

TOPEC[®]

Modular slab formwork

User guide



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1 Product features

The HÜNNEBECK TOPEC slab formwork is a panelized system for the economical and safe shoring of slabs by hand. It consists of only two basic components: panel and prop.

The aluminium framed panel is light and handy.

The high-performance form sheet is protected by special frame profiles at all edges and designed for a high number of reuses and highest concrete face quality.

All EUROPLUS new steel props (but also former HÜNNEBECK steel props) as well as the prop Alu 500 DC can be used with the TOPEC formwork.

1.1 General information

This user guide contains important information regarding the assembly and use of the TOPEC formwork of HÜNNEBECK as well as safety instructions that are important for a safe application on site.

This user guide is created to support effective working processes on site with the TOPEC formwork. Therefore read the user guide carefully before working with the TOPEC formwork, keep it always at hand and archive it for reference.

HÜNNEBECK products are exclusively designed for commercial use by technically suitable users.

1.2 Safety instructions

Important information regarding the intended use and safe application of formwork and falsework

The contractor is responsible for drawing up a comprehensive risk assessment and a set of installation instructions. The last one is not usually identical to the user guide.

- Risk assessment
The contractor is responsible for the compilation, documentation, implementation and revision of a risk assessment for each construction site. Employees are obliged to implement the measures resulting from this in accordance with all legal requirements.
- Installation instructions
The contractor is responsible for compiling a written set of installation instructions. The user guide is part of the basis for the compilation of a installation instructions.
- User guide
Formwork is technical work equipment that is intended for commercial use only. The product must be used as intended exclusively by properly trained personnel and appropriately qualified supervising personnel. The user guide is an integral component of the formwork construction. It comprises at minimum safety guidelines, details on the standard configuration and intended use, as well as the system description. The functional instructions (standard configuration) contained in the user guide are to be complied with as stated. Enhancements, deviations or changes represent a potential risk and therefore require separate verification (with the help of a risk assessment) or a set of installation instructions that comply with the relevant laws, standards and safety regulations. The same applies in those cases where formwork and/or falsework components are provided by the contractor.
This user guide is intended for commercial users with appropriate technical training. The contents and processes described are in accordance with the legal and occupational safety regulations of Germany and Austria. HÜNNEBECK assumes no liability for deviations from the contents and processes described or for use outside this area of application.

- Availability of the user guide
The contractor has to ensure that the user guide provided by the manufacturer or formwork supplier is available on site. Before the assembly and use the site personal has to be familiar with the user guide and the user guide must be available at all times.
- Images
The images shown in the user guide are, in part, situations of assembly and not always complete in terms of safety considerations. Nevertheless, the safety installations that may not be shown in these images must be available.
- Storage and transportation
The special requirements of the respective formwork constructions regarding transportation procedures as well as storage must be complied with. For example, the appropriate lifting gear should be indicated.
- Material check
Formwork and falsework material deliveries are to be checked on arrival at the construction site/place of destination as well as before each use to ensure that they are in perfect condition and function correctly. Changes to the formwork materials are not permitted.
- Spare parts and repairs
Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or authorized repair facilities only.
- Use of other products
Combining formwork components from different manufacturers carries certain risks. They are to be individually verified and can result in the compilation of a separate set of instructions of assembly and use required for the installation of the equipment.
- Safety warnings, Note and visual check
The individual safety messages or notes and the visual check are to be complied with.

Examples:



DANGER

Danger!

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Warning!

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Caution!

CAUTION used with the safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE

Note!

NOTE refers to practices not related to personal injury.



VISUAL CHECK

VISUAL CHECK refers to a visual check and is not related to personal injury.

