

building stages with nivtec



Assembly Instruction

valid from 1st April 2009

Assembly Instruction nivtec Staging System

This assembly instruction for a standard modular stage size 6 x 4 m and its extensions. It contains step by step instructions how to assemble a safe and stable stage and how to attach additional nivtec system parts such as stairways, rails etc.

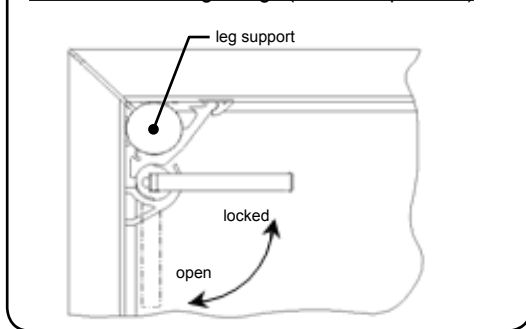
Besides standard stages also specially shaped stages are possible. The assembly of these stages is, however, not executed according to the general instructions but is subject to an individual assembly instruction and structural analysis. In this case please contact us enabling us to either authorize your plans or to instruct our structural engineers to work out an individual measurement and strutting plan at fair local conditions.

The selected legs should be appropriate for the local ground surface. Depending on the nature of the floor surface it is essential to use floor protectors, especially on slippery or sensible surfaces (concrete, tiles, parquet etc.).

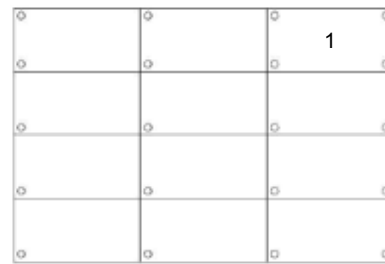
Stage constructions may only be set up on stable ground and have to be aligned horizontally. For constructions on rough grounds it is essential to use wooden underpinnings acc. to the standard values listed in DIN 4112, item 6.3.

I. connection of legs and nivtec platform

ill. 1: mounting of legs (bottom of platform)



ill. 2: stage module 6 x 4 m

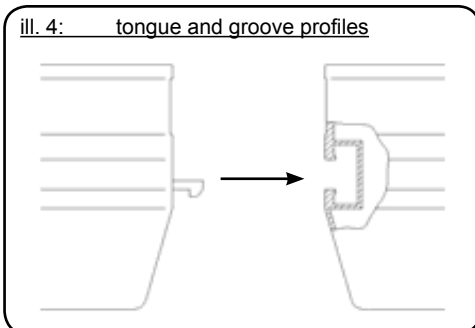


Fit the leg (see ill. 6 – 8) into the corner leg support at the bottom of the platform and tighten it by pulling the clamping lever (see ill. 1). For position and quantity of legs please see ill. 2. If the standard module is to be altered in depth and / or width please proceed according to the pattern shown.

II. connection of platforms

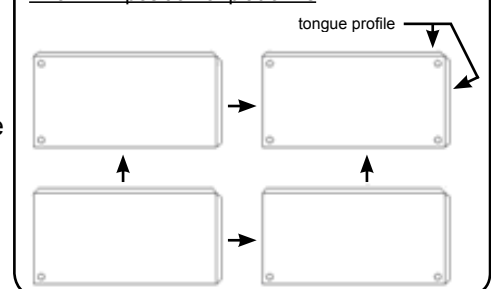
The assembly starts with the first platform on 4 legs at the rear right end. The tongue profiles are pointed to the rear resp. to the right side (see ill. 3).

ill. 4: tongue and groove profiles

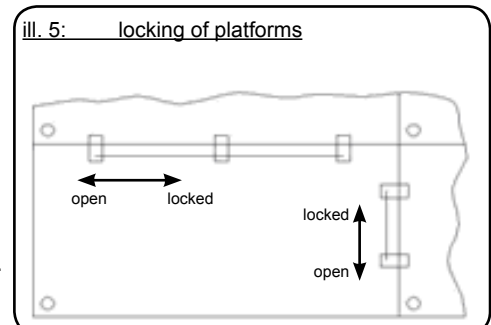


To connect the system platforms the tongue profile is hooked into the groove profile (see ill. 4).

ill. 3: position of platforms



ill. 5: locking of platforms

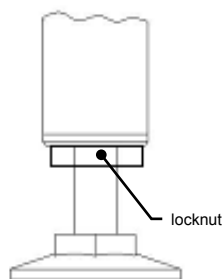


For tightening the platform connection please move the handle bar of the locking mechanism at the bottom of the tongue profiles (see ill. 5).

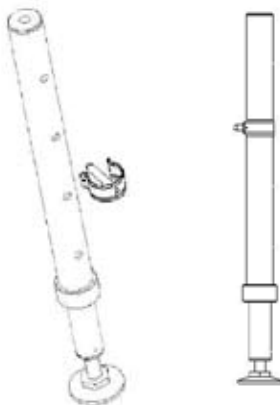
Immediately after a platform has been hooked to the previous one it is absolutely essential to securely lock this connection by moving the handle bar into position "locked" and to check the stability of the connection. Now the next platform can be mounted.

III. height adjustment of stage

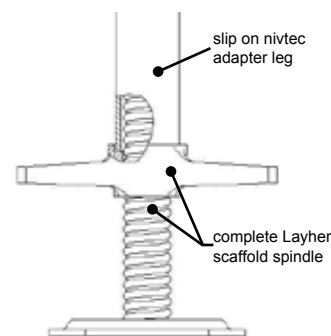
ill. 6: nivtec-levelling leg with adj. spindle



ill. 7: nivtec extension leg



ill. 8: nivtec levelling leg with Layher scaffold spindle



Up to a stage height of 80 cm nivtec legs $\varnothing 48,3 \times 4$ mm made of aluminium or steel may be used, for heights exceeding 80 cm steel legs are essential.

For height adjustment please turn the adjusting spindle (see ill. 6). Adjustments of 6 cm are possible. If you use legs with adj. spindle for stages exceeding 60 cm please tighten the locknut after finishing the fine adjustment.

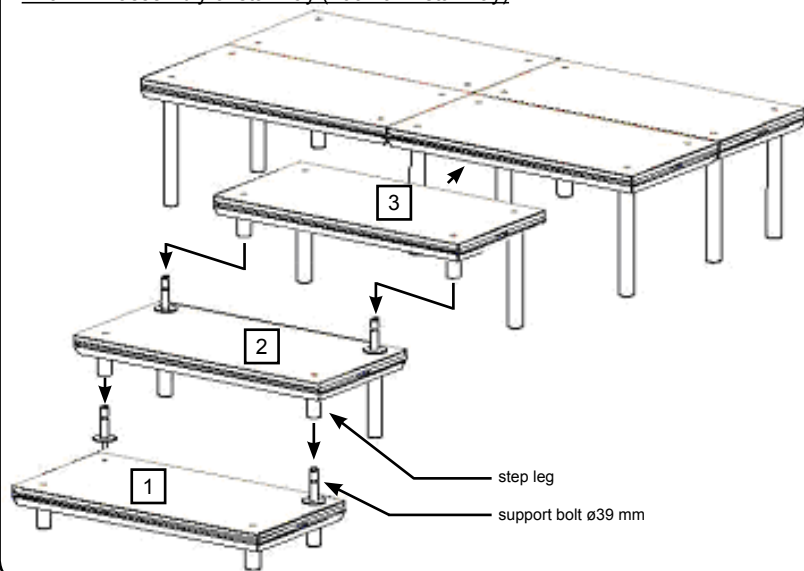
nivtec extension legs (see ill. 7) allow height adjustment from 40 to 60 cm, from 60 to 100 cm and from 80 to 140 cm in intervals of 5 cm. In order to adjust the height the inner and outer tubes of the leg are moved until the respective holes overlap. Then the leg height is fixed with the safety bolt clip. For fine adjustment please turn the adjusting spindle and tighten the locknut.

