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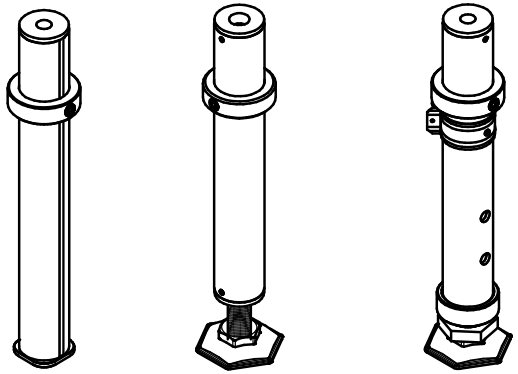
ingeniously simple!

Optimisations

4. Optimisations of the existing product range

already part of the product range

Type of leg:	LV 40	VS 40	TF 40-60
Material:	alu	alu	alu+steel
Adjustment range:		+/-3cm	+/-3cm

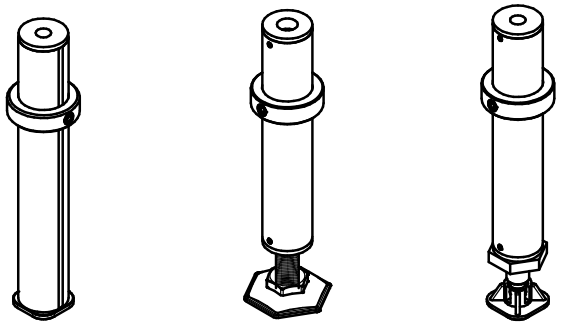


Use for
tier height 20 cm

Expansion to use
for new tier height 16,66 cm

NEW in the product range for more flexible use

LV 33,33	VS 33,33	KG 35
alu	alu	steel
	+/-3cm	+/-3cm



Use for new
tier height 16,66 cm

Use to date only
for ramp construction

Expansion
to use for tier height 16,66 cm and
to use for tier height 20 cm

In 2022 additional load distributor legs (LV) and levelling legs (VS) for tier height 16,66 cm for stage heights up to 133,33 cm complement the existing product range. Furthermore, additional ball bearing legs (KG) in a 5 cm grid with an adjustment range of +/- 3 cm (exception: 15 cm leg = +2/-1 cm) for stage heights up to 115 cm for ramp construction have been included. As the legs can be combined with each other, more possibilities open up for the required inclines and declines.

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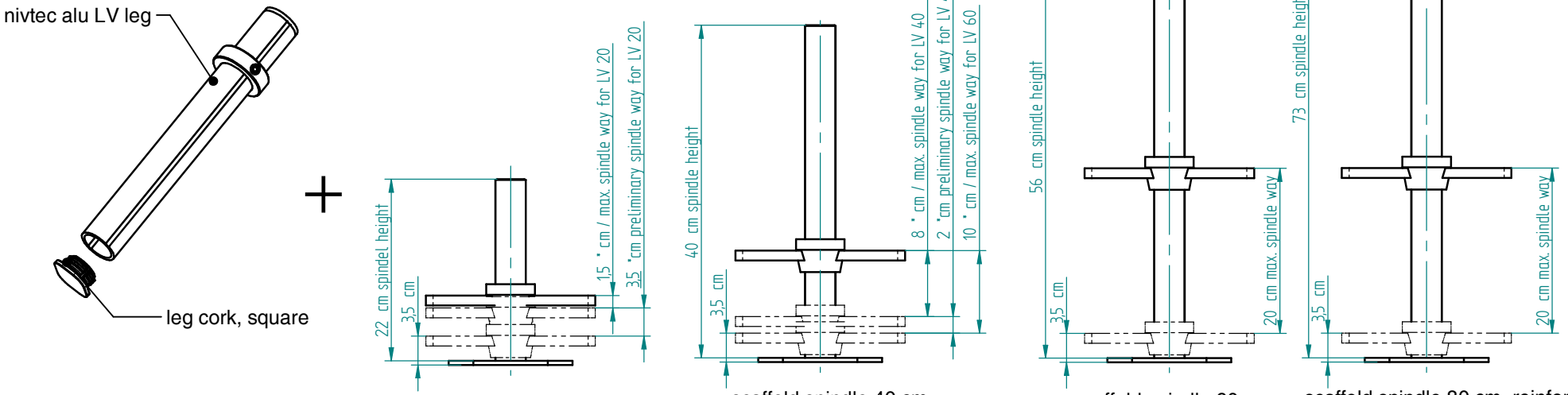
1. enhancement of product range
by additional legs for more flexibility

No.: **1** | Date: 20.09.2022 | Sheet: 1 / 1

max. spindle way allowed for Layher scaffold spindles in combination with nivtec alu load distributor legs with removable load distributor / leg cork



scaffold spindle 20 cm
5602.020

scaffold spindle 40 cm
4001.040

scaffold spindle 60 cm
4001.060

scaffold spindle 80 cm, reinforced
4002.080

chart 1: maximum permissible spindle way

stage heights +/- 0,5 cm height = top of platform	Layher spindle	max. spindle way allowed	Layher scaffold spindle + nivtec LV-leg for stage height
27,5 cm – 29 cm	20 cm	1,5 cm*	20 cm
43,5 cm – 48,5 cm		5 cm	40 cm
45,5 cm – 53,5 cm	40 cm	8 cm*	40 cm
63,5 cm – 73,5 cm		10 cm	60 cm
63,5 cm – 83,5 cm**	60 cm	20 cm	60 cm
83,5 cm – 103,5 cm**		20 cm	80 cm
83,5 cm – 103,5 cm**	80 cm	20 cm	80 cm
103,5 cm – 123,5 cm**		20 cm	100 cm
123,5 cm – 143,5 cm***		20cm	120 cm
143,5 cm – 163,5 cm***		20 cm	140 cm
163,5 cm – 183,5 cm***		20 cm	160 cm
183,5 cm – 200,0 cm***		20 cm	180 cm
*	when using a leg 20 cm a preliminary spindle way of 3,5 cm is mandatory when using a leg 40 cm a preliminary spindle way of 2 cm is mandatory		
**	diagonal bracing stage heights from 80 cm, variant 4 tube length depends on size of legs		
***	additional horizontal bracing for stage heights > 140 cm		

2 additional Layher scaffold spindles (LS) complement the product range in 2022.
In combination with nivtec LV legs they allow for more flexibility not only at low heights but also in case of considerable differences in altitudes.
Precondition for use of all Layher spindles is an exact adherence to all regulations regarding maximum spindle way and bracing.

chart 2:
specification of bracing material for bracing variant 4 (alu tubes with Layher couplers)

**	diagonals to be used for bracing variant 4		
for leg size	for leg distance	Art.No.	article description
80 – 100 cm	100 / 85 cm	200 31 1	alu diagonal BL: 100/ 85 cm BH: 80-100cm L: 1300 mm
80 – 100 cm	200 / 185 cm	200 31 3	alu diagonal BL: 100/ 85 cm BH: 80-100cm L: 2250 mm
>100 – 140 cm	100 / 85 cm	200 31 2	alu diagonal BL: 100/ 85 cm BH: >100-140 cm L: 1500 mm
>100 – 140 cm	200 / 185 cm	200 31 4	alu diagonal BL: 200/185 cm BH: >100-140 cm L: 2400 mm
>140 – 180 cm	100 / 85 cm	200 32 4	alu diagonal BL: 100/ 85 cm BH: >140-180 cm L: 1500 mm
>140 – 180 cm	200 / 185 cm	200 31 6	alu diagonal BL: 100/ 85 cm BH: >140-180 cm L: 2500 mm
>180 – 200 cm	100 / 85 cm	200 32 0	alu diagonal BL: 100/ 85 cm BH: >180-200 cm L: 1750 mm
>180 – 200 cm	200 / 185 cm	200 32 1	alu diagonal BL: 100/ 85 cm BH: >180-200 cm L: 2750 mm

***	horizontals to be additionally used for bracing variant 4		
	for leg distance	Art.No.	article description
	100 / 85 cm	200 31 7	alu horizontal BL: 100/ 85 cm L: 1100 mm
	200 / 185 cm	200 31 5	alu horitzonal BL: 200/185 cm L: 2100 mm