- Miscellaneous

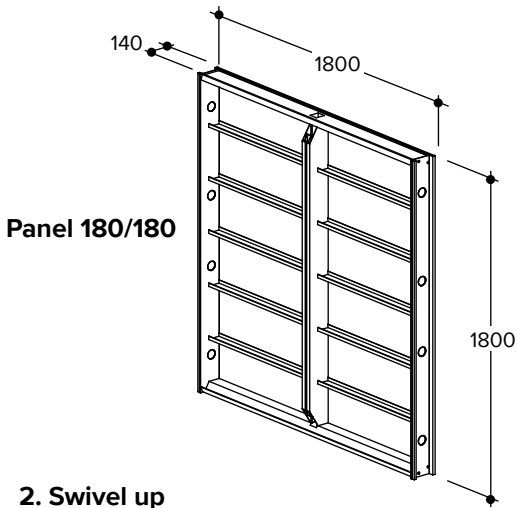
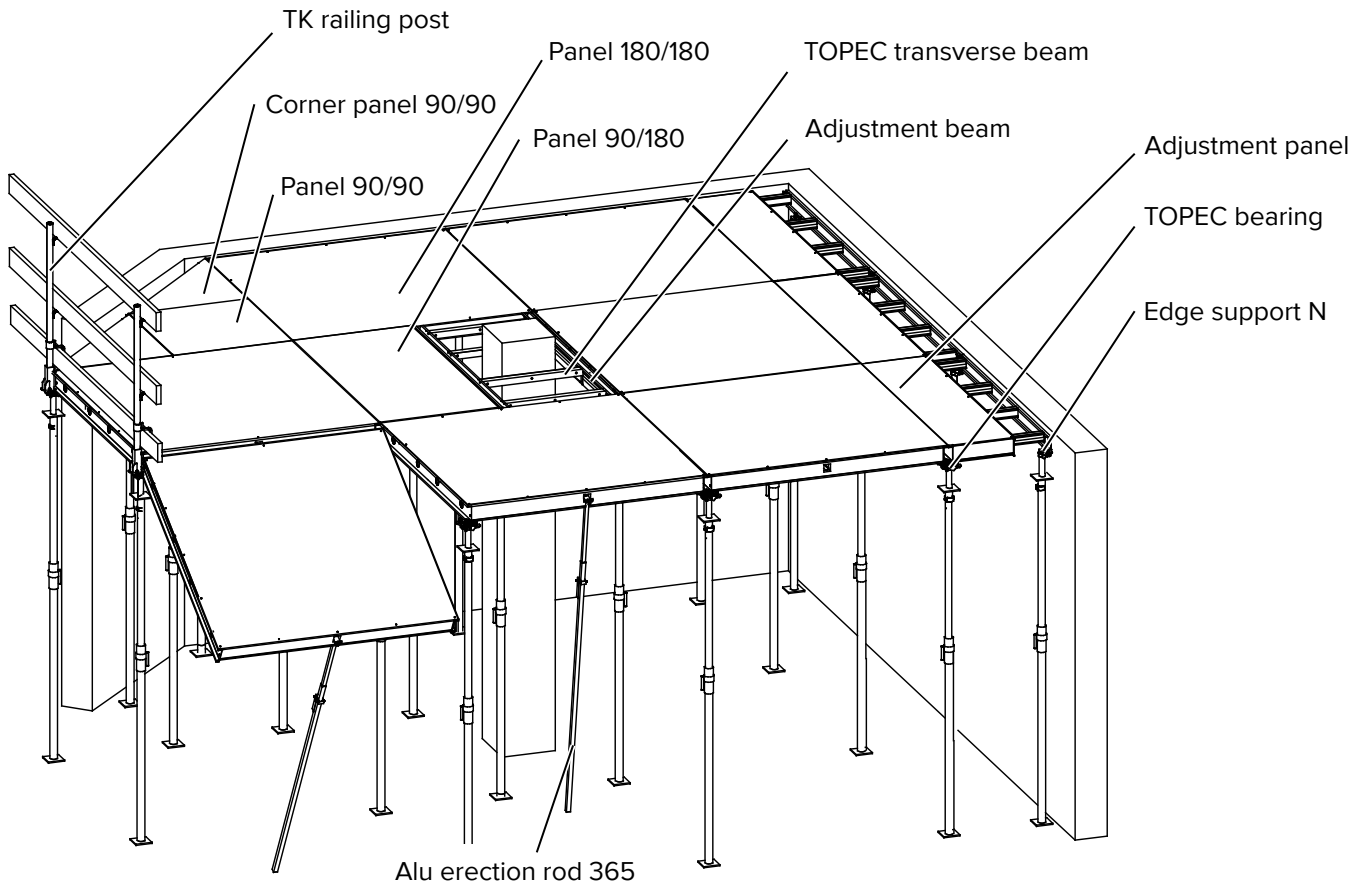
Technical improvements and modifications are subject to change without NOTE.

