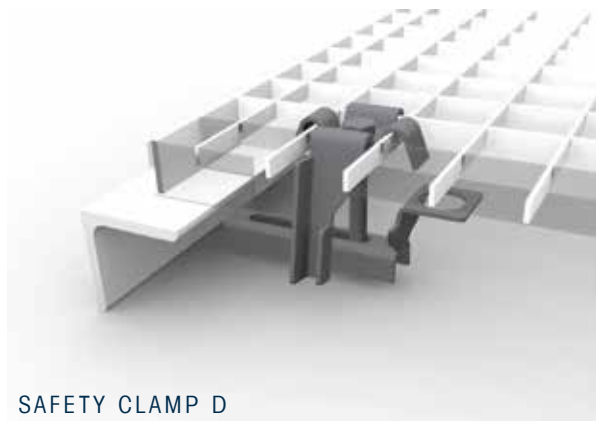


Safety clamp C

Safety clamp D

Consisting of safety upper part, clamp lower part, hexagon screw and square nut.

galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M0833	34 x 38	34 x 38

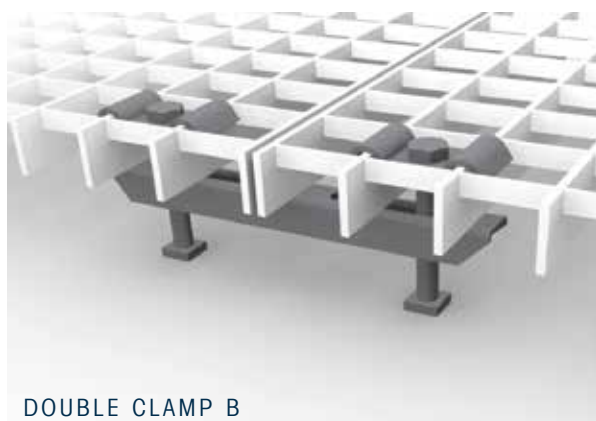


SAFETY CLAMP D

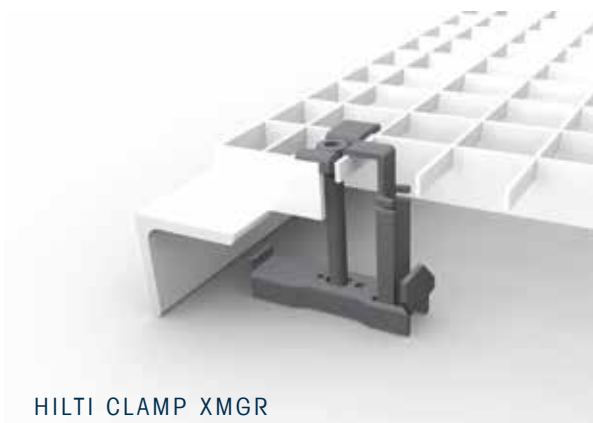
Double clamp B

Consisting of 2 saddle top clips, clamp lower part, 2 hexagon screws and 2 square nuts.

galvanised		V2A
Designation	Mesh width [mm]	Mesh width [mm]
M0540	33 x 33	33 x 33
M2240	33 x 22	33 x 22
M2340	33 x 11	33 x 11



DOUBLE CLAMP B



HILTI CLAMP XMGR

Hilti clamp XMGR

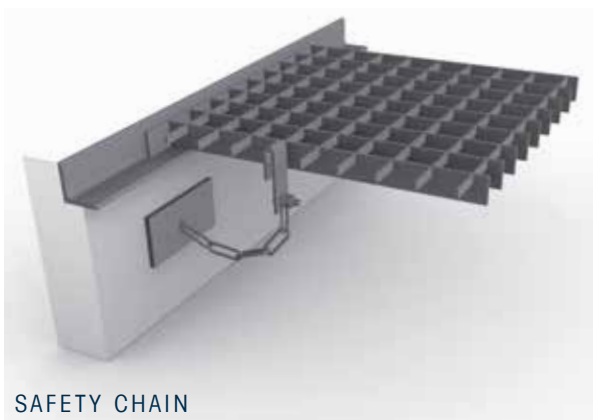
Consisting of saddle top clip and lower part connected to one another; high resistance to vibrations, easy portability by 1 person and thereby significantly shorter installation times.

galvanised	V2A
Designation	Mesh width [mm]
XMGR	33 x 33 / 34 x 38 / 34 x 24

maximum grating height 40 mm

The illustrations are not assembly instructions.