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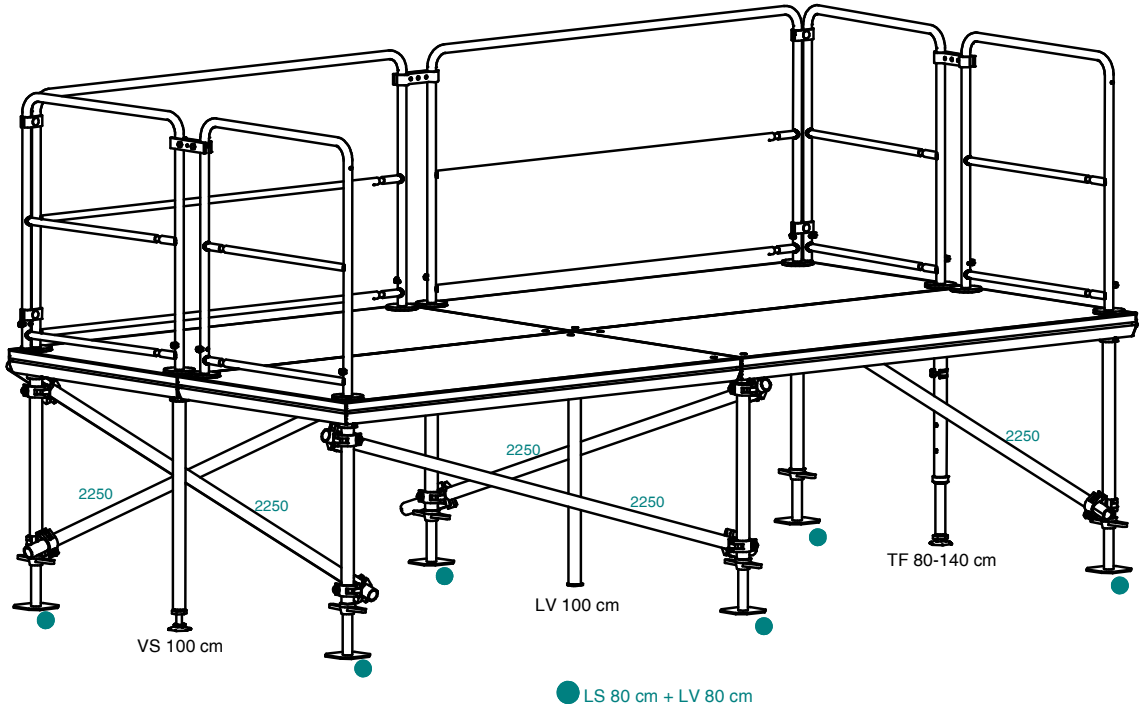
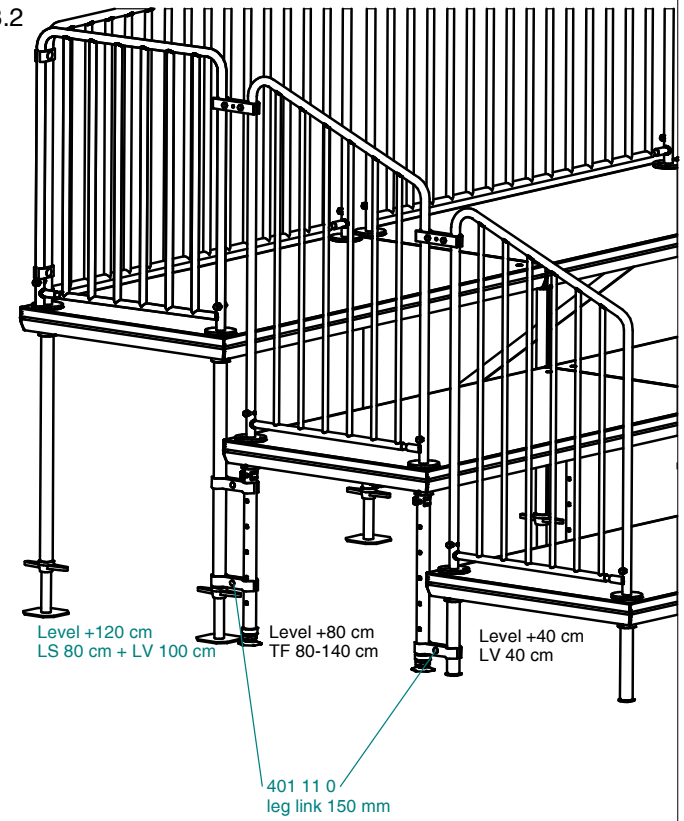
2. enhancement of product range
by additional scaffold spindles

Nr.: **2** | Date: 25.11.2022 | Sheet: 1 / 1

Stage 3.1



Gallery 3.2

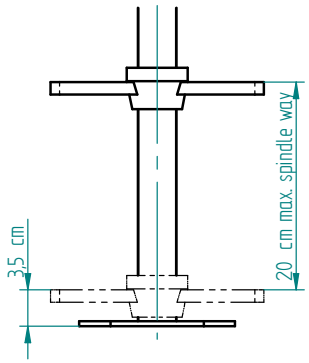


mixed installation

The nivtec staging system offers a wide range of leg versions. All nivtec original legs, equipped with thread adapter and load ring, may be installed under the following conditions:

- All approved nivtec leg versions can be used for **stages**. The bracing is carried out according to the nivtec alu bracing principle. The legs connected with braces must be of the same leg version (see sample drawing 3.1).
  Diagonal braces (for stage heights ≥ 80 cm) and additional horizontal braces (for stage heights > 140 cm) have to be made of aluminium.
- All approved nivtec leg variants can be used for **galleries**, provided that for each level only one leg version is used (see sample drawing 3.2). The bracing is carried out in accordance with the nivtec alu bracing principle. Diagonal braces and horizontal braces have to be made of aluminium.
- **When using Layher spindles** in combination with nivtec LV legs in standard or special sizes the maximum spindle way of 20 cm (see sample drawing 3.3) has to be observed.
- For galleries which are set up completely or in parts with Layher spindles LS + LV legs an identical leg distance of 15 cm between all levels is mandatory (see sample drawing 3.2)

3.3 spindle way
scaffold spindle

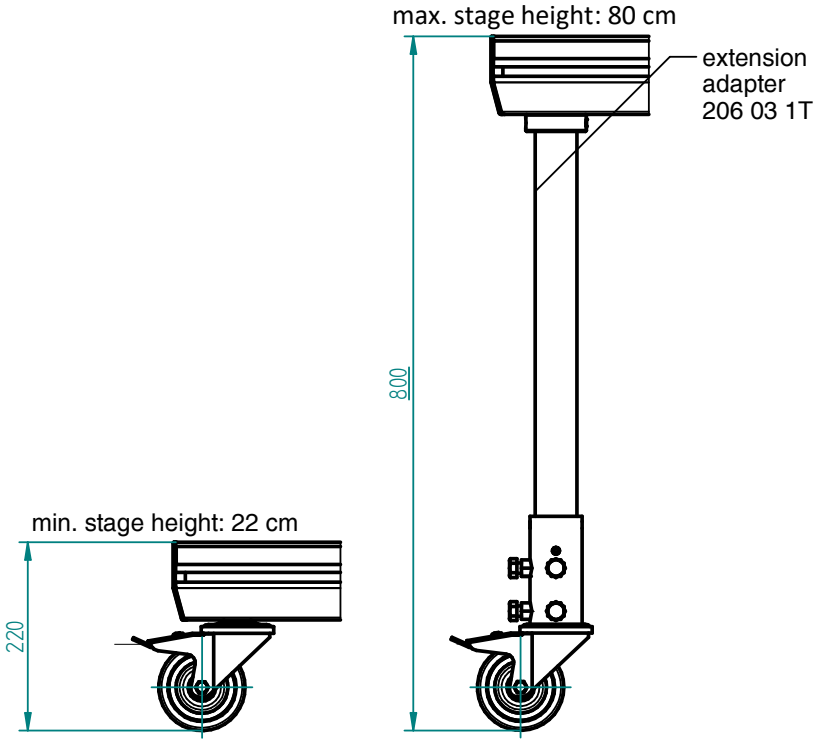


Rolling Risers with castor wheels 10 cm and 16 cm in comparison

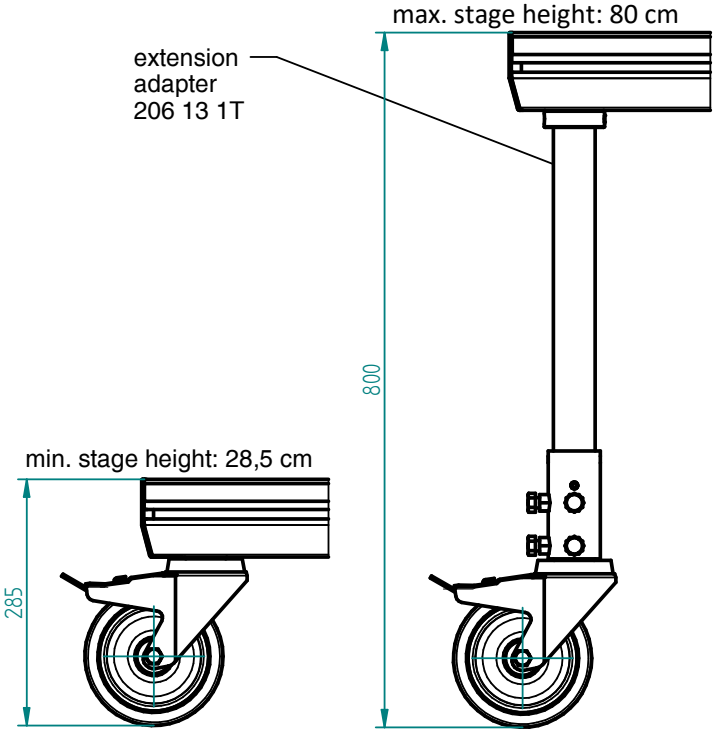
Rolling risers may only be used on flat and level surfaces.
Permitted load capacities may not be exceeded.
max. construction height without diagonal bracing: 80 cm
max. stage size: 24 m²

The set-up is carried out as specified in the nivtec assembly instructions
according to the **nivtec principle 4-2-2-1.**

*with swivel wheel ø10 cm
*wheel capacity 200 kg
*permitted stage load capacity 1,5 kN/m²



*with swivel wheel ø16 cm
*wheel capacity 350 kg
*permitted stage load capacity 2,5 kN/m²



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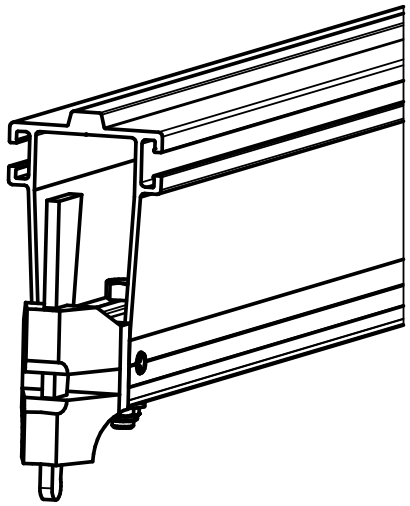
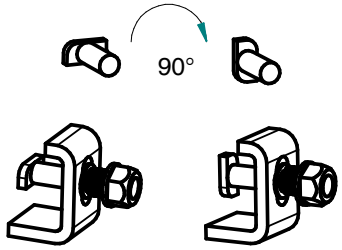
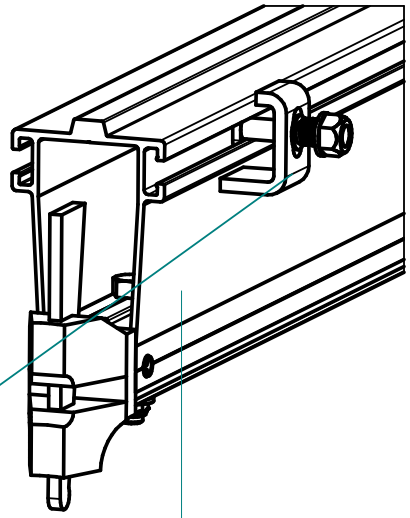
4. Approval of rolling risers up to 80 cm without diagonal bracing