For the safety-related application and use of the products, all current country-specific laws, standards and other safety regulations are to be complied with without exception. They form a part of the obligations of employers and employees regarding industrial safety. This results in, among other things, the responsibility of the contractor to ensure the stability of the formwork and falsework constructions as well as the structure during all stages of construction. This also includes the basic assembly, stripping and the transport of the formwork and falsework constructions or their components. The complete construction is to be checked during and after assembly.



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Germany

2 Overview



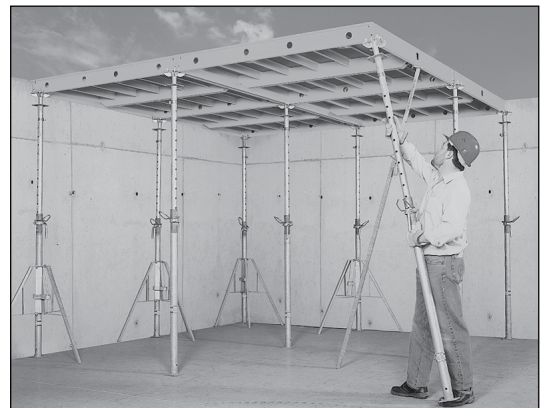
2. Swivel up



1. Hook in



3. Place struts

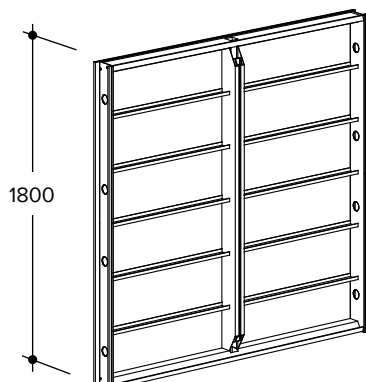
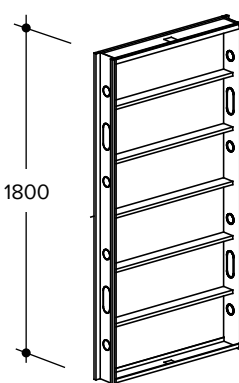
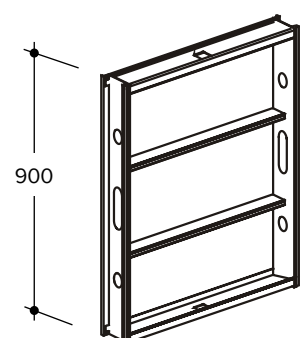


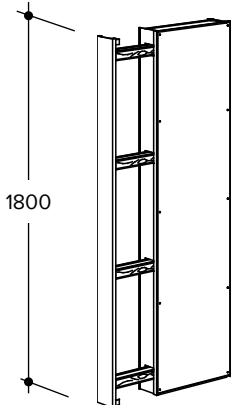
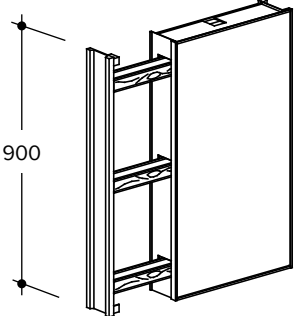
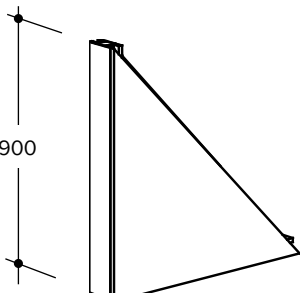
3 Components