FIXING CLIPS FOR INDUSTRIAL GRATING

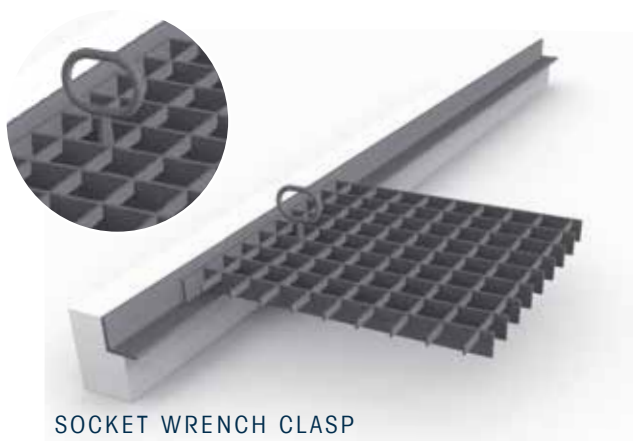


SAFETY CHAIN

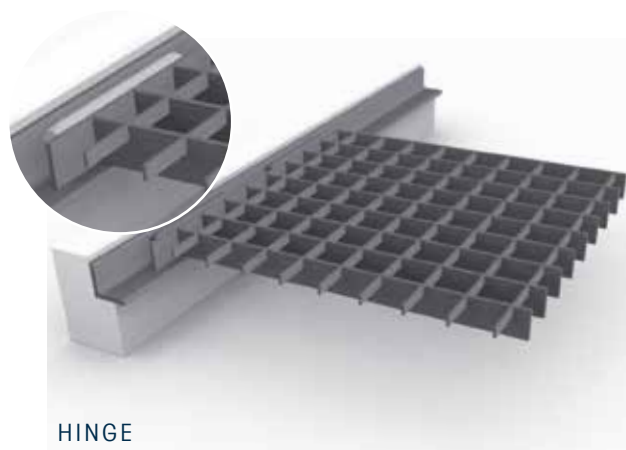
Panel Attachments

(supplied loose)

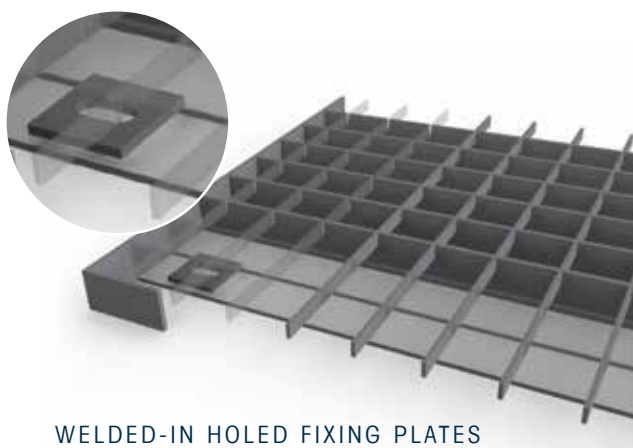
Galvanised
Designation
Safety chain
Hinge
Socket wrench clasp
Welded-in perforated plates