No. 4 | Date: 20.09.2022 | Sheet: 1 / 1

Function of safety flap: tight connection of platforms and weight girder base construction

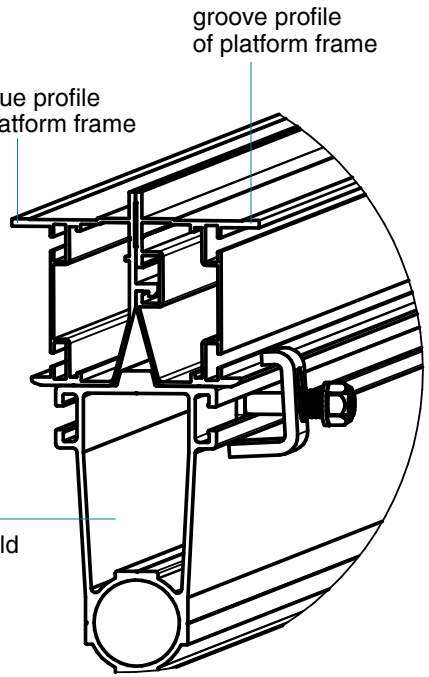


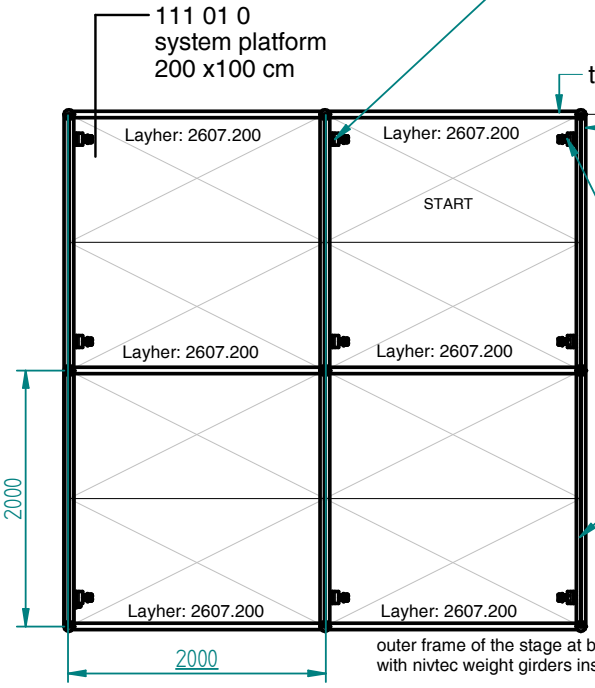




207 05 0
safety flap
for weight girder

207 02 0
weight girder L:200 cm
for Layher Steel Allround Scaffold





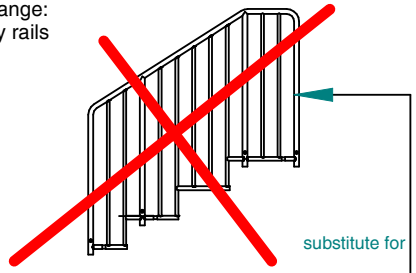
The hammerhead screw used for special bolts replaces the special pan head screw with flattened head. By using the hammerhead screw the safety flaps can easily be inserted into the groove of the weight girder and secured by a 90° turn. Then the flap is hooked to the bottom of the platform frame. The integrated spring of the flap takes care of securing it.

Thus it is no longer necessary to attach the flaps before the set-up. They can, however, be applied during the course of the assembly. The **placement of the flaps** at weight girder stages (set up in grid 2x2m) is carried out according to the **nivtec principle 4-2-2-1** (see set-up diagram), which is familiar from stage construction with plug-in legs (2x1m grid).

Function of safety flap: tight connection of platforms and weight girder base construction

NEW: tier height 16,66 cm with matching modular plug-in vertical bar safety rails as alternative to tier height 20 cm with matching modular plug-in standard rails

removed from the product range:
one-piece vertical bar safety rails
for 2- to 7-step stairways



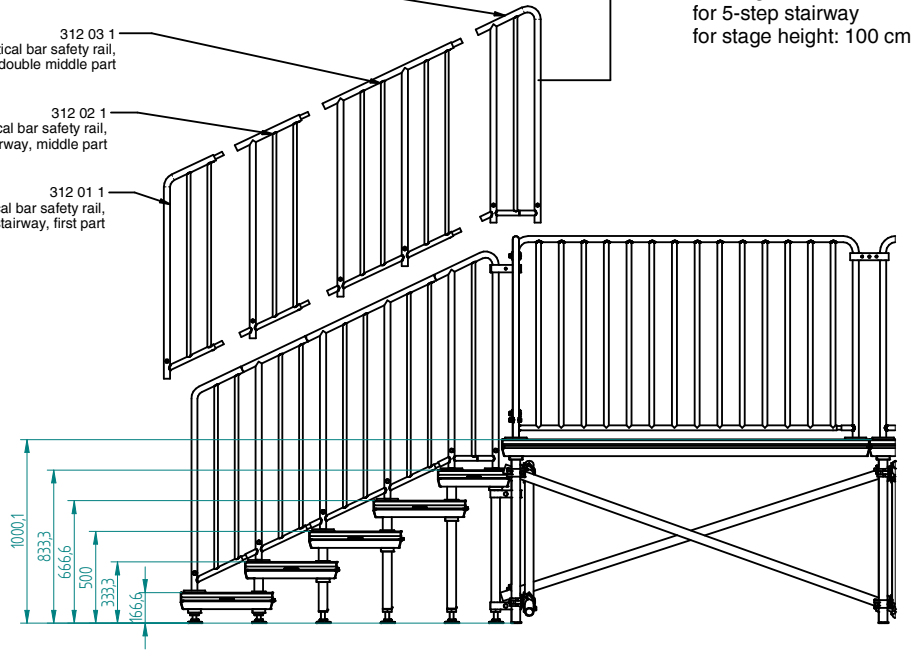
substitute for

312 09 1
vertical bar safety rail,
stairway, final part on step A

312 03 1
vertical bar safety rail,
stairway, double middle part

312 02 1
vertical bar safety rail,
stairway, middle part

312 01 1
vertical bar safety rail,
stairway, first part

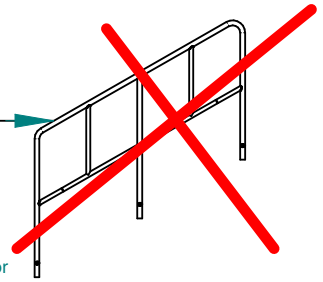


alternative to

vertical bar safety rail, stairway
tier height 16,66, modular plug-in
for 5-step stairway
for stage height: 100 cm

standard safety rail, stairway
tier heigt 20, modular plug-in
for 4-step stairway
for stage height: 100 cm

removed from the product range:
one-piece standard safety rails
for 3- or 4-step stairways