3.1 Basic equipment

3.1.1 Panels with plastic form sheet

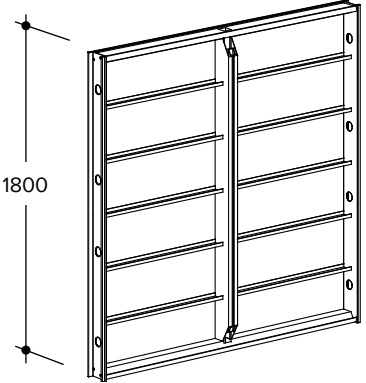
All listed panels are equipped with a 11 mm plastic form sheet.

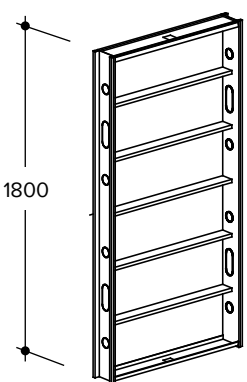
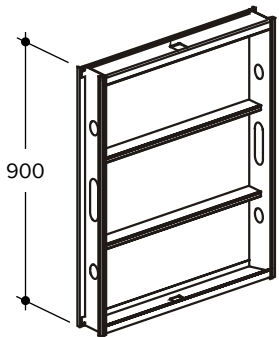
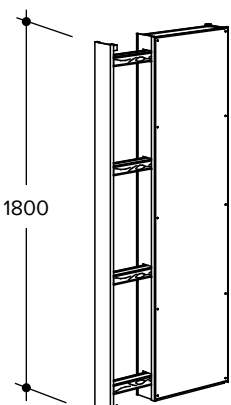
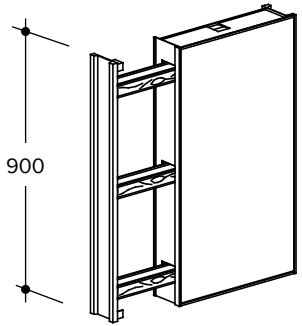
	Component	Product code	Weight [kg]
	TOPEC giant panel E 180/180	602667	47.20
	3.24 m ² forming area per panel reduces the number of parts (panels and props) and accelerates the forming work significantly.		
	TOPEC panel E 180/90	602668	22.22
	TOPEC panel E 180/75	602669	19.50
	TOPEC panel E 180/60	602670	16.95
	TOPEC panel E 180/45	602671	14.25
	TOPEC panel E 90/90	602672	12.32
	TOPEC panel E 90/75	602673	10.75
	TOPEC panel E 90/60	602674	9.25
	TOPEC panel E 90/45	602675	7.69