SOCKET WRENCH CLASP



HINGE



WELDED-IN HOLED FIXING PLATES

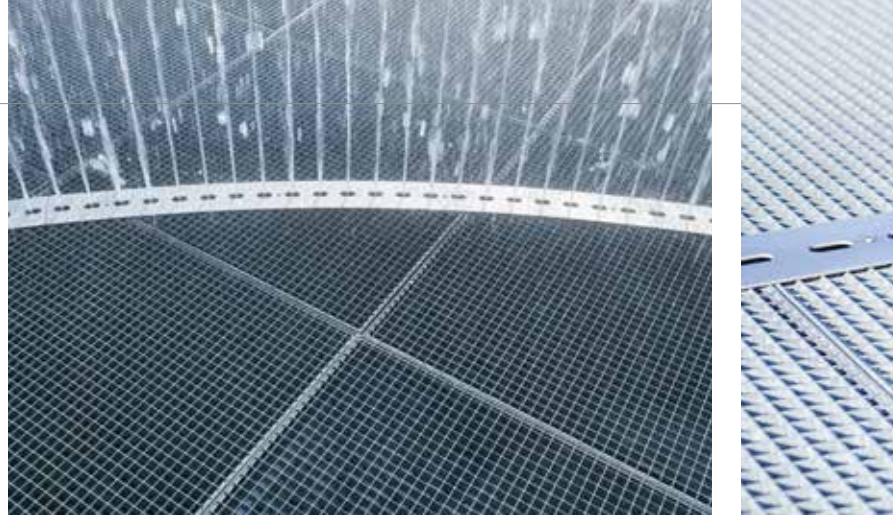
Welded-in Holed Fixing Plates

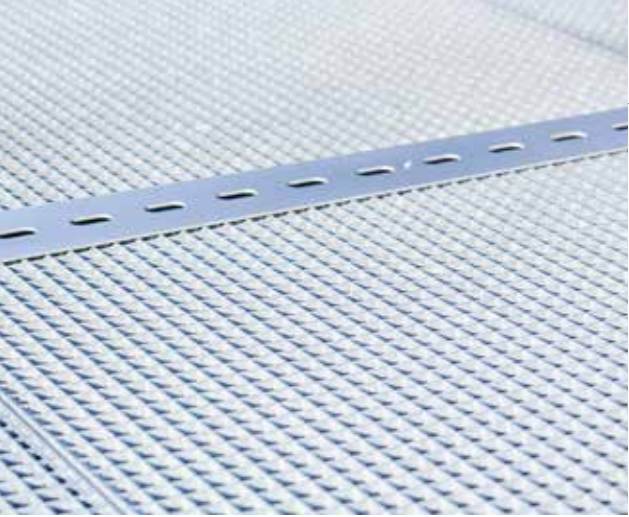
consisting of welded-in holed plate hole size is according to customer's specifications; screws are provided by the customer. The design and position of the welded in plate depend on the load to which the grating is subjected and the fastening possibilities available on site.

The illustrations are not assembly instructions.



Fixing
Clips





Statics &
loads

Statics
& loads



Statics & loads

Gratings have to withstand a variety of loads, especially when they are used as floor coverings. Depending on the customer, requirements range from foot-traffic loads to areas driven on by trucks. This is where the statics of the grates come into play. Their load-bearing capacity and suitability for use are decisive characteristics: the first indicates the weight that the gratings are able to bear. With regard to their suitability for use, on the other hand,

the deflection of the grating under a certain load must be considered. Depending on the customer's requirements, however, there are also some additional aspects that have to be taken into account, e.g. the size of the open ventilation cross-section, the slip resistance or mounting type. No matter what properties a grating combines, the aim is always to determine the most material-efficient solution for you. MEISER makes no distinctions between



CAR SHIP ON THE RIVER RHINE, DUISBURG



large and small inquiries in this regard. Your satisfaction is our top priority. Thanks to our experience, we can respond promptly to a wide variety of customer requirements. Every one of our customers is given competent advice and supplied quickly.

Further information can be found in our download area at www.meiser.de/en





ADVENTURE PLAYGROUND AT THE
OCHSENLACKE, ST. JAKOB





———— SAFETY

Safety

XPRESS BASE CAMP ZELL AM SEE,
AUSTRIA



Safety

The theme of health and safety at work and accident prevention is growing in importance in companies and institutions. The accident prevention regulations issued by the Professional Associations and the German Social Accident Insurance (DGUV) are binding legal regulations, so that non-compliance can have serious consequences for any company. In many cases, avoidable accidents at