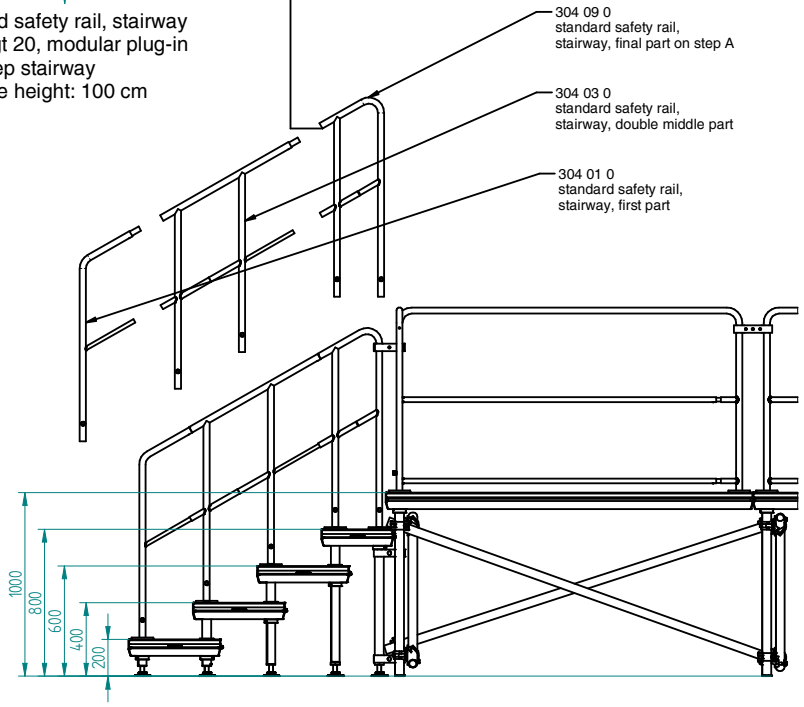


substitute for

304 09 0
standard safety rail,
stairway, final part on step A

304 03 0
standard safety rail,
stairway, double middle part

304 01 0
standard safety rail,
stairway, first part



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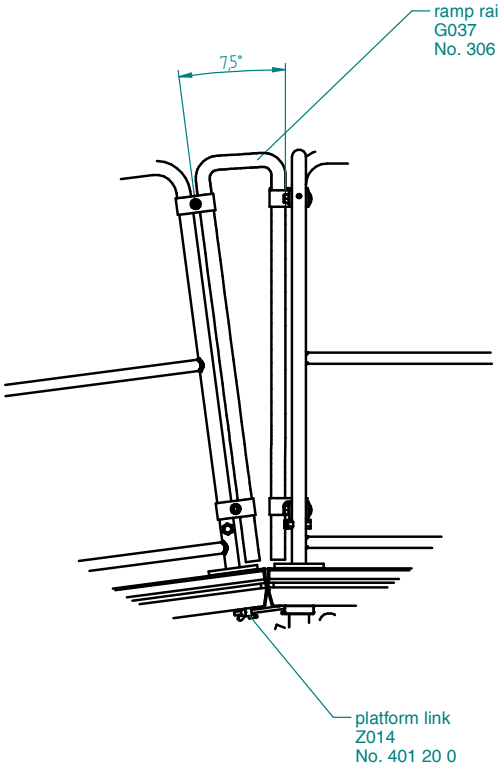
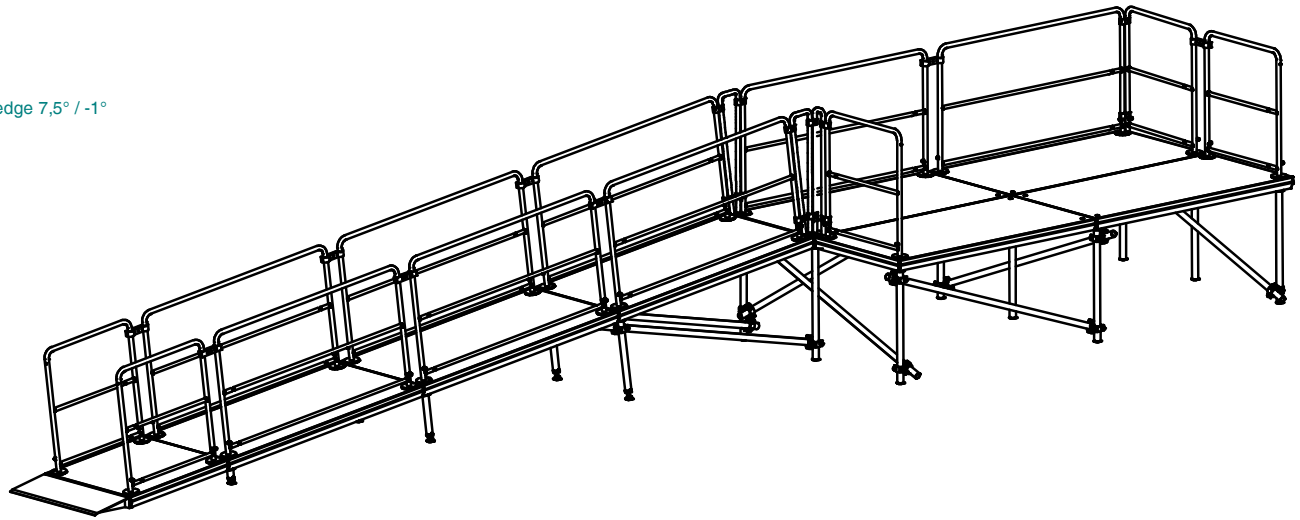
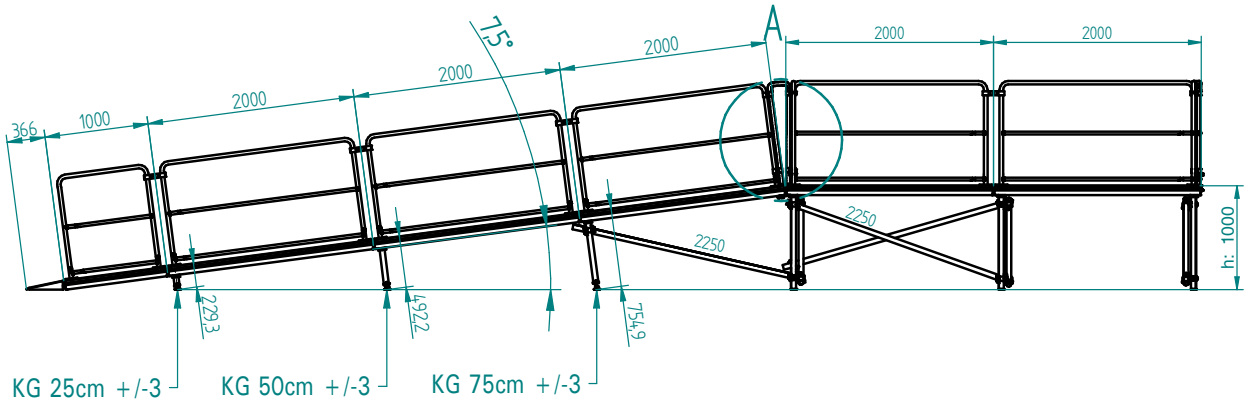
6. enhancement by tier height 16,66 cm
with matching rails

No.: **6** | Date: 20.09.2022 | Sheet: 1 / 1

Detail A







Overview of ramps 7,5°: max. 6 different KG legs for stage heights up to 100 cm										
G037 / No.:306 02 0 / ramp rail H: 100 cm wedge 7,5° /-1°										
h: [m]	**angle**	**length [m] (without wedge)**	**KG [adj.range]**		**KG [adj.range]**		**KG [adj.range]**		**KG [adj.range]**	
0,4	7,2°	2,5	15cm+2/-1	[160,2mm]						
0,6	7,4°	4	35cm+/-3	[355,5mm]						
0,8	6,8°	6	35cm+/-3	[336 mm]	60cm+/-3	[574,8 mm]				
1,0	7,5°	7	25cm+/-3	[229,3 mm]	50cm+/-3	[492,2 mm]	75cm+/-3	[754,9 mm]		
1,2	7,5°	8,5	15cm+2/-1	[163,6mm]	45cm+/-3	[427,6 mm]	70cm+/-3	[691,5mm]	95cm+/-3	[955,4mm]
1,4	7,5°	10	35cm+/-3	[362,3 mm]	65cm+/-3	[627 mm]	90cm+/-3	[891,8 mm]	115cm+/-3	[1156,3mm

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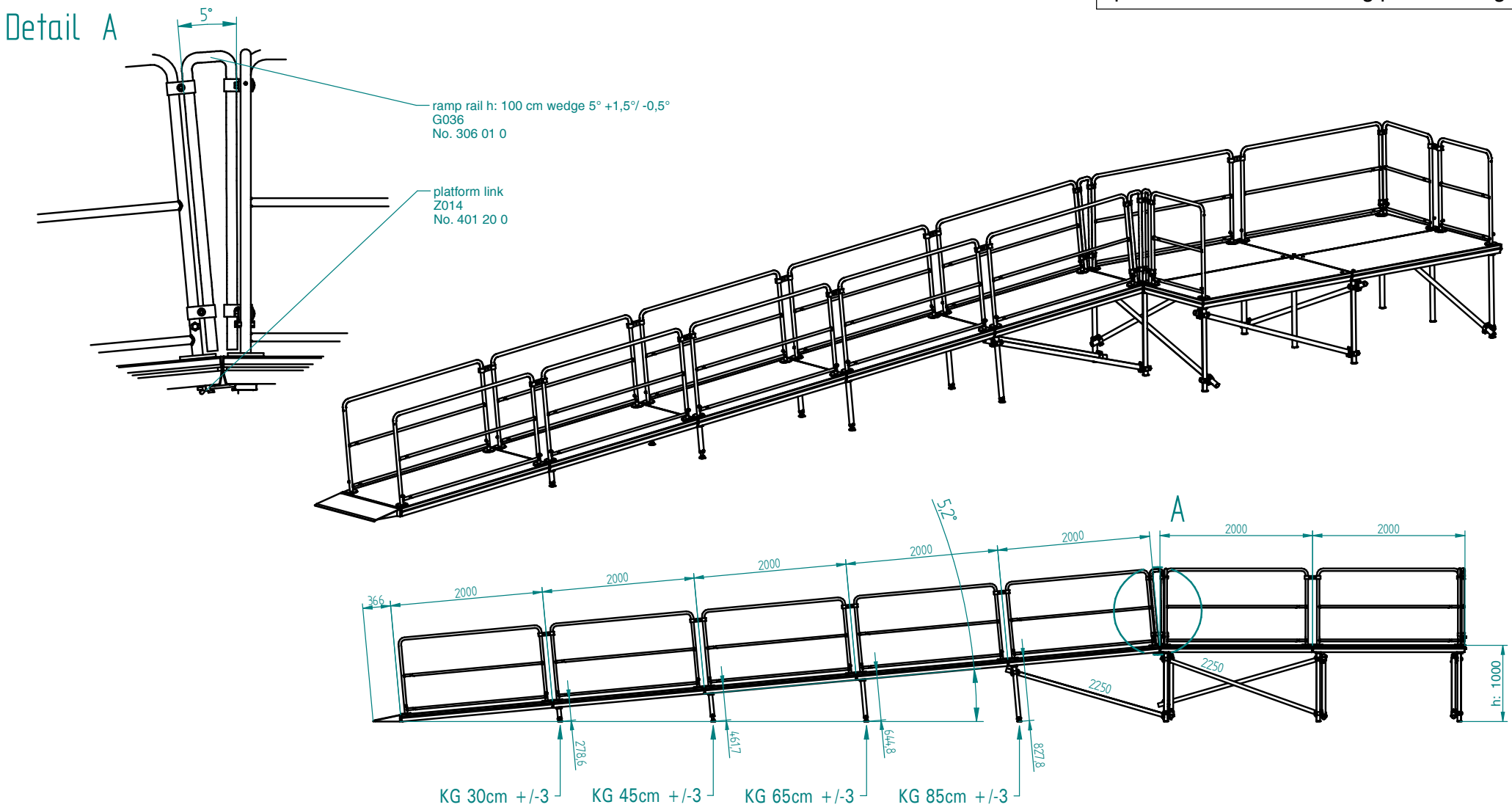
7. 3 ramp rail wedges for all cases
7.1 Ramp rail wedge 7,5°