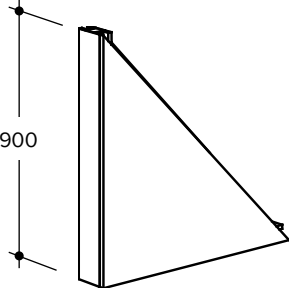
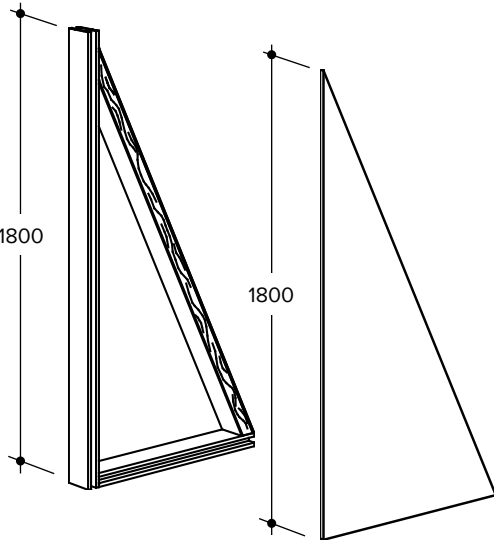
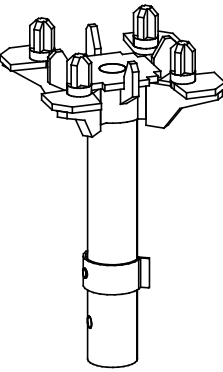
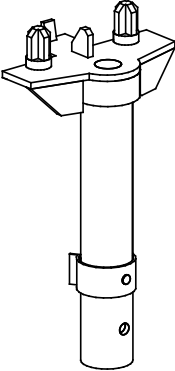
	Component	Product code	Weight [kg]
	TOPEC adjustment panel E 90/180 Panel can be extended continuously from 55 to 90 cm. The fitting plywood strip (5 cm to 40 cm width, 180 cm long and 21 mm thick) can be nailed to the nailing strips that are integrated in the frame.	602676	25.30
	TOPEC adjustment panel E 90/90 Like TOPEC Q adjust panel 90/180 but 90 x 90 cm.	602677	15.73
	TOPEC corner panel E 90/90 Triangular TOPEC panel for irregular adjustment areas.	602678	15.56

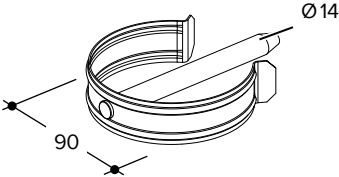
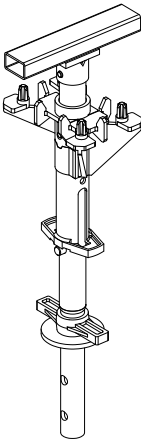
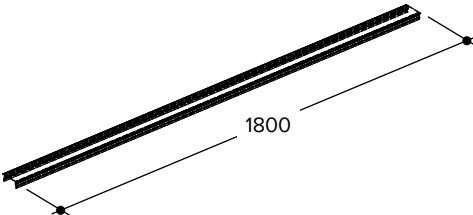
3.1.2 Panels with multiplex plywood

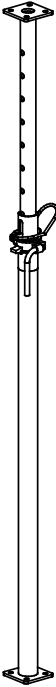
All listed panels are equipped with a 10 mm 7 layer multiplex plywood.

	Component	Product code	Weight [kg]
	TOPEC giant panel 180/180	554000	45.58

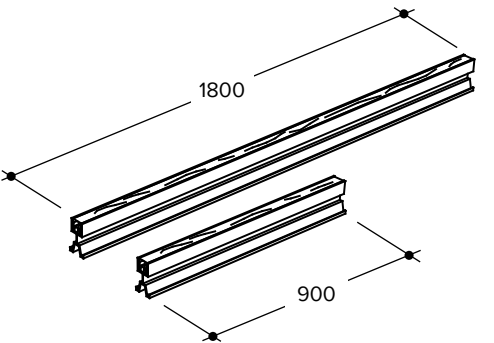
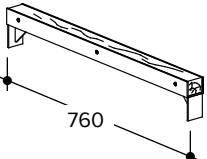
	Component	Product code	Weight [kg]
	TOPEC panel 180/90	548001	21.42
	TOPEC panel 180/75	548012	18.84
	TOPEC panel 180/60	548023	16.43
	TOPEC panel 180/45	548034	13.88
	TOPEC panel 90/90	548090	11.93
	TOPEC panel 90/75	548089	10.43
	TOPEC panel 90/60	548104	10.80
	TOPEC panel 90/45	548115	9.20
	TOPEC adjust panel 90/180	552310	24.91
	TOPEC adjust panel 90/90	600241	15.46