Quick, easy and stepless adjustments can also be achieved by using nivtec legs with Layher scaffold spindle (see ill. 8). The following maximum spindle ways for leg raster 2 x 1 m are to be respected: 25 cm for spindle 60 cm, 40 cm for spindle 80 cm. To achieve the required stage height adapter legs in appropriate sizes are to be used. (For spindle ways for leg raster 2 x 2 m please see our construction plans.)

For instructions how to equip the various base constructions of stages with appropriate braces please see page 6. Warranty of stability is subject to exclusive use of original nivtec parts resp. to stage assembly according to nivtec instructions (for example when using Layher parts).

IV. assembly of nivtec stairway

ill. 9: assembly of stairway (hook on - stairway)



hook on - stairway

1. Equip the first step with 4 levelling legs 20 cm and 2 support bolts $\varnothing 39$ mm for the next step and tighten them.
2. Equip the second step with nivtec step legs 20 cm at the front and 2 stage legs 40 cm at the rear and attach the support bolts. Repeat this for the next steps. The length of the rear legs is always increased by 20 cm.
3. Hook the tongue profile of the last step into the groove profile of the stage and lock the connection.
4. For attachment of stairway at the tongue profile of a stage attached apater lath.

push on - stairway

Steps 1 and 2 of assembly of a push-on stairway are the same as for the hook-on stairway. Please mind the special size of the last step (depth 39 cm – with adapted leg support) necessary for achieving a uniform tread. Next please align stairway to stage at the position required.

Connection of stairway and stage:

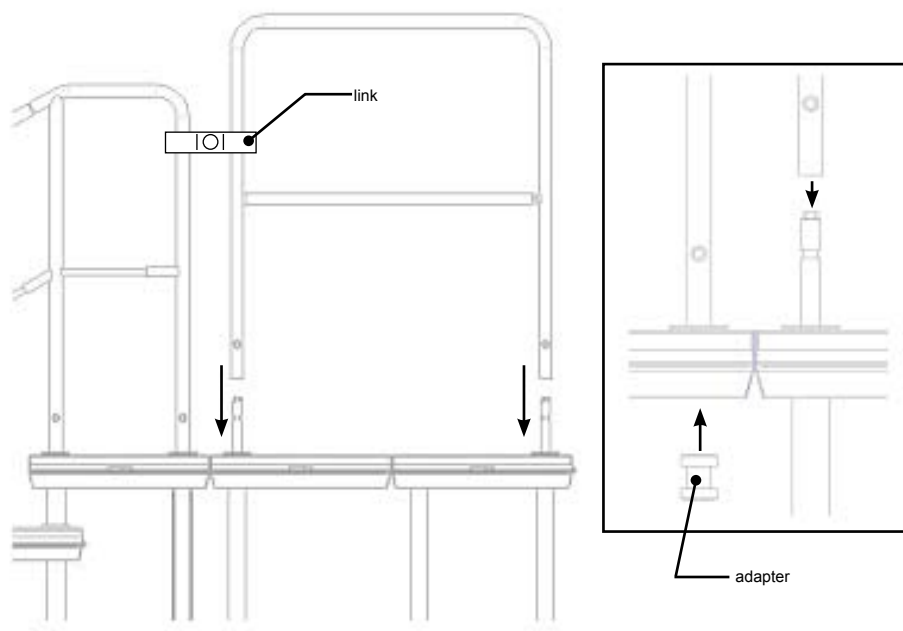
solution 1 for groove stage profile: 1 gallery link 110 mm, Art.No. 401 10 0, 1 special link N-F, Art.No. 402 01 0

solution 2 for groove stage profile: 2 special links N-F, Art.No. 402 01 0 (if there is no stage leg)

solution for tongue stage profile: 2 gallery links 110 mm, Art.No. 401 10 0, if necessary add stage leg

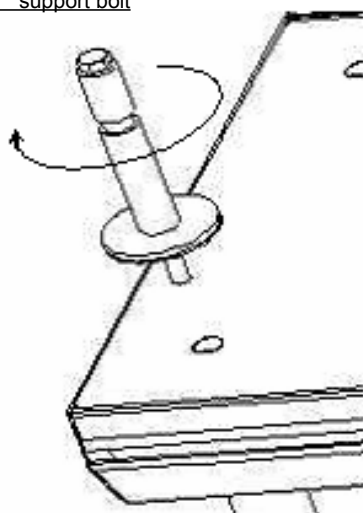
V. fastening of safety rails

ill. 10: assembly of safety rails

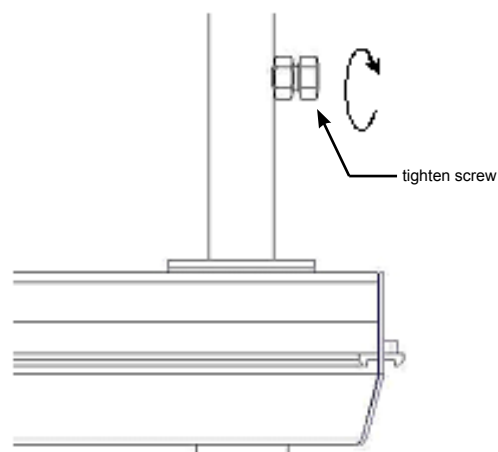


1. Remove the blue caps.
2. Screw in support bolt $\varnothing 26$ mm (see ill. 10a) and tighten it with spanner size 19.
3. At places without a leg underneath please equip the leg support with a thread adapter (see ill. 10).
4. Slip rails on support bolts.
5. Tighten the set screws (see ill.10b).
6. The rails are connected with links Art.No. 310 10 0 at the top range of the rail post.

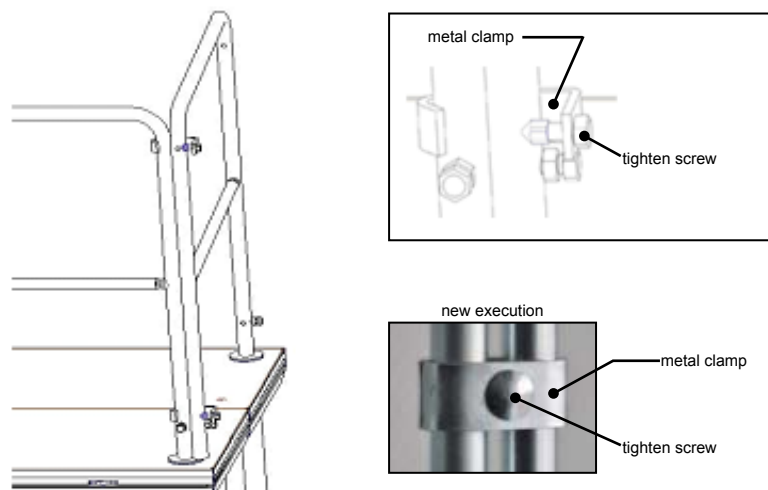
ill. 10a: support bolt



ill. 10b: set screws



ill. 11: connection of rails at corners



Start the assembly of the safety rail at the rear of the stage. Next the side rails are attached.