Overview of ramps 5°: max. 4 different KG legs for stage heights up to 100 cm

G036 / No. 306 01 0 / ramp rail H: 100 cm wedge 5° +1,5/-0,5°

h: [m]	angle	length [m] (without wedge)	KG [adj. range]		KG [adj. range]		KG [adj. range]		KG [adj. range]		KG [adj. range]		KG [adj. range]	
0,4	4,5°	4	25cm+2/-1	[250,5mm]										
0,6	4,9°	6	25cm+/-3	[266 mm]	45cm+/-3	[437 mm]								
0,8	5,1°	8	30cm+/-3	[273,6mm]	45cm+/-3	[452,3mm]	65cm+/-3	[630,8mm]						
1,0	5,2°	10	30cm+/-3	[278,6mm]	45cm+/-3	[461,7mm]	65cm+/-3	[644,8mm]	85cm+/-3	[827,8mm]				
1,2	5,3°	12	30cm+/-3	[282,2mm]	45cm+/-3	[467 mm]	65cm+/-3	[653,7mm]	85cm+/-3	[839,6mm]	105cm+/-3	[1025,6mm]		
1,4	5,4°	14	30cm+/-3	[283,5mm]	45cm+/-3	[471,7 mm]	65cm+/-3	[660 mm]	85cm+/-3	[848,2mm]	105cm+/-3	[1036,4mm]	120cm+/-3	[1224,5mm]

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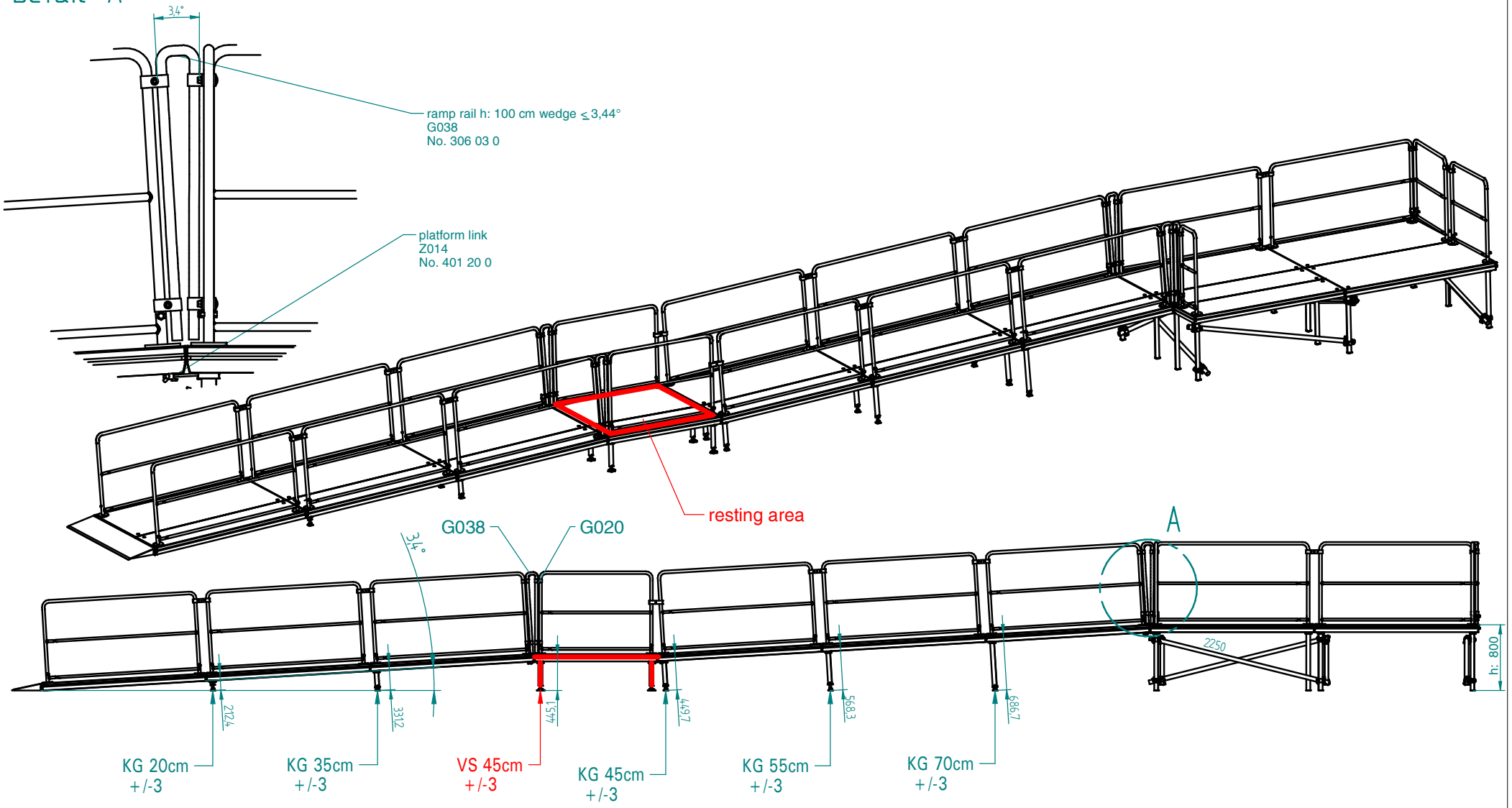
7. 3 ramp rail wedges for all cases
7.2 Ramp rail wedge 5°

optimisations of the existing product range

Detail A



Overview of ramps 3,44° = 6%

G038 / Nr.: 306 03 0 / ramp rail H: 100 cm wedge, ≦ 3,44°

h: [m]	angle	length [m] (without wedge)	KG [adj. range]		KG [adj. range]		resting area VS [adj. range]		KG [adj. range]		KG [adj. range]		KG [adj. range]	
0,2	3,2°	2												
0,4	3°	6	20cm+/-3	[196,9mm]	30cm+/-3	[300,5mm]								
0,6	3,26°	10,5	20cm+/-3	[206,8mm]	35cm+/-3	[320,5mm]	40cm+/-3	[429,9mm]	45cm+/-3	[434,4mm]	55cm+/-3	[548,0mm]		
0,8	3,4°	13,5	20cm+/-3	[212,4mm]	35cm+/-3	[331,2mm]	45cm+/-3	[445,1mm]	45cm+/-3	[449,7mm]	55cm+/-3	[568,3mm]	70cm+/-3	[686,7mm]

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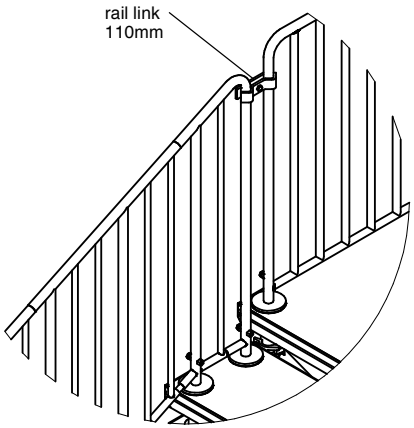
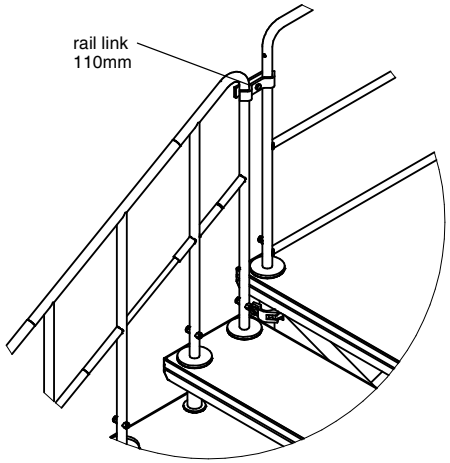
7. 3 ramp rail wedges for all cases
7.3 Ramp rail wedge 3,44° = 6 %.

No. **7.3** | Date: 20.09.2022 | Sheet: 3 / 3

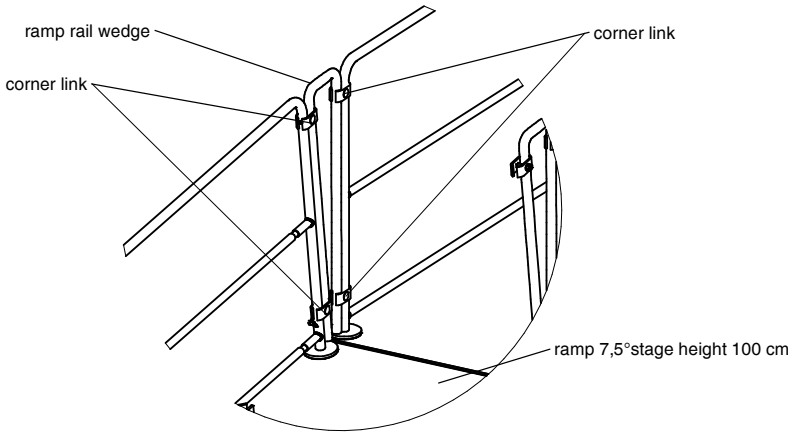
connecting options for rails of various ascents with stage rails at the rear at an angle of 180°