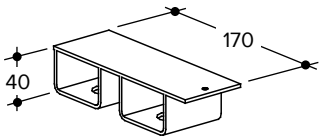
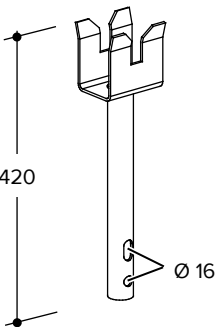
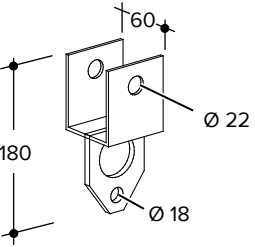
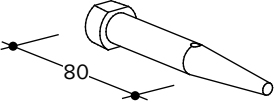

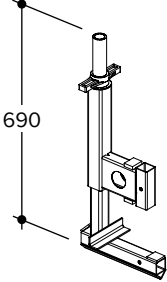
	Component	Product code	Weight [kg]
	TOPEC corner panel 90/90	548160	15.22
	<p>TOPEC corner panel 180/90</p> <p>Triangular TOPEC panel for irregular adjustment areas that can be used from both sides. This corner panel is delivered with sperate formsheet. The corner frame is covered on site with the plywood sheet for corner panel.</p>	548332	17.50
	TOPEC plywood sheet for corner panel 180/90	535321	11.10
	<p>TOPEC bearing</p> <p>Support for the TOPEC panels. TOPEC bolt is included.</p>	465410	2.40
	<p>TOPEC edge support N</p> <p>Support for the TOPEC panels. Allows a close positioning of the TOPEC panels along walls. TOPEC bolt is included.</p>	487673	1.70

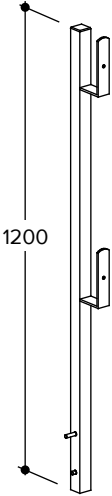
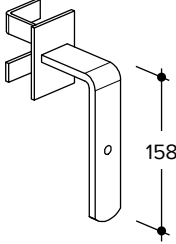
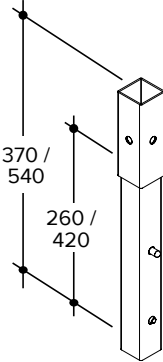
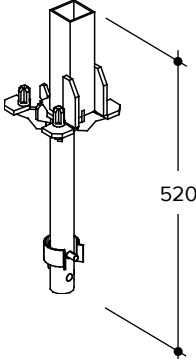
	Component	Product code	Weight [kg]
	<p>TOPEC bolt D14</p> <p>Self-locking bolt to fix the TOPEC bearing and the TOPEC edge support N (see page 22) and to fix the TOPEC drophead (see page 43).</p>	<p>604365</p>	<p>0.18</p>
	<p>TOPEC drophead</p> <p>Allows early stripping of the TOPEC panels while maintaining slab support. Depending on the diameter of the prop tube a TOPEC bolt (prod. code 470804) or a TOPEC bolt D14 (prod. code 604365) must be ordered for each TOPEC drophead (see page 43).</p>	<p>602120</p>	<p>9.55</p>
	<p>TOPEC plastic infill 180</p> <p>This TOPEC plastic infill 180 closes the 6 cm gap between the TOPEC panels when using the TOPEC drophead.</p>	<p>602350</p>	<p>0.70</p>