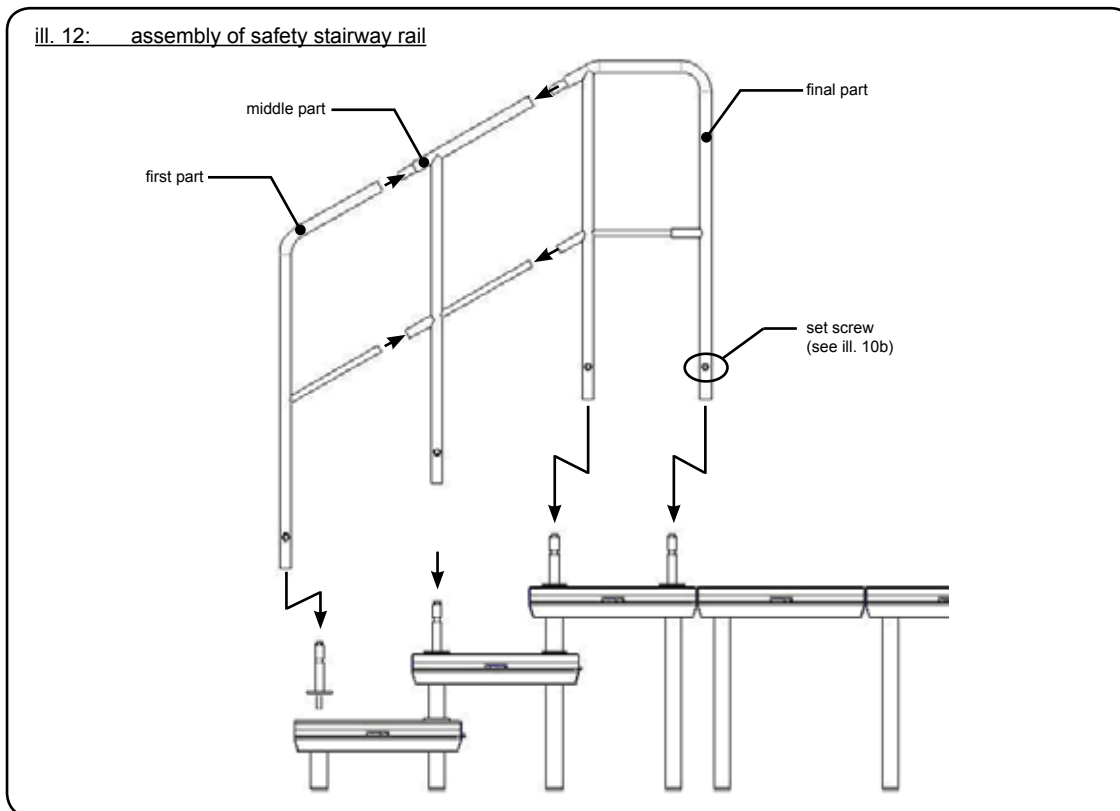
The side and the rear rail have to be connected with two corner links Art.No. 310 21 0 per corner.

Fit the metal clamp around both rails posts and tighten the screw of the clamp.

new execution since 01.04.2009:
fit screw between rails posts, fit metal clamps around the posts and tighten the screw.

VI. attachment of safety stairway rail

ill. 12: assembly of safety stairway rail

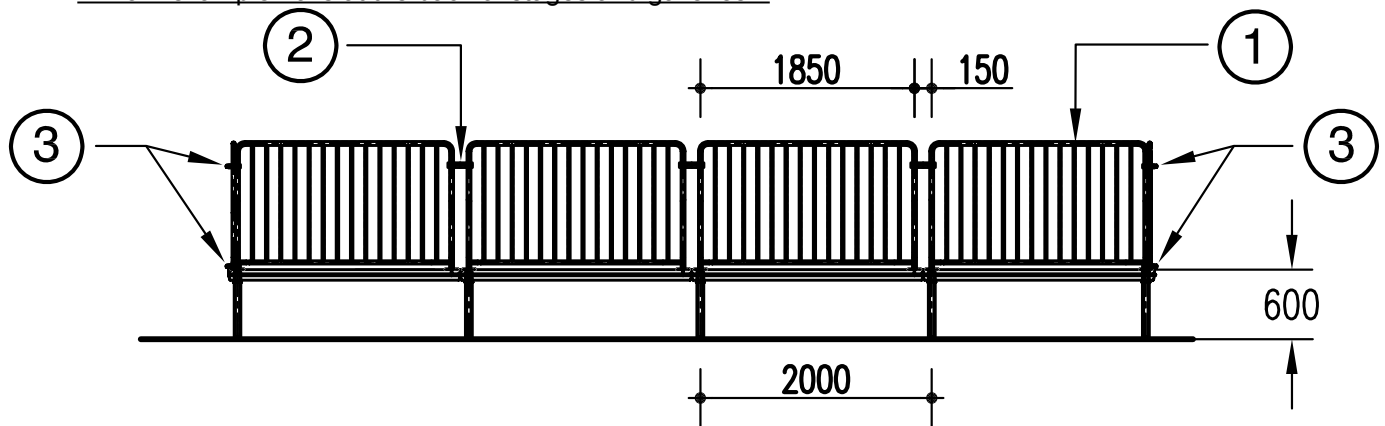


1. Remove the blue caps of the stairway.
2. Screw in support bolt $\varnothing 26$ mm (see ill. 10a) and tighten it.
3. Combine first, middle and final parts to form the stairway rail required. Depending on the size of the stairway the rail size can be adjusted by using single, double or triple middle parts.
4. Slip the complete rail on the support bolts.
5. Tighten the set screws. These screws have to be at the outside of the rail.
6. hook-on stairway: connect final part of stairway rail and stage rail with safety rail link 150 mm, Art.No. 310 10 0, and tighten the screw.
8. push-on stairway: connect final part of stairway rail and stage rail with safety rail link 110 mm, Art.No. 310 11 0, and tighten the screw.

VII. safety rails with vertical bars

For attachment of safety rails with vertical bars the same regulations are valid. Stairway rails are supplied as complete rails depending on the size of the stairway. The following drawings show examples of stages / galleries equipped with safety rails with vertical bars. Contrary to the method shown in illustration 14 with a rail 85 cm per platform you may also use a rail 185 cm covering two platforms. It is absolutely necessary that rails are connected and secured with rail links resp. corner links. When attaching a stairway at the side of a stage the stage rails have to be adapted. Please take special care in closing gaps. In case of need please ask for further details.