vertical bar stairway rail tier height 16,66 cm



standard stairway rail tier height 20 cm



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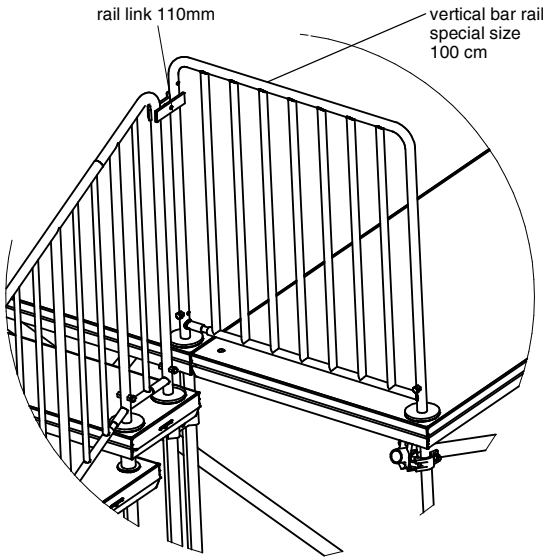
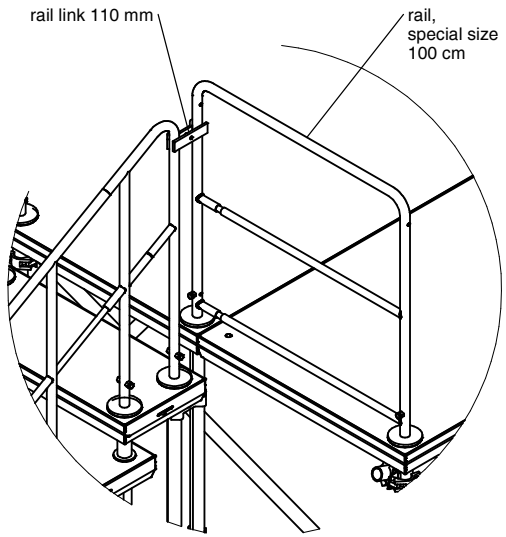
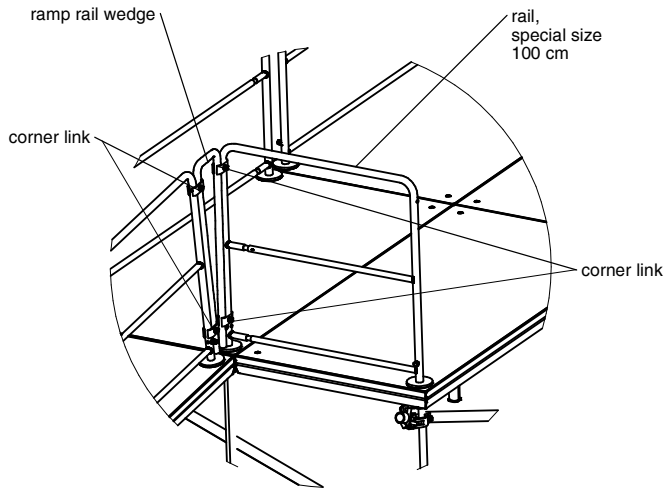
8. Enhancement of connecting options for rails
8.1 Connection of ascent to stage at angle 180°

Connecting options for rails of various ascents with stage rails at the side at angle 90°

Variant A: use of rails in special sizes







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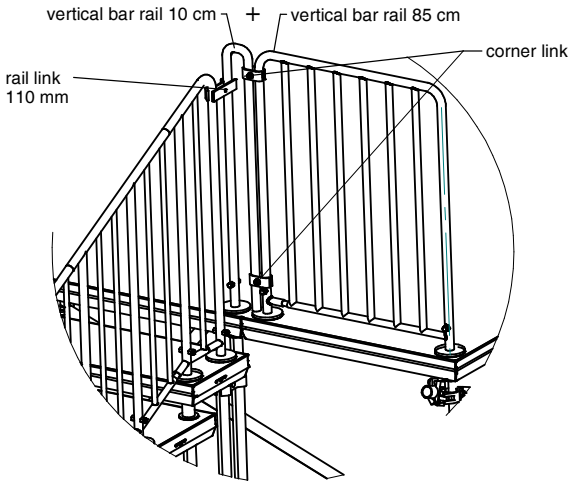
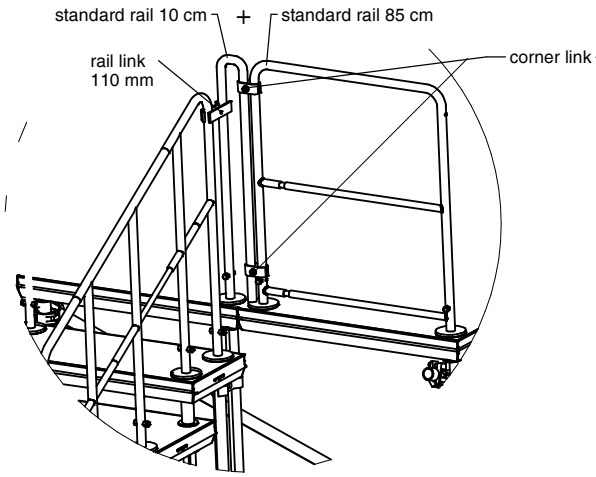
8. Enhancement of connecting options for rails
8.2 Connection of ascent to stage at 90° angle
- use of rails in special sizes

Connecting options for rails of various ascents with stage rails at the side at angle 90°

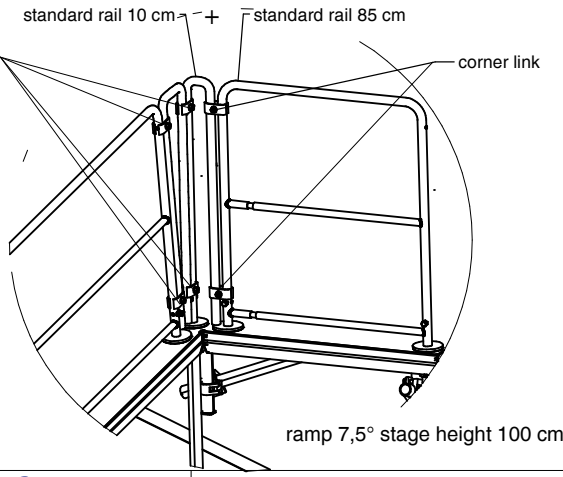
Variant B = better: use of 10 cm + 85 cm rails as substitute for rail in special size 100 cm



vertical bar stairway rail tier height 16,66 cm



standard stairway rail tier height 20 cm



ramp 7,5° stage height 100 cm

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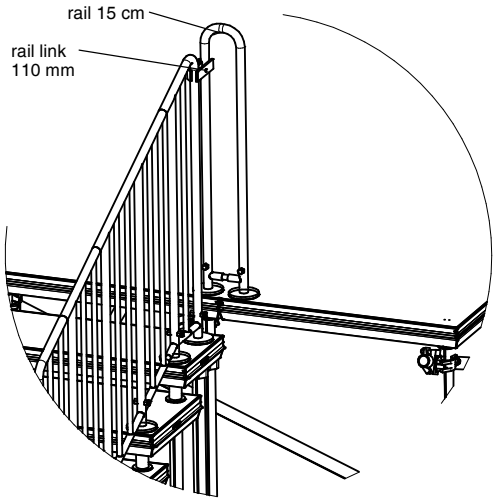
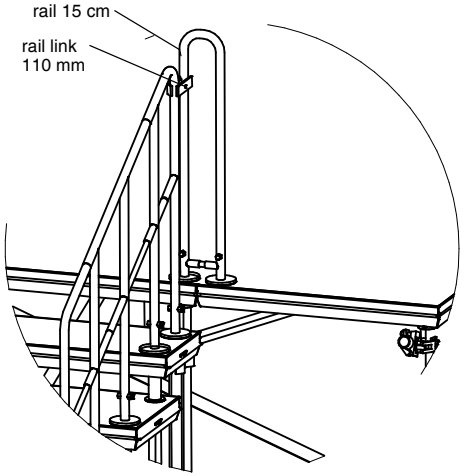
8. Enhancement of the connecting options for rails
8.3 Connection of ascent to stage at angle 90°
- use of 10 cm rail

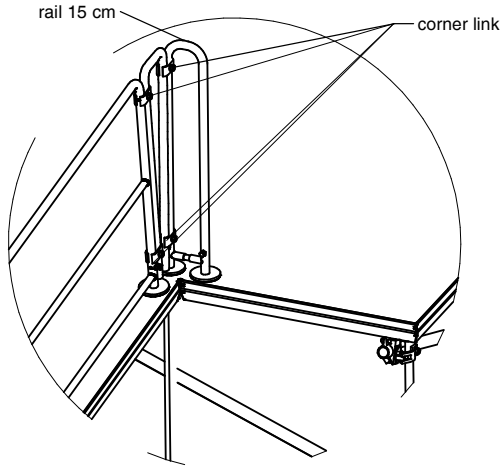
No. **8.3** | Date: 20.09.2022 | Sheet: 2 / 3

Connecting options for rails of various ascents at the side at angle 90° without stage rails

Variant C: use of 15 cm rail as substitute for stairway rail final part ending on stage







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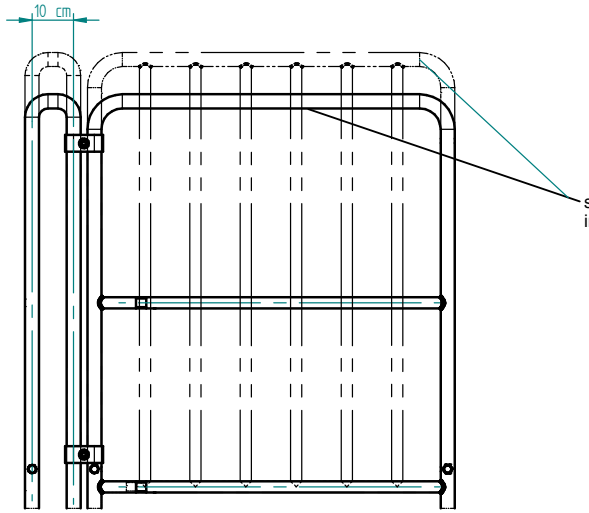
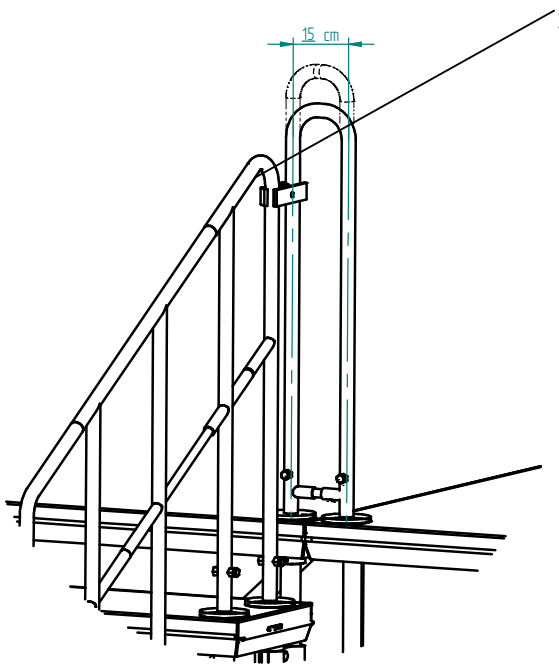
8. Enhancement of the connecting options for rails
8.4 Connection of ascent to stage at angle 90°
- use of 15 cm rail

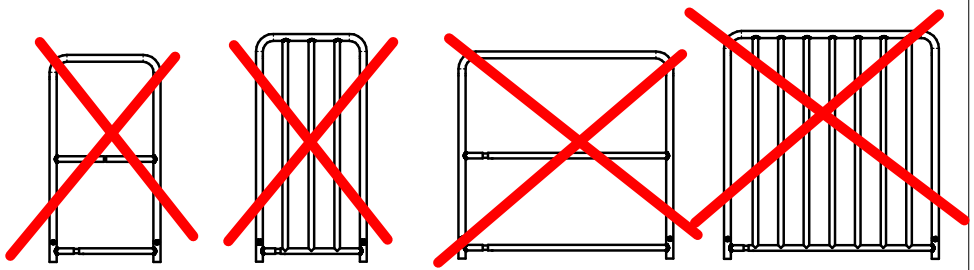
No. **8.4** | Date: 20.09.2022 | Sheet: 2 / 3

2 rails as substitutes for 10

Thanks to their versatility in use, just 2 rails in 10 cm and 15 cm substitute various previous rails that are being eliminated from the product range.