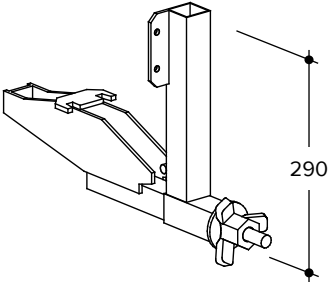
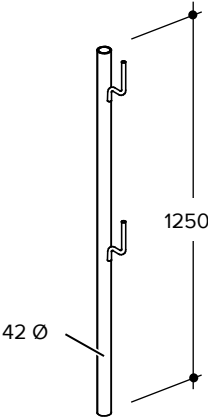
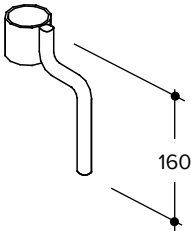
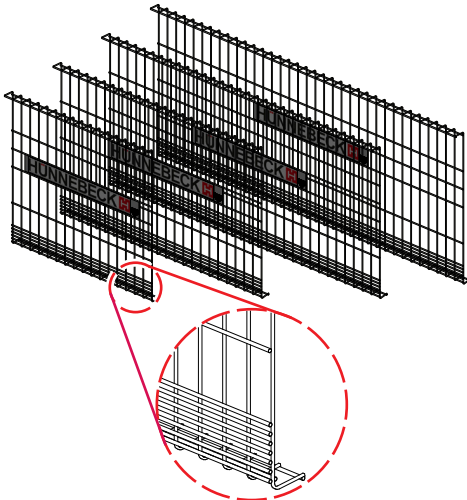
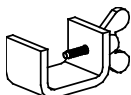
	Component	Product code	Weight [kg]
	<p>All steel props are equipped with a quick-lowering mechanism, anti-crush guard and a protection against sliding out of the inner tube and are protected for a long life by a hot-dip galvanization.</p>		
	<p>EUROPLUSnew 20-250** (147 cm - 250 cm)</p>	<p>601390 601400</p>	<p>13.15</p>
	<p>EUROPLUSnew 20-300** (172 cm - 300 cm)</p>	<p>601410</p>	<p>16.82</p>
	<p>EUROPLUSnew 20-350** (198 cm - 350 cm)</p>	<p>601415</p>	<p>20.52</p>
	<p>EUROPLUSnew 20-400** (224 cm - 400 cm)</p>	<p>601425 601460</p>	<p>23.79</p>
	<p>EUROPLUSnew 20-550** (303 cm - 550 cm)</p>	<p>601430</p>	<p>36.08</p>
	<p>EUROPLUSnew 30-150* (104 cm - 150 cm)</p>	<p>601440</p>	<p>10.68</p>
	<p>EUROPLUSnew 30-250* (147 cm - 250 cm)</p>	<p>601445 601450</p>	<p>16.19</p>
	<p>EUROPLUSnew 30-300* (172 cm - 300 cm)</p>	<p>601450</p>	<p>19.17</p>
	<p>EUROPLUSnew 30-350* (198 cm - 350 cm)</p>	<p>601440</p>	<p>24.24</p>
	<p>EUROPLUSnew 30-400* (224 cm - 400 cm)</p>	<p>601440</p>	<p>28.77</p>
	<p>* Permitted load acc. to DIN EN 1065: 30 kN</p>		
	<p>**Permitted load acc. to DIN EN 1065: 20 kN</p>		


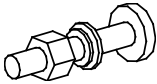
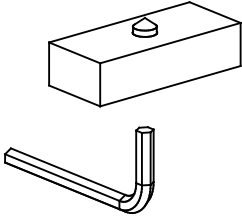
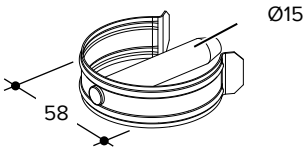
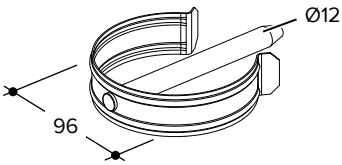
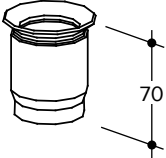
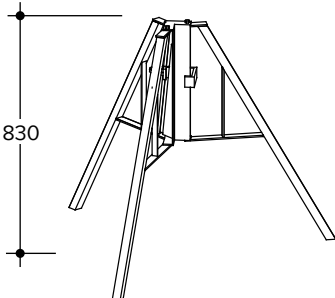
3.2 Accessories

	Component	Product code	Weight [kg]
	<p>TOPEC adjustment beam 180</p>	<p>487890</p>	<p>7.20</p>
	<p>TOPEC adjustment beam 90</p>	<p>487880</p>	<p>3.60</p>
<p>Aluminium beam 12 cm high and with integrated nailing strip. It is positioned on top of the TOPEC bearing next to the panel and supports the 21 mm thick plywood in adjustment areas.</p>			
	<p>TOPEC transverse beam</p>	<p>492806</p>	<p>4.34</p>
<p>This beam is positioned in cross direction to the TOPEC adjustment beams. It is equipped with a nailing strip. Used for a width of 90 cm.</p>			