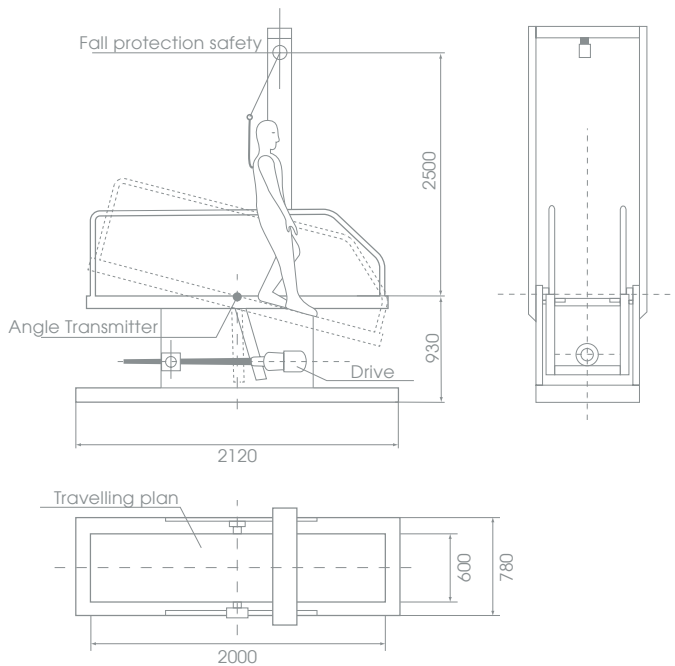
work cause significant costs. A serious corporate commitment to pleasant and safe working conditions has an effect not least on the image of a company and enables customers to draw their own conclusions of the quality of the products and services. Irrespective of all legal consequences, all costs and the damage to our reputation, there is one thing above all that we should not forget:



TOP, LEFT TO RIGHT:
LIGHTHOUSES, GLÜCKSTADT; PILOT JETTY, BRUNSBÜTTEL; APARTMENT BUILDING,
HAMBURG
BOTTOM: LEUNA HARZE. LEUNA

we owe our success to our employees - people who are worthy of our protection. These are all good reasons for MEISER dealing in depth with this topic. We have developed a range of products which help you to prevent accidents and carry out your work safely. We have brought these products together in our catalogue called „Health and Safety at Work“ in order to show you at a glance

where improvements are possible and required. Ask your contact at MEISER for advice and carry out an analysis together with us with respect to how you can design your work areas to be even safer. Detailed information can be found in the MEISER health and safety at work brochure.



Classification

Degree	R Class
from 3° to 10°	R9
from 10° to 19°	R10
from 19° to 27°	R11
from 27° to 35°	R12
more than 35°	R13

Anti-Skid-Properties

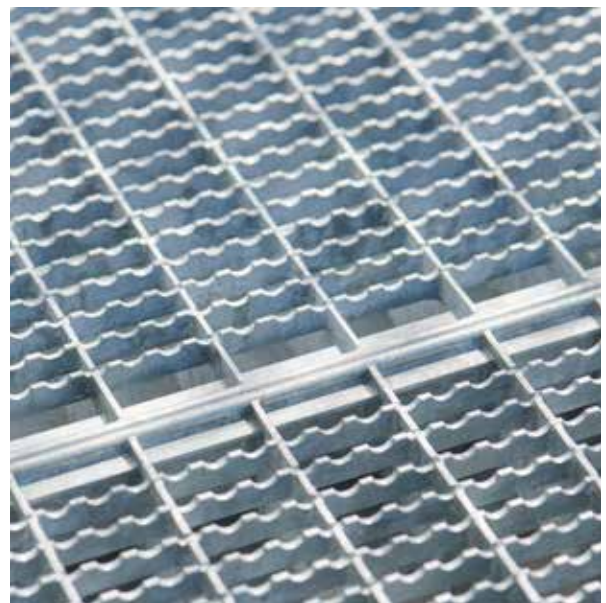
In recent years the issue of the slip resistance of walkable surfaces has gained in importance. Wherever work is carried out with glide-enhancing substances, i.e. where oils, greases and emulsions are used, there is an increased risk of slipping.

Outdoors, the weather plays a crucial role. Rain and snow quickly transform many areas into slides. However, MEISER offers a solution to this problem and guarantees a safe grip with MEISER anti-skid grating.