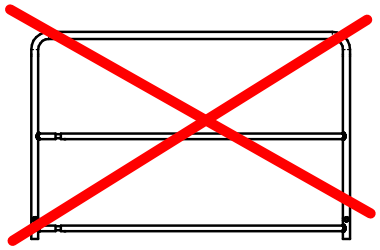


rail H: 100 cm
W: 50 cm
301 06 0

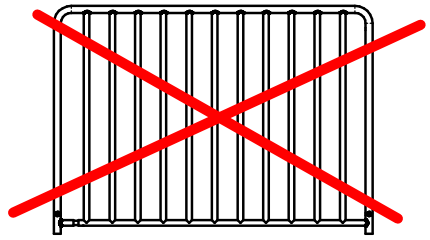
rail H: 110 cm
W: 50 cm
303 06 0

rail H: 100cm
W: 100 cm
301 07 0

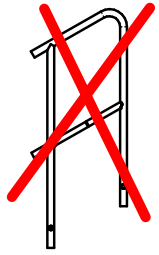
rail H: 110 cm
W: 100 cm
303 07 0



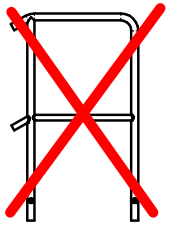
rail H: 100cm
W: 150 cm
301 05 0



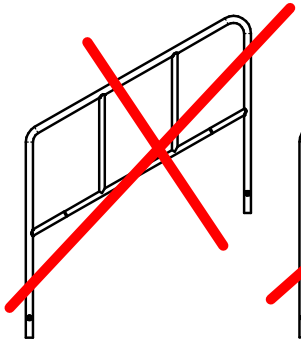
rail H110cm
W: 150 cm
303 05 0



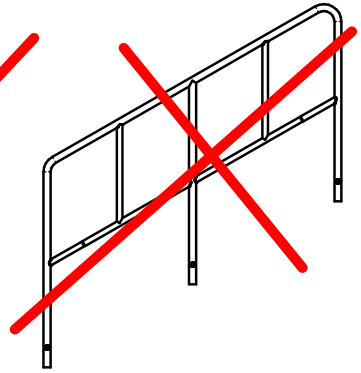
rail H: 100 cm
final part
304 08 0



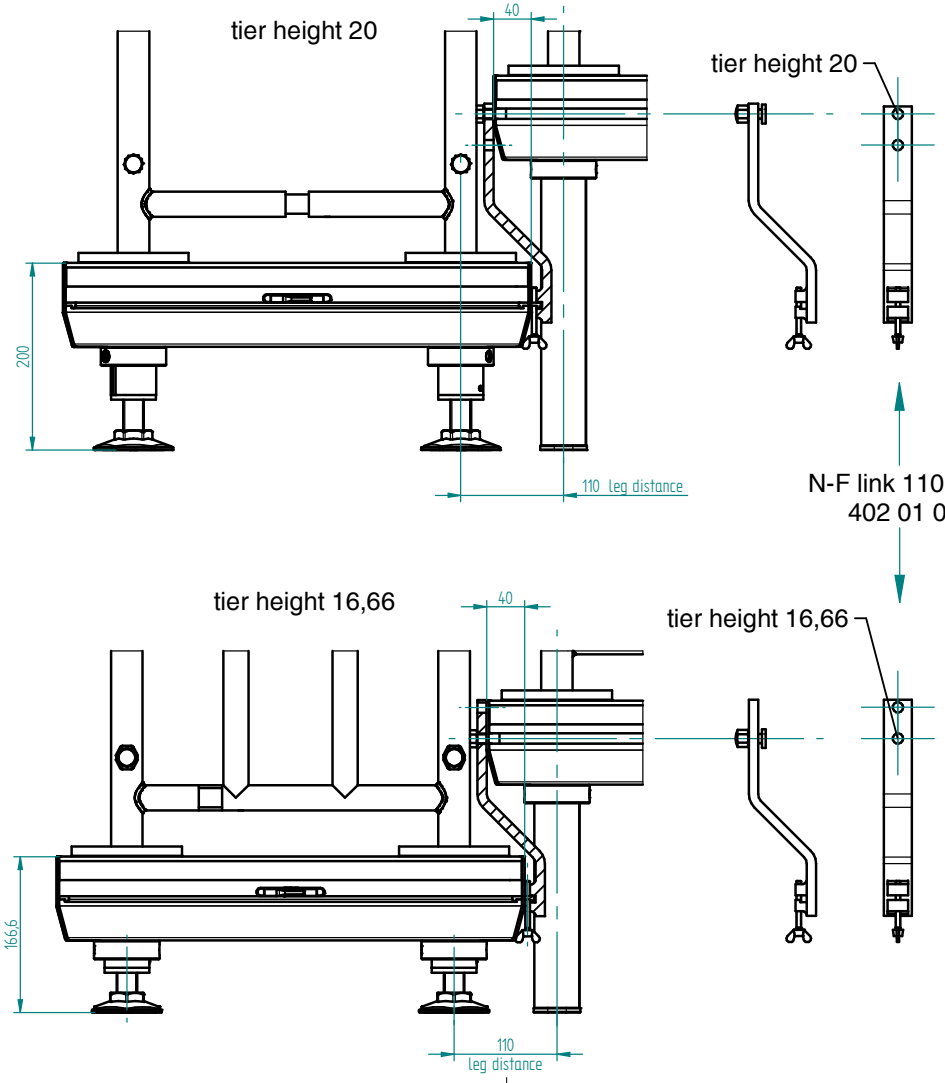
rail H: 100 cm
final part
304 07 0



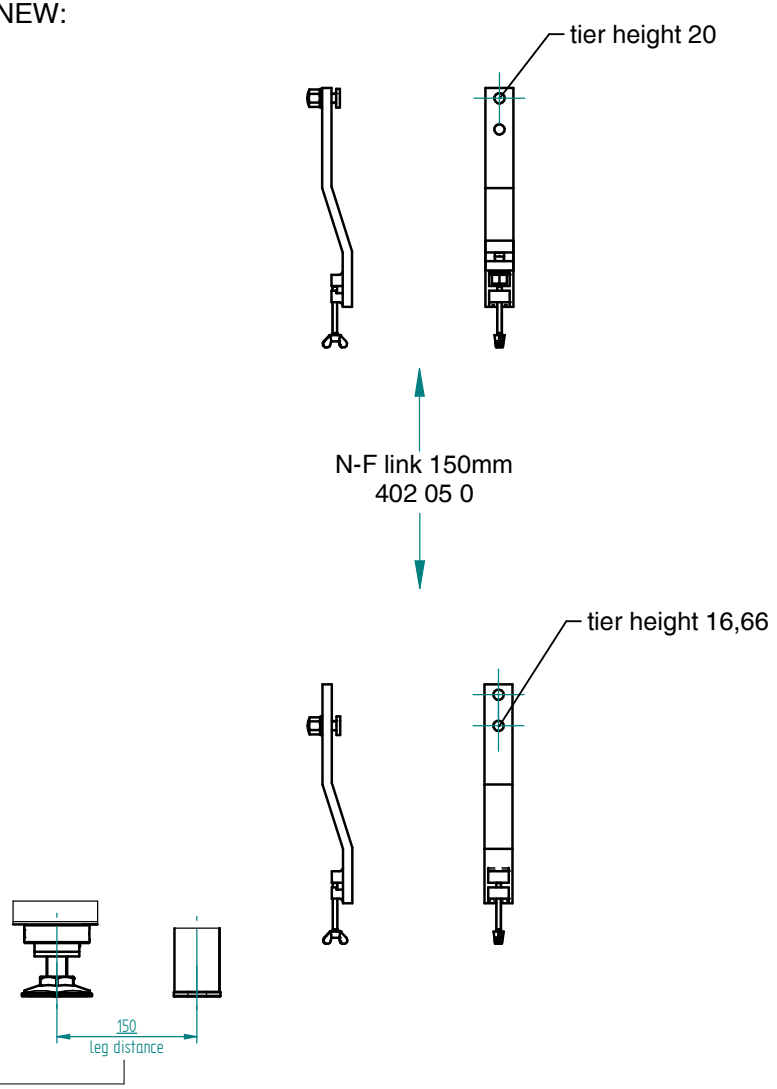
rail H: 100 cm
3-step stairway
304 10 0



rail H: 100 cm
4-step stairway
304 12 0

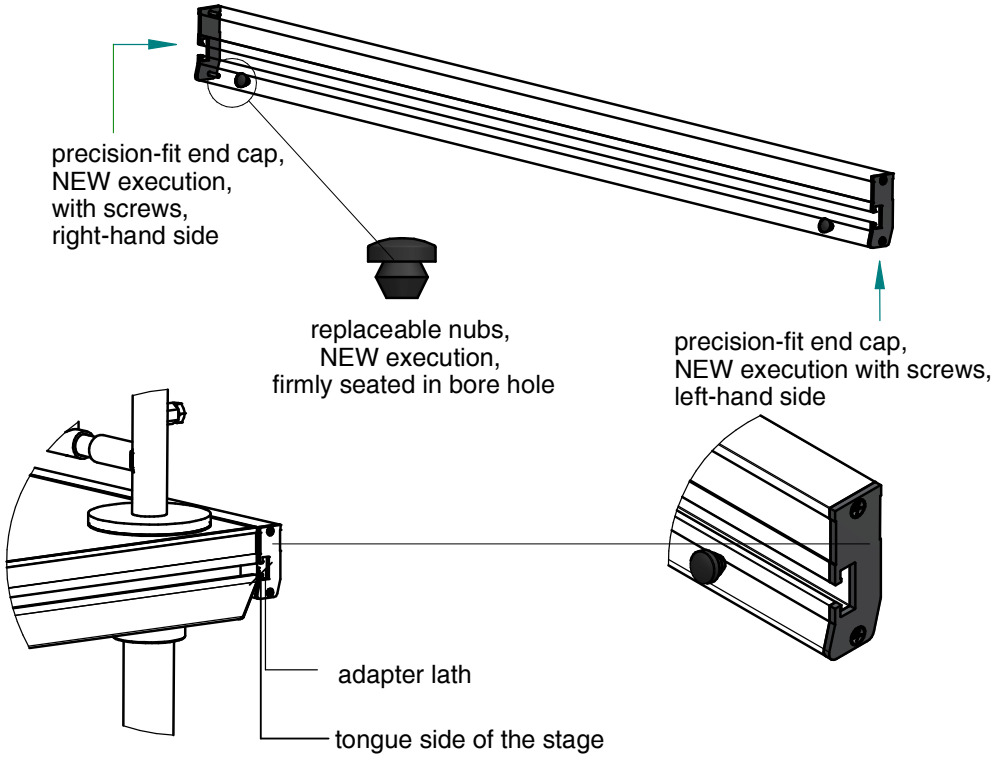


NEW:

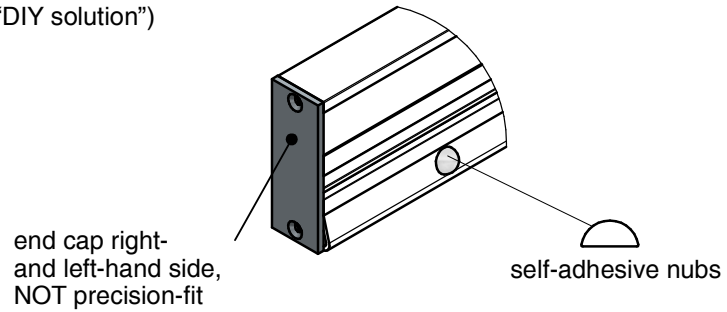


The standard N-F link for leg distance 110 cm cannot be used for tier height 20 cm only but also for new tier height 16,66 cm.
Alternatively for both tier heights an N-F link for leg distance 150 cm is added to the range of articles.
Thus the N-F links are available for any set-up options of stairways and galleries.

new execution since 01.03.2022

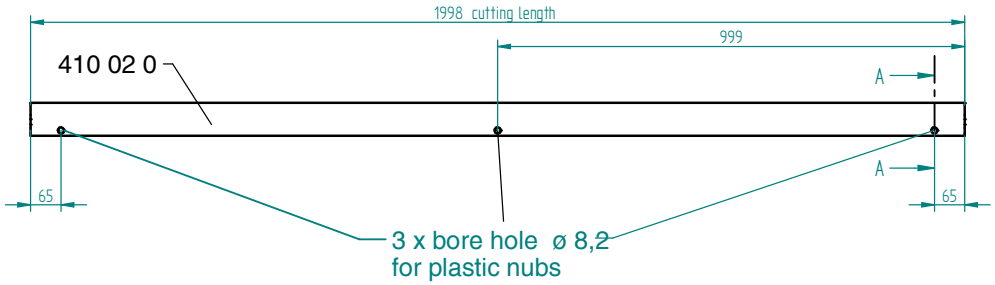


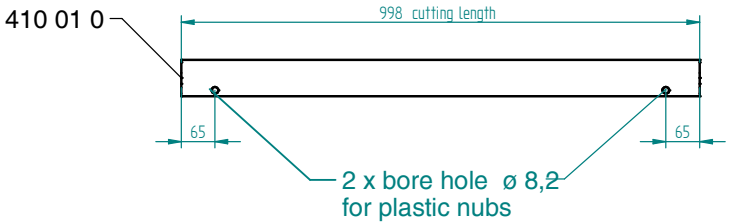
old execution since March 2015
(a.k.a. “DIY solution”)



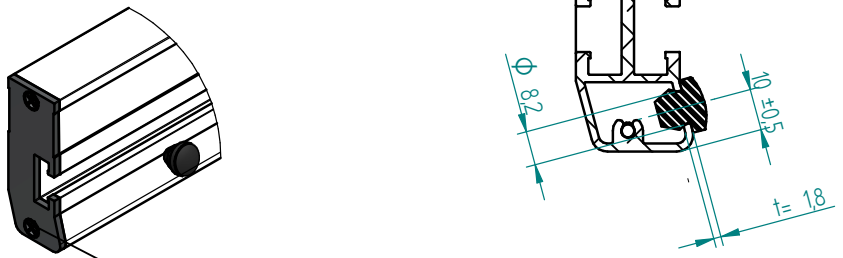