ill. 13 - example: rails at the back of stages and galleries

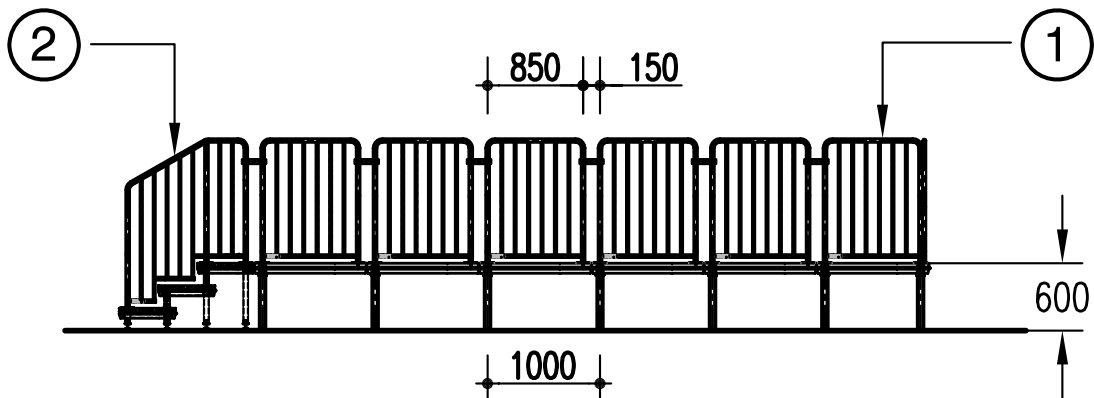


① safety rail with vertical bars 185 cm
Nr.: 303 03 0

② rail link 150 mm
Nr.: 310 10 0

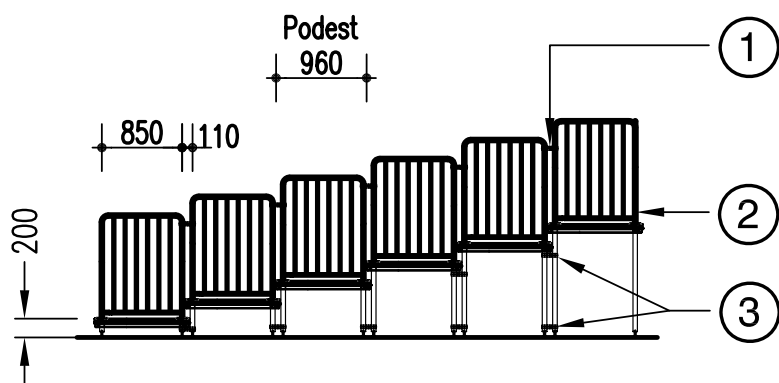
③ corner link
Nr.: 310 21 0

ill. 14 - example: rails at the side of stages and galleries



① safety rail with vertical bars 85 cm
Nr.: 303 02 0

② stairway rail with vertical bars for 3-step stairway
Nr.: 305 02 1



① rail link 110 mm
Nr.: 310 11 0

② safety rail with vertical bars 85 cm
Nr.: 303 02 0

③ gallery link
Nr.: 401 10 0

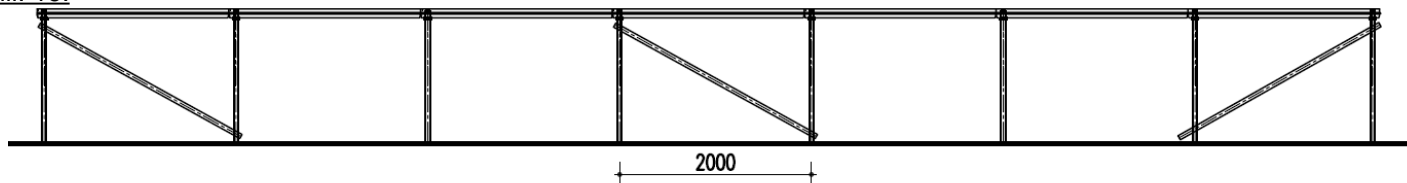
VIII. bracing instructions

In order to always achieve maximum safety for the stage users we have modified our assembly instructions for building stages with various base constructions. The modifications have been made in observance of the latest safety regulations and considering the maximum load capacity of a stage. They also serve as protection of the material used and its durability. For details about the required bracing parts please see page 15.

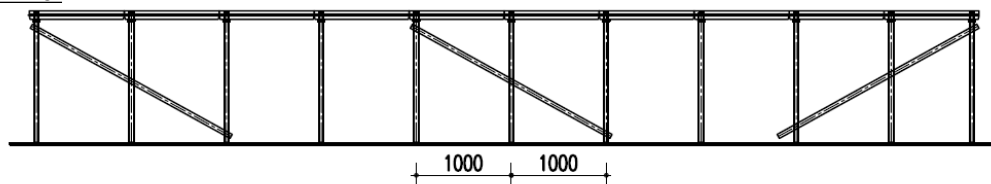
Base constructions with stage legs from height 80 cm are reinforced with diagonal braces at each corner and in intervals of two free bays at the outside. Braces are to be attached as follows:

- at each stage corner
- covering one bay at the sides with 2 m leg distance (see ill. 15)
- covering one or two bays at the sides with 1 m leg distance (see ill. 17 or 16)
- no more than two free bays in a row are allowed at any stage side

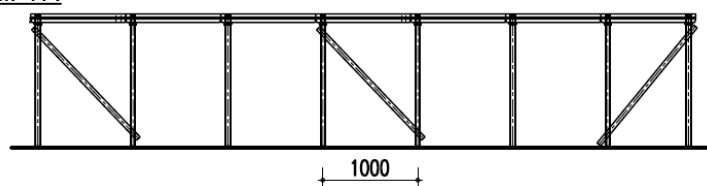
ill. 15:



ill. 16:



ill. 17:



Additional horizontal braces at the outside are only required when using extension legs at heights exceeding 120 cm – see drawing of stage module at the bottom of page 8.

Base constructions for stage heights exceeding 140 cm up to 240 cm are to be equipped with diagonal and horizontal braces - see drawing of stage module on page 9.

The same regulations apply to gallery constructions - see drawings of gallery modules on pages 11 - 14.

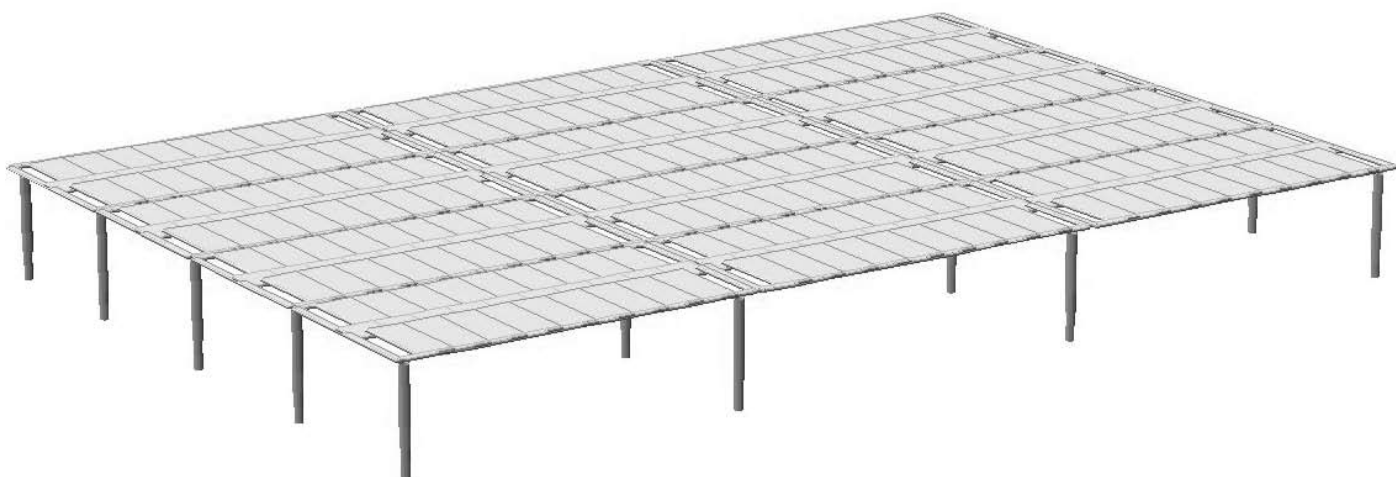
Stage constructions of nivtec weight girder system in combination with Layher Metric Allround Scaffold System can be built up to a height of 300 cm - see drawings of stage module on page 10.

The stage modules shown on the following pages are to be considered as review of the various possibilities to build different base constructions of the nivtec staging system in raster 2 x 1 m resp. 2 x 2 m. The assembly has to be executed exclusively according to our instructions. Please ask for the construction plan of the stage you are planning.

IX. review of stage modules

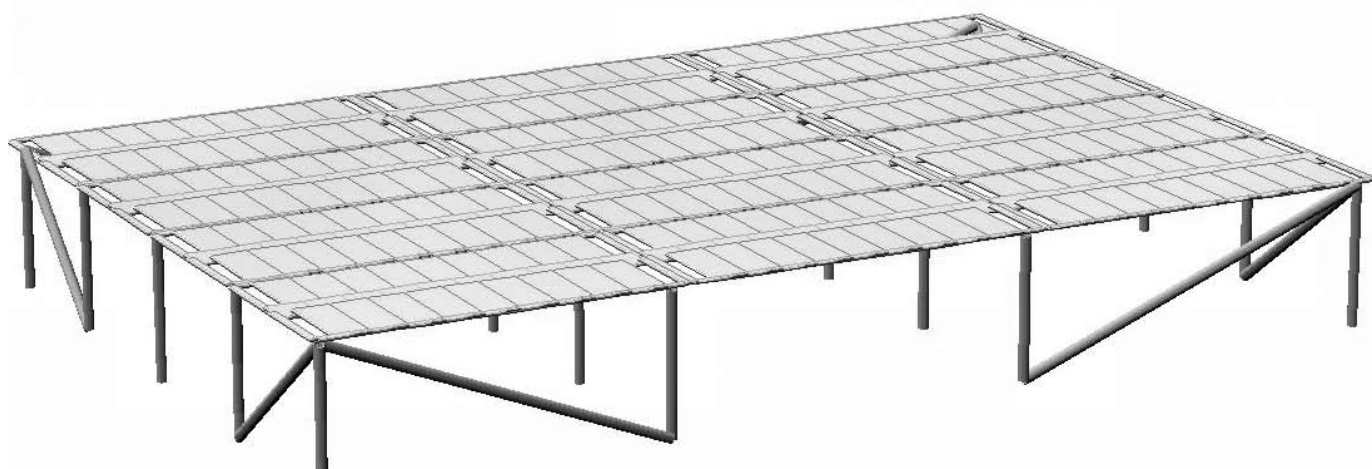
stage nivtec-flexibel, 6 x 4 m - in modular design – leg raster 2 x 1 m