These greatly reduce the risk of slipping. Depending on the regulations or personal safety needs, MEISER can supply grating with a classification from R9 to R13. The required R number for different fields of application is specified by the „Professional Association Rule for Safety and Health at Work (BGR181)“.

An analysis of this slip resistance capability is carried out by an independent test institution with clearly defined test equipment (see illustration).

You can find our current wheel slide protection certificates under www.meiser.de/en/safety.html



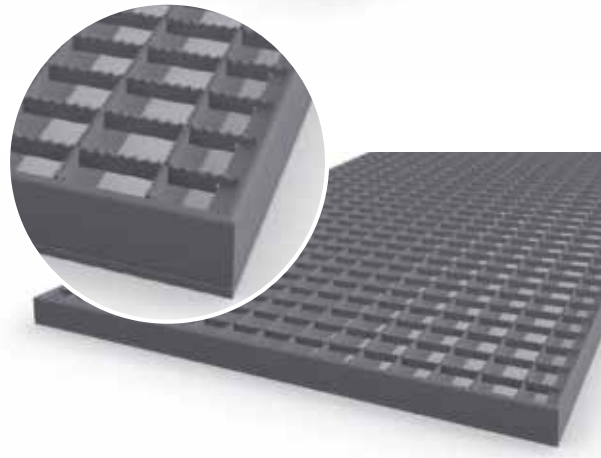
Pointed Tooth Serration SR1

The pointed tooth serration is used exclusively for press welded grating. In this form, the bearing bar is provided with particularly sharp notches by arranging crescent-shaped recesses continuously next to one another. This significantly increases the slip-resistant properties of this type of grating. With this profile it is possible to achieve slip resistance class R12 with certain mesh widths.



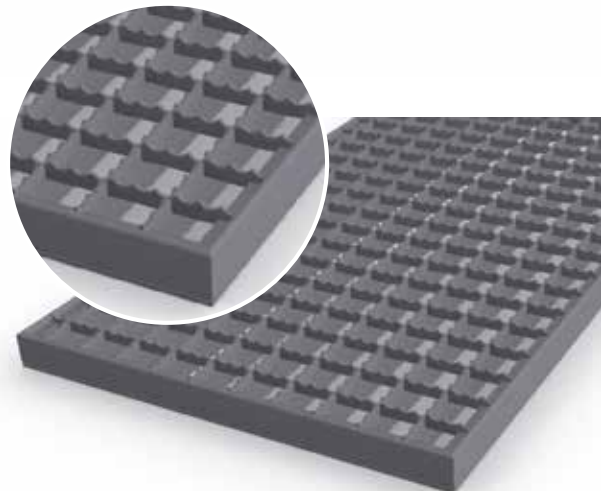
Saw Tooth Slide Serration SR2

Saw tooth slide serration is only possible in the case of press locked grating and is characterised by the saw tooth-shaped notching of the bearing bars and/or cross bars. With this form of slide protection, the maximum slip resistance class that can be reached is R12. This slide protection profile forms a basis for other special forms in accordance with foreign standards (e.g. Danish Railways). Please contact us about this if required.



Super Slide Serration SR3

Super slide serration is only possible in the case of press locked grating and is characterised by extremely high levels of anti-skid-properties. Here, the bearing bars and cross bars are punched to be particularly sharp-edged. With this form, the highest resistance class, i.e. R13, can be reached. This type of serration is used particularly in the food industry and in areas with high levels of contamination or regular contact with liquids.



Standard Slide Serration SR4

The standard slide serration is characterised by the semi-circular notching on the bearing bars and/or cross bars, with residual webs being left between the notches. This means that in the case of press locked grating, a slip resistance class of up to R12 (notching of the bearing bar and cross bar) and in the case of press welded grating up to R11 (notching only possible on the bearing bar) can be achieved. This version is used as the standard grating in outdoor areas which are regularly frequented and accessed.