The new execution of the adapter lath is equipped with replaceable plastic nubs that are firmly seated in a bore hole. The new, precision-fit end caps can be attached at the right and left side. Comparison to the old execution: illustration 10.1.
Both of these innovations can be retrofitted (see 10.2).

The adapter laths provide the option of connecting a stage to a fix object (see 10.3). It is mandatory to respect the safety instructions (see 10.4).

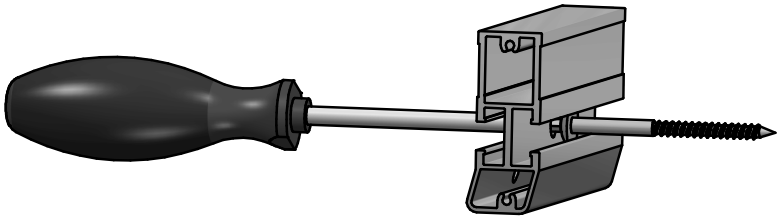


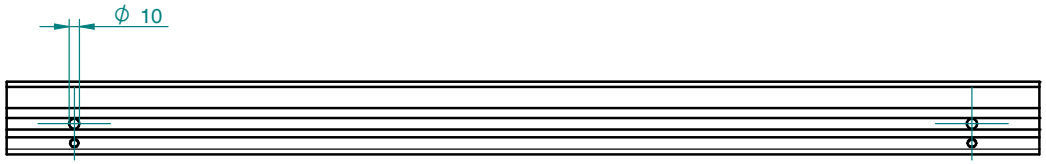


View A-A

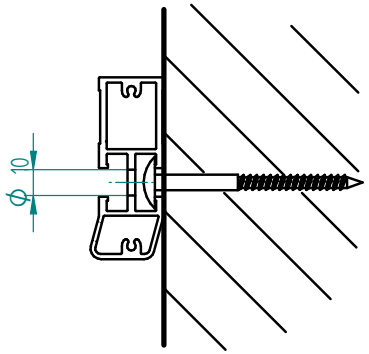


optionally: fasten end cap at the left and the right side with 2 countersunk screws ISO7050 3.5 x 16 each.





number of bore holes per adapter lath: for lengths < 100 cm at least 2 holes
for lengths > 100 cm at least 3 holes

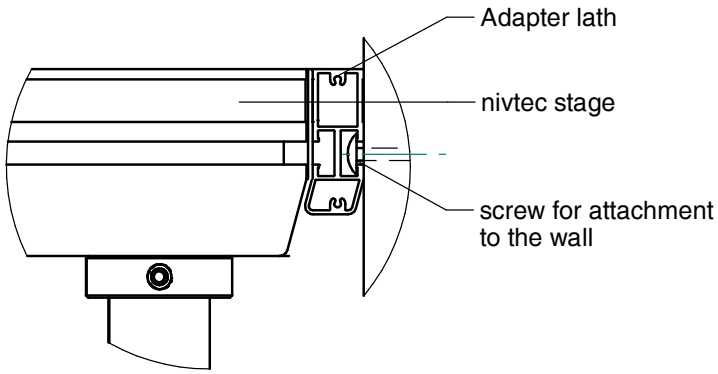


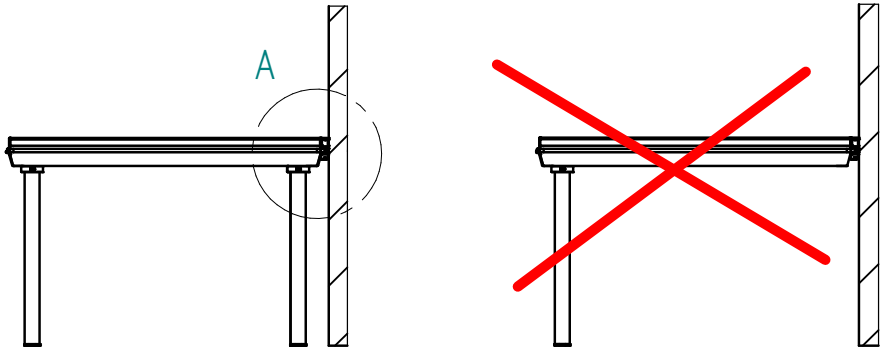
Through holes of Ø 10 mm diameter are to be drilled into the centre bridge of the adapter lath profile.

The screws are inserted laterally into the rear groove and positioned under the through holes. The screws are tightened via the through hole using a suitable screwdriver.

screws to be used:
-concrete and wood: 8.0x80 TX40 (for masonry: dowels required)
-metal: Round-head screws M8x50

Detail A





Adapter laths do **NOT** replace the legs as they are not load-bearing elements. Therefore, they may only be used as a connecting element.

The set-up is carried out as specified in the nivtec set-up instructions according to **nivtec-Prinzip 4-2-2-1**