stage height: below 80 cm



stage nivtec-flexibel, 6 x 4 m - in modular design – leg raster 2 x 1 m

stage height: 80 cm



IX. review of stage modules

stage nivtec-flexibel, 6 x 4 m - in modular design – leg raster 2 x 1 m

stage height: from 80 cm up to 140 cm
stage height with extension legs: from 80 cm up to 120 cm



stage nivtec-flexibel, 6 x 4 m - in modular design – leg raster 2 x 1 m

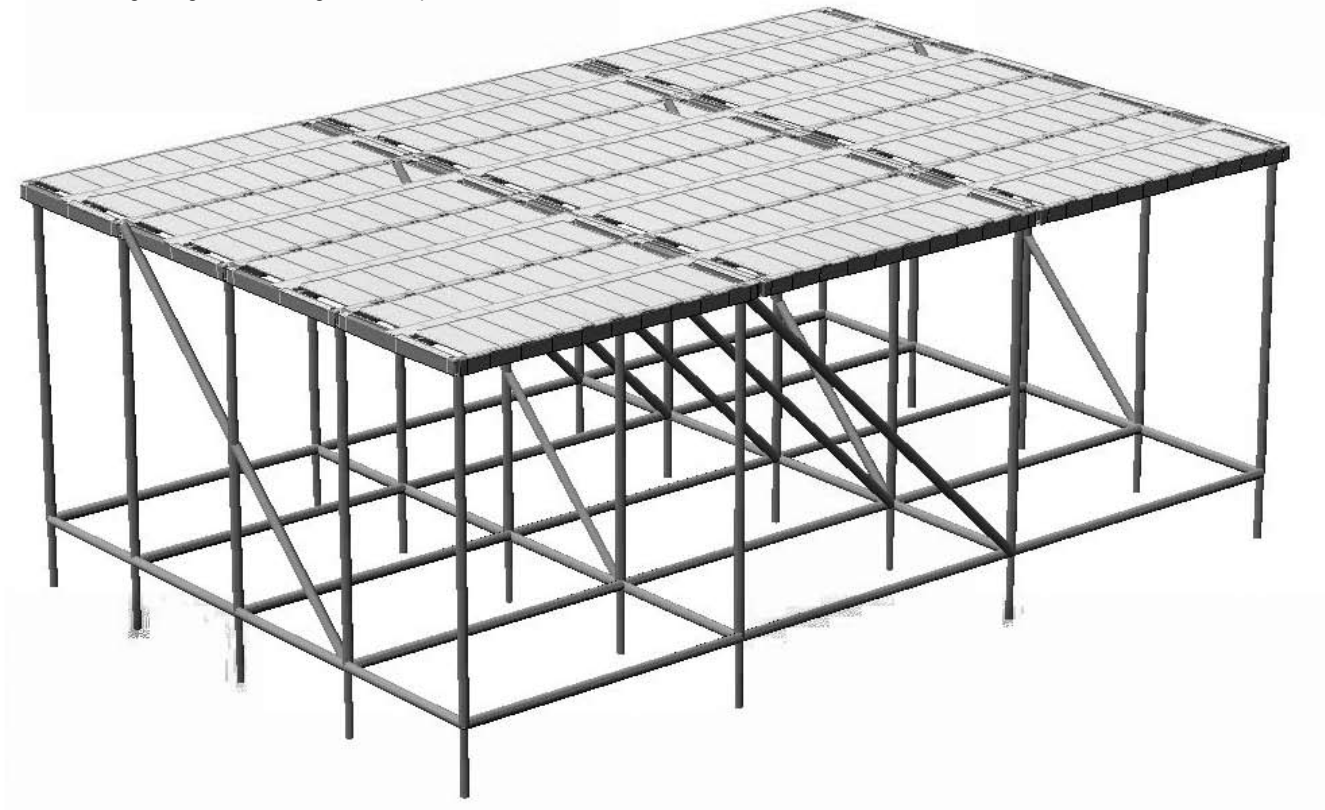
stage height with extension legs: exceeding 120 cm up to 140 cm



IX. review of stage modules

stage nivtec-flexibel, 6 x 4 m - in modular design – leg raster 2 x 1 m

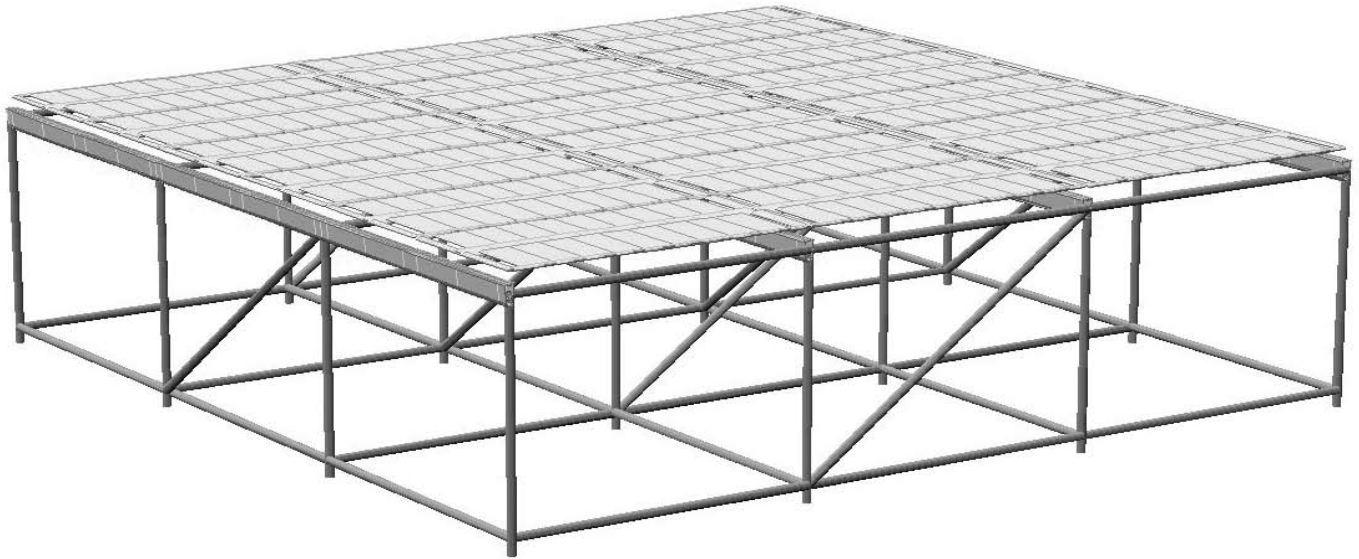
stage height: exceeding 140 cm up to 240 cm