STANDARDS AND CERTIFICATES

Valid standards

RAL GZ 638	Grating	BGI 588	Leaflet for metal grating
DIN EN ISO 14122-3	Steel staircases	BGR 181	Anti-skid-properties for floors in workrooms and work areas with danger of slipping
DIN 24531 -2,3	Profile grating stair treads and GRP grating stair treads	BS 4592	Industrial floors and stair treads - General requirements and fitting recommendations
DIN 24537	Grating as floor coverings - Part 1: Grating made of metallic materials		
DIN EN ISO 1461	Zinc coatings applied to steel using hot dip galvanising (piece galvanising) - requirements and testing		

Further information about the certificates and standards can be found at:
www.meiser.de/certificates

SKI JUMPING HILL, EISENERZ

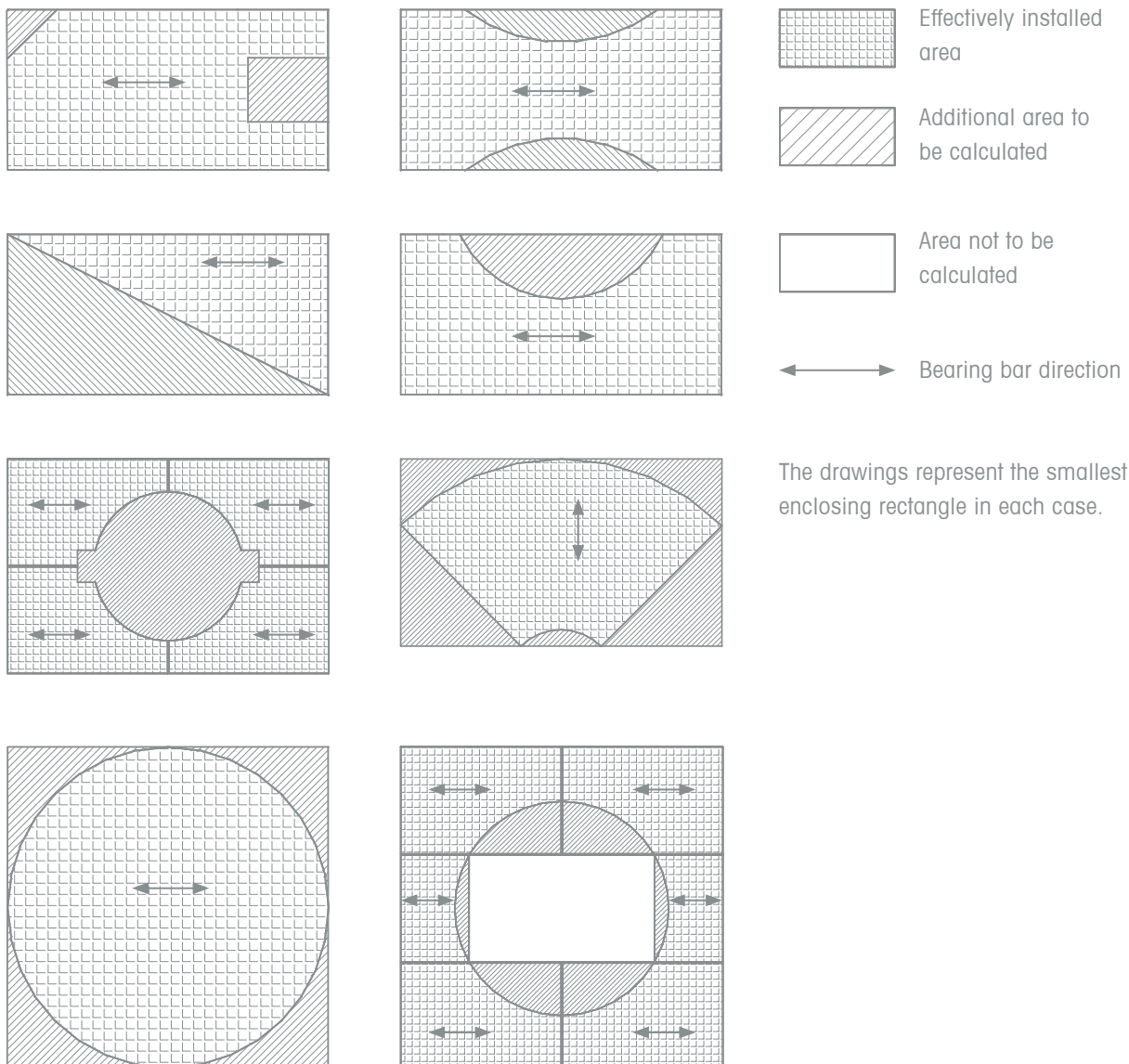


Accounting Information for Grating

Please note the following information
about our calculations:

our calculations are performed on the basis of the surface to be completed according to the smallest rectangle or square surrounding the grating in m². (As used in Worksheet H 10 of the Arbeitsgemeinschaft Industriebau e.V. (Working Committee for Industrial Construction)). Cut-outs and sections are calculated including edge surround in running metres. Cut-outs and sections in the case of grating with openings and adaptations are included in the calculation, as well as the area of

the grating to be manufactured. Micro-incisions are calculated including the edge surround up to an individual length of 0.5 m at a unit price per metre. Each additional piece is subject to a surcharge. Additional services such as the attachment of fastenings or reinforcements are calculated with a unit price. As a basis for our invoices we use the order confirmation, an installation plan and/or the measurements carried out on site.

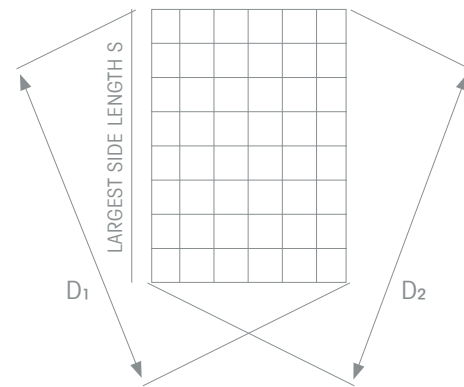


Quality and Test Specification

are described in the quality assurance document RAL-GZ 638.

These manufacturing and delivery tolerances must be observed for the production of all grating in accordance with the following specification of sizes:

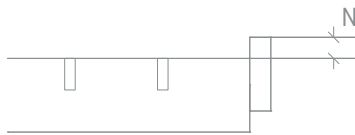
- for bearing bars $\leq 60 \text{ mm} \times 5 \text{ mm}$
- mesh spacing max. 68 mm and min. 11 mm
- grating size max. 2.0 m^2 , with a permissible lateral dimension of at most 2,000 mm.



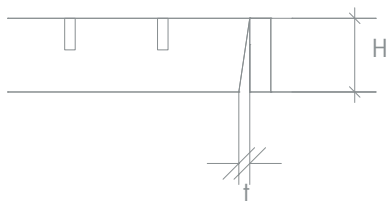
Diagonal distortion: $D_1 - D_2 \leq 0,01 \times s$

Permitted tolerances for press locked gratings:

The tolerances occurring under a load (deformations) are not included.



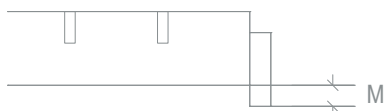
Top protruding edge N max. = 1.0 mm



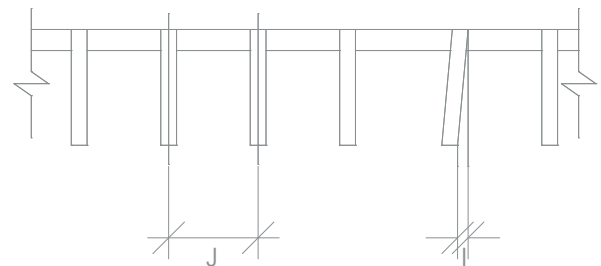
Oblique section of the bearing bar and cross bar t max. = $\pm 0.1 \times H$, but max. 3 mm



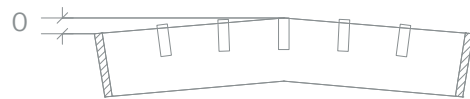
Higher cross bar K max. = 1.5 mm



Bottom protruding edge M max. = 1.0 mm



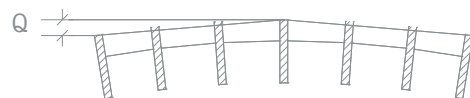
Inclination of the bearing and edge bars I max. = $0.1 \times J$, but max. 3 mm