IX. review of stage modules

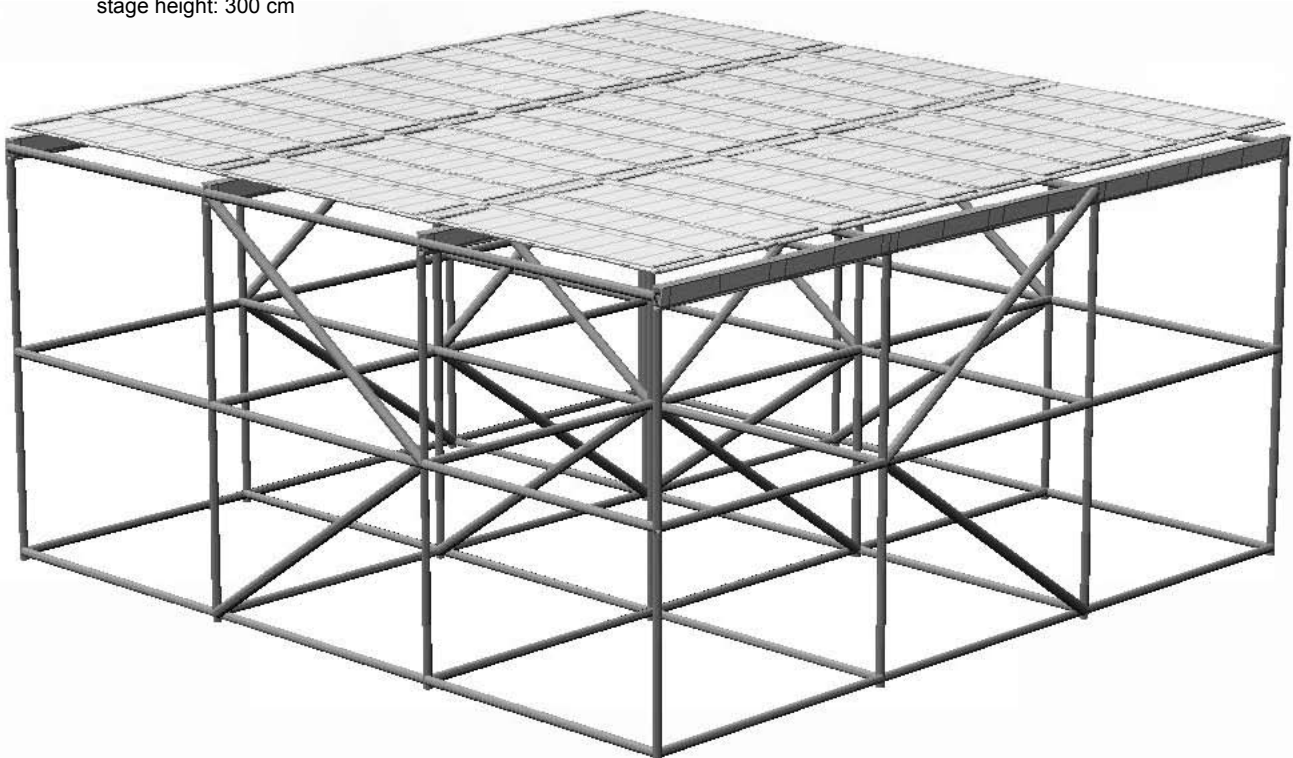
stage nivtec-flexibel, 6 x 6 m - in modular design – leg raster 2 x 2 m
nivtec weight girder system in combination with Layher base construction

stage height: 180 cm



stage nivtec-flexibel, 6 x 6 m - in modular design – leg raster 2 x 2 m
nivtec weight girder system in combination with Layher base construction

stage height: 300 cm

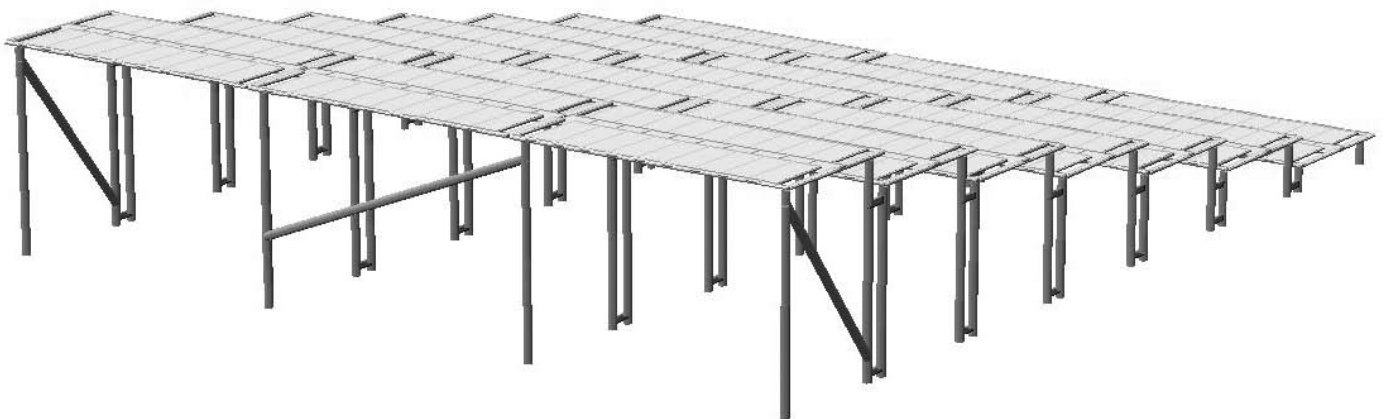
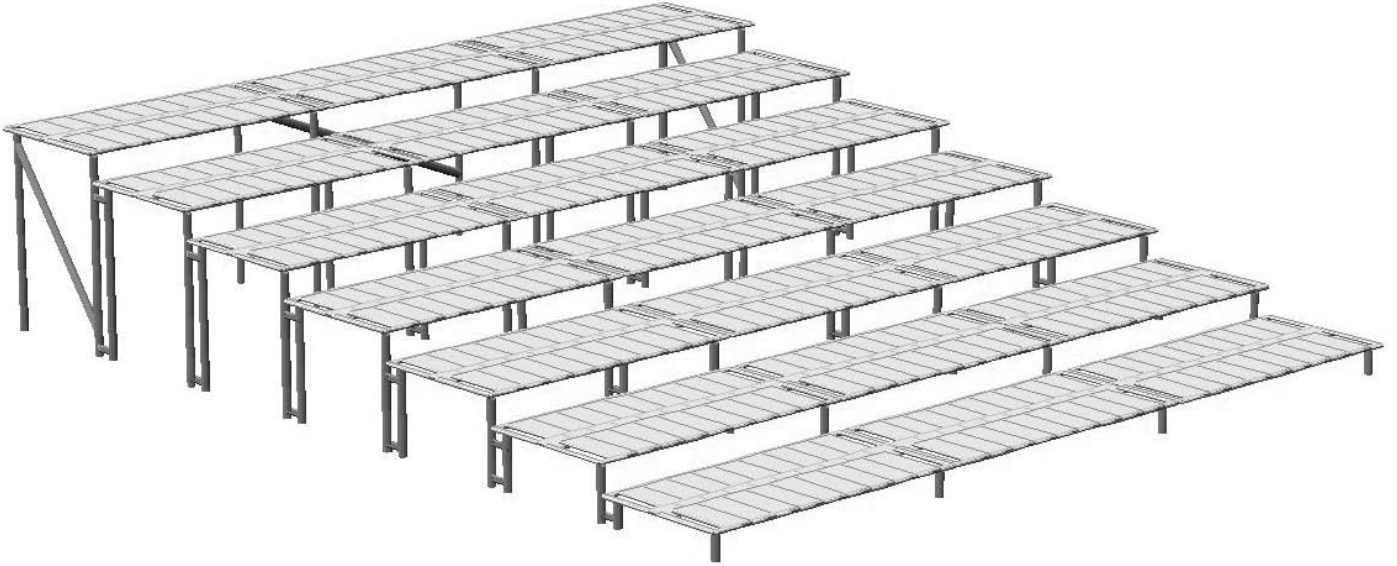


IX. review of stage modules

seat gallery nivtec-flexibel in modular design

gallery height: 140 cm

tier height: 20 cm

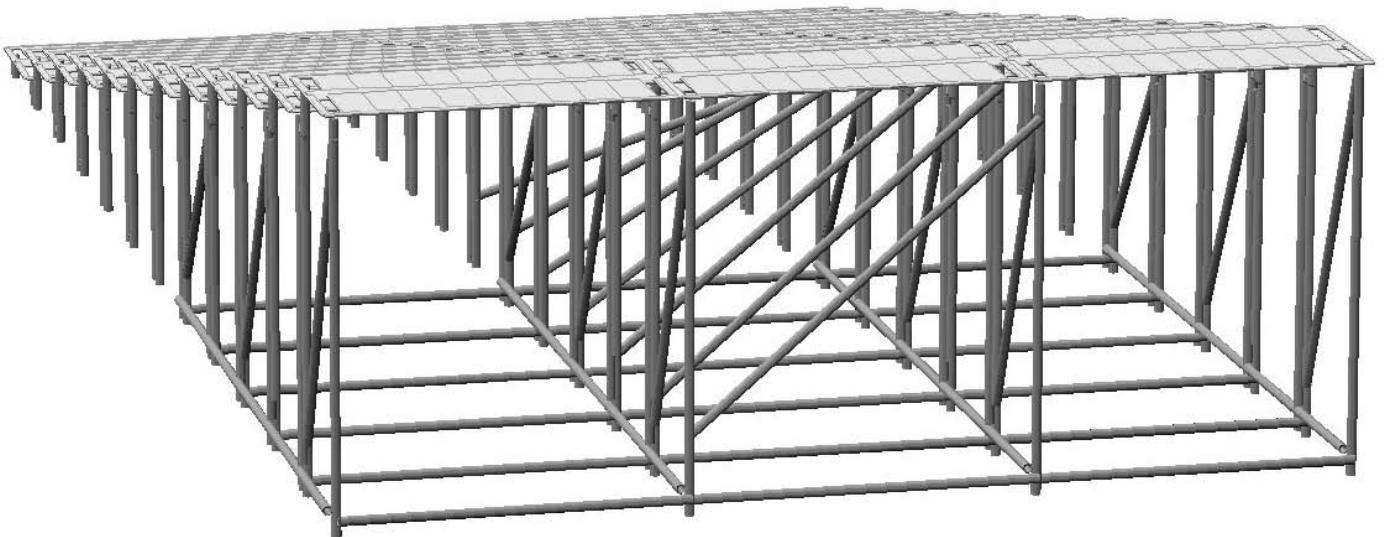
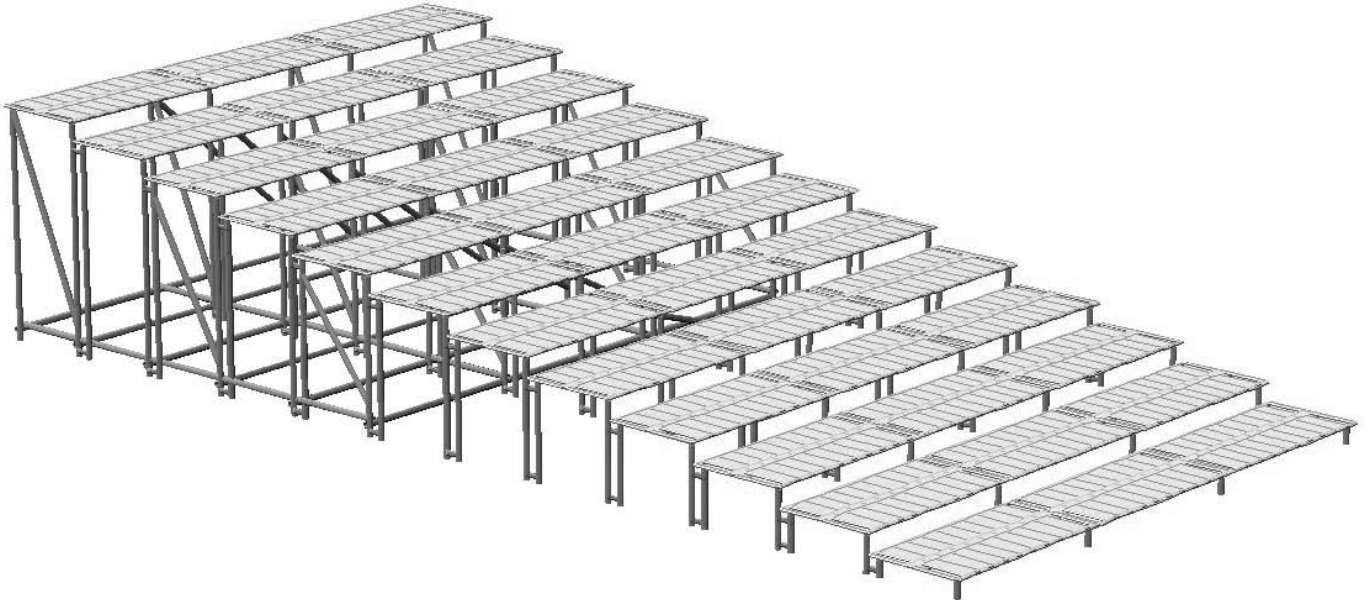