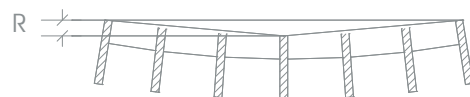
Deviations for convex O max. = $1/200$ of the length for dimensions $> 600 \text{ mm}$; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm



Deviations for concave P max. = $1/200$ of the length for dimensions $> 600 \text{ mm}$; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm



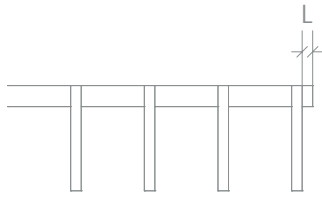
Deviations for convex Q max. = $1/200$ of the width for dimensions $> 600 \text{ mm}$; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm



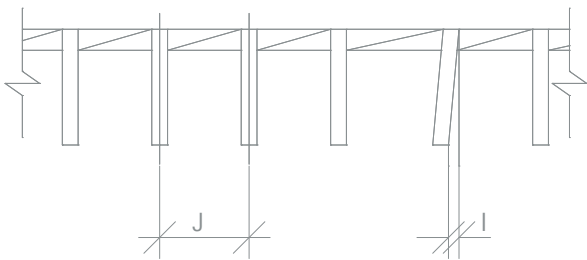
Deviations for concave R max. = $1/200$ of the width for dimensions $> 600 \text{ mm}$; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm

Permitted tolerances for press welded grating:

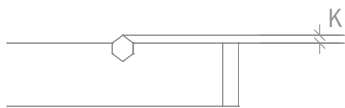
The tolerances occurring under a load (deformations) are not included.



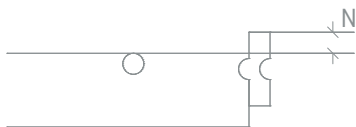
Projecting cross and edge bar L max. = 0.5 mm



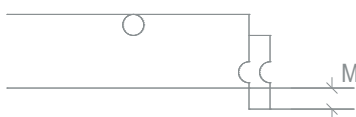
Inclination of the bearing and edge bars J max. = $0.1 \times I$, but max. 3 mm



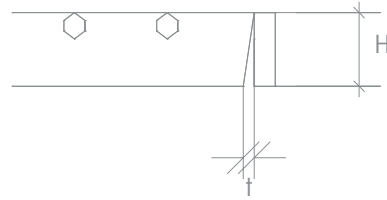
Higher cross bar K max. = 1.5 mm



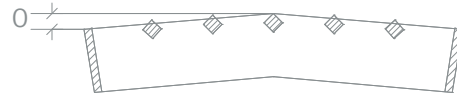
Top protruding edge N max. = 1.0 mm



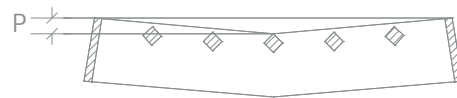
Bottom protruding edge M max. = 1.0 mm



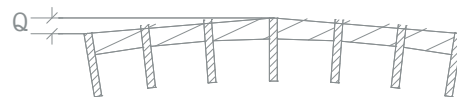
Inclination of the bearing and/or cross bar t max. = $\pm 0.1 \times H$, but max. 3 mm



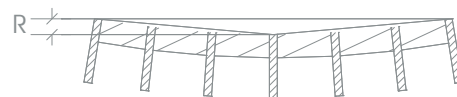
Deviations for convex O max. = $1/150$ of the length for dimensions > 450 mm; max. 8 mm for dimensions smaller than 450 mm; max. 3 mm



Deviations for concave P max. = $1/200$ of the length for dimensions > 600 mm; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm



Deviations for convex Q max. = $1/150$ of the width for dimensions > 450 mm; max. 8 mm for dimensions smaller than 450 mm; max. 3 mm



Deviations for concave R max. = $1/200$ of the width for dimensions > 600 mm; max. 8 mm for dimensions smaller than 600 mm; max. 3 mm



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