IX. review of stage modules

seat gallery nivtec-flexibel in modular design

gallery height: 240 cm

tier height: 20 cm

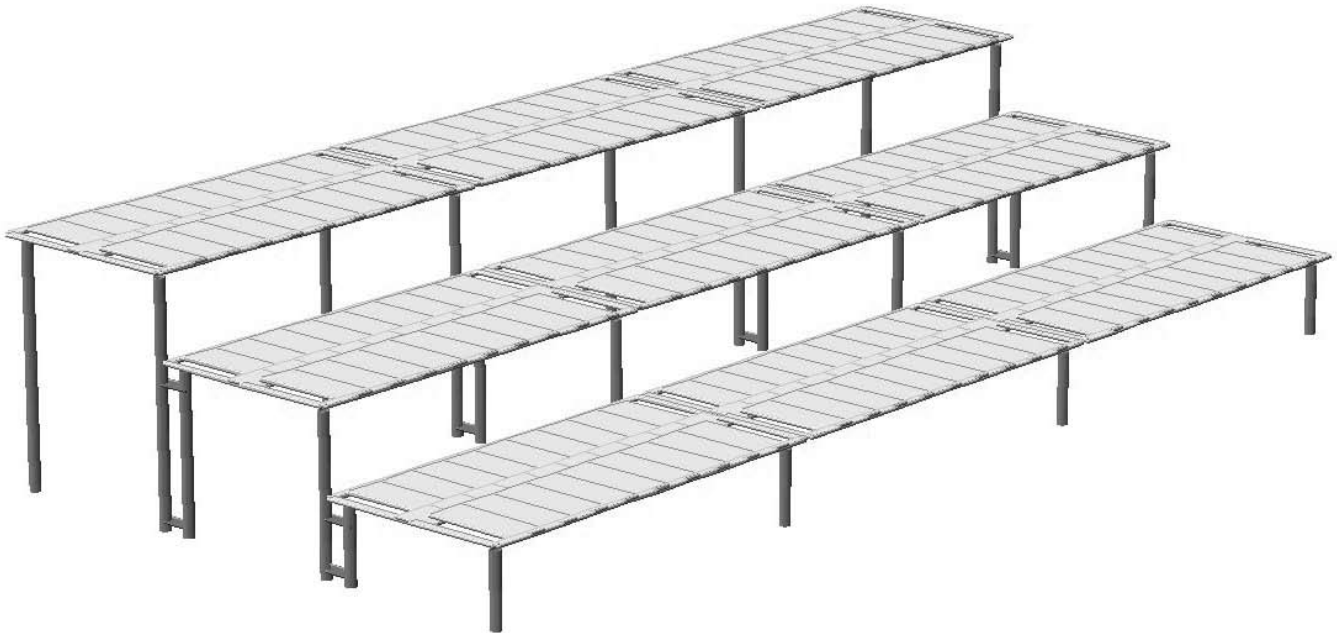


IX. review of stage modules

seat gallery nivtec-flexibel in modular design

gallery height: 120 cm

tier height: 40 cm

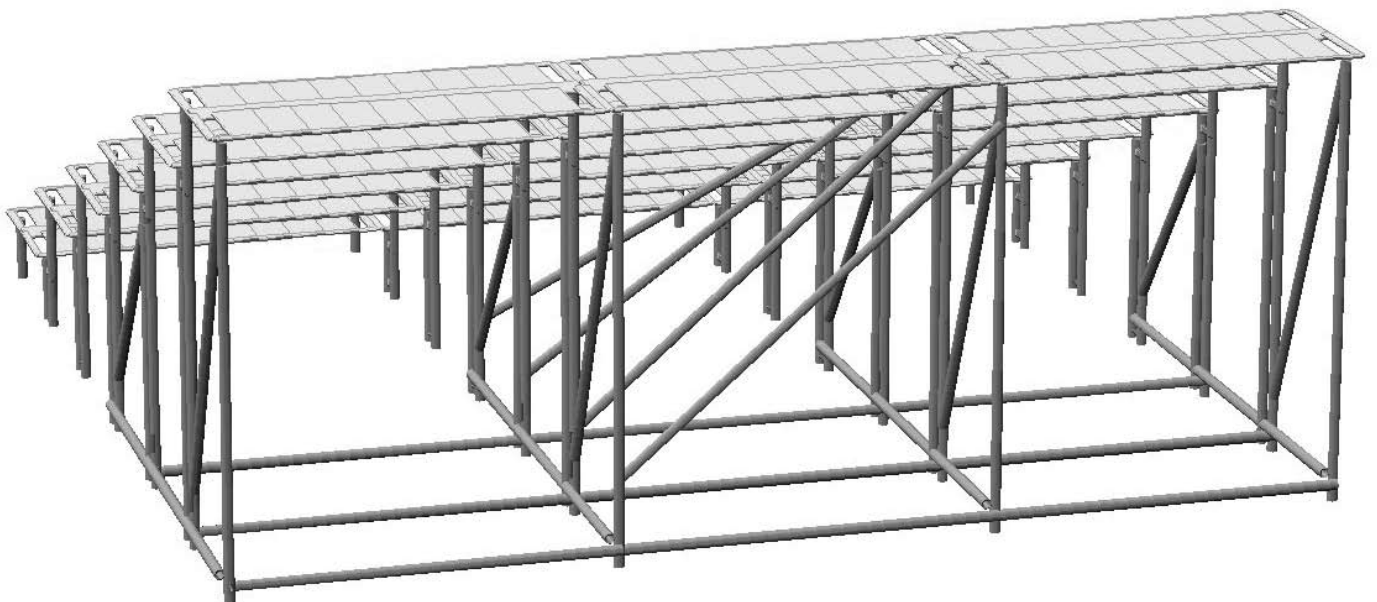
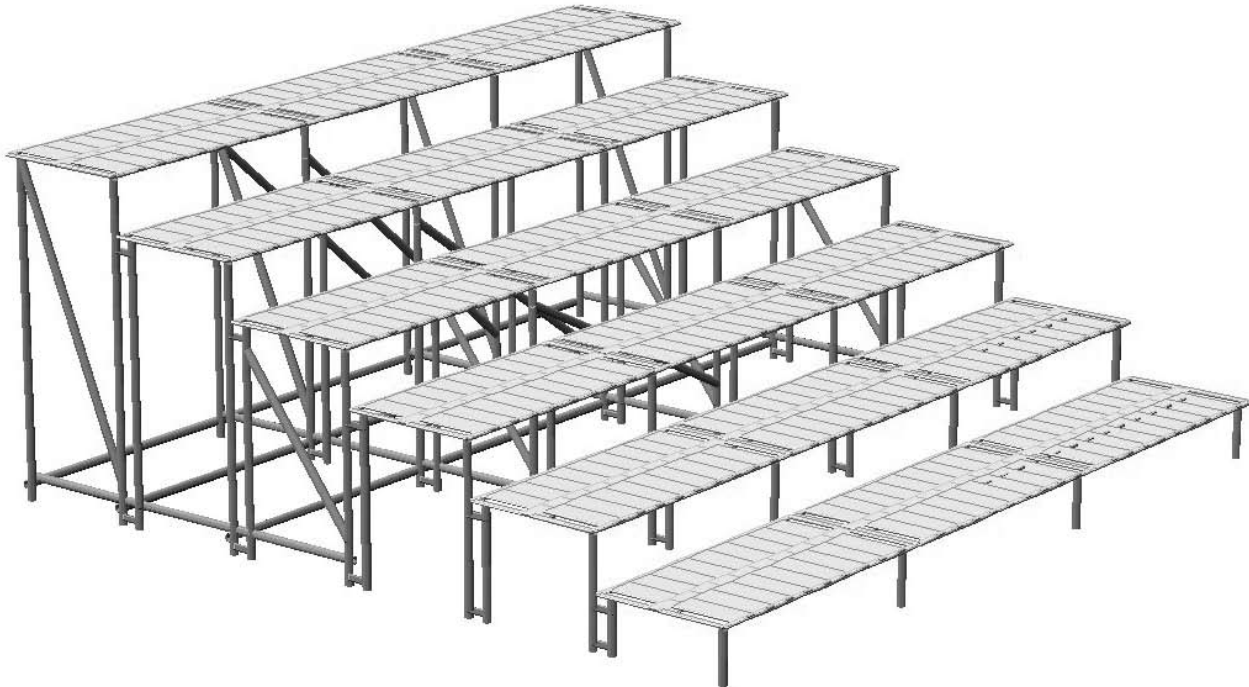


IX. review of stage modules

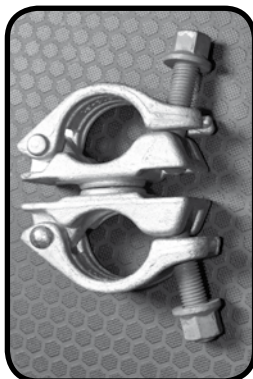
seat gallery nivtec-flexibel in modular design

gallery height: 240 cm

tier height: 40 cm



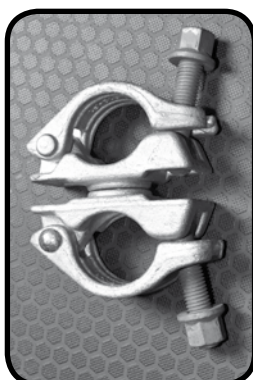
braces: steel tube 48,3 x 4 mm - diagonal



swivel coupling
Layher 48,3 mm



for use with
all legs at the top



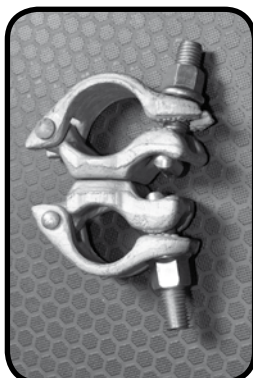
swivel coupling
Layher 48,3 mm



for use with extension legs
at zero adjustment at the bottom



for use with other
legs at the bottom

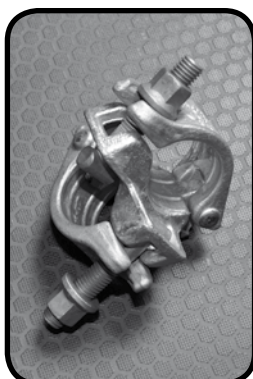


reduction swivel coupling
Plettac 48,3 / 38 mm



for use on the inner tube of
extensions legs at the bottom

braces: steel tube 48,3 x 4 mm - horizontal



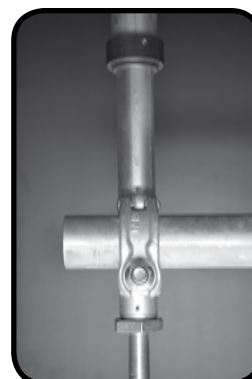
standard coupling
Layher 48,3 mm



for use with
all legs



reduction swivel coupling
Plettac 48,3 / 38 mm



for use on the inner tube
of extension legs