	Component	Product code	Weight [kg]
	<p>TOPEC head support shoe</p> <p>Is positioned on the TOPEC bearing or TOPEC edge support and serves as a support device for squared timber in adjustment areas (see page 25).</p>	422558	0.62
	<p>TOPEC fixing head</p> <p>Support for projecting TOPEC panels (see page 37).</p>	600522	1.89
	<p>TOPEC panel tension strap</p> <p>Part of the tensioning needed for projecting panels (see page 37).</p>	600521	1.07
	<p>Waler bolt D20</p> <p>Used to fasten the TOPEC panel tension strap to the edge profile (see also page 38).</p>	420000	0.32
	<p>Spring pin 4</p> <p>Secures the waler bolt D20 (see page 38).</p>	173776	0.02
	<p>PROTECTO multiple clamp</p> <p>This bracket is used in a wide range of applications to attach the PROTECTO railing post. This bracket is used in a wide range of applications to attach the PROTECTO railing post.</p>	601226	7.50

	Component	Product code	Weight [kg]
	<p>PROTECTO railing post</p> <p>The PROTECTO railing post is used to carry the PROTECTO protective mesh panel or plank railings.</p>	601225	3.73
	<p>PROTECTO toe board retainer</p> <p>The PROTECTO toe board retainer fixes the toe board.</p>	601227	0.69
	<p>PROTECTO post extension 26</p> <p>PROTECTO post extension 42</p> <p>With these parts it is possible to extend the PROTECTO railing post by 26 cm or 42 cm. When using post extensions, a post spacing of up to 2.40 m is allowed in combination with protection meshes. When using plank railing with post extension 26, the maximum post spacing is limited to 1.70 m. When using plank railing with post extension 42, the maximum post spacing is limited to 1.30 m.</p>	602111 602580	0.95 1.20
	<p>TOPEC bearing for railing</p> <p>Used to attach railing posts at the longitudinal or transversal edges of the panels. The TOPEC bearing for railing must be fastened to the prop. The TK railing post and TOPEC security for toe board must be ordered additionally (see page 36).</p>	496220	3.40

	Component	Product code	Weight [kg]
	<p>TOPEC railing shoe</p> <p>Fixed to the TOPEC panel in advance and allows to attach the railing post prior swinging up the panel. The TK railing post and TOPEC security for toe board must be ordered additionally (see page 34).</p>	<p>588474</p>	<p>3.90</p>
	<p>TK railing post</p> <p>Inserted into the TOPEC bearing for railing or the TOPEC railing shoe. With holder for a timber railing.</p>	<p>193220</p>	<p>4.50</p>
	<p>TOPEC security for toe board</p> <p>Inserted at the bottom of the TK railing post to fix the toe board.</p>	<p>496230</p>	<p>0.39</p>
	<p>PROTECTO protective mesh panel 115 x 263 cm</p> <p>PROTECTO protective mesh panel 115 x 240 cm</p> <p>PROTECTO protective mesh panel 115 x 180 cm</p> <p>PROTECTO protective mesh panel 115 x 130 cm</p> <p>The alternative to plank railings. The hot-dip galvanized PROTECTO protective mesh panel is a complete edge protection, which is easy, flexible and quickly to mount at the PROTECTO railing posts (see page 33).</p>	<p>601231</p> <p>604730</p> <p>604731</p> <p>604733</p>	<p>22.20</p> <p>20.00</p> <p>15.18</p> <p>10.55</p>
	<p>TOPEC prop retainer</p> <p>Fixed to the TOPEC panel and secures the props from being displaced. Required for projecting panels (see page 33).</p>	<p>452693</p>	<p>0.13</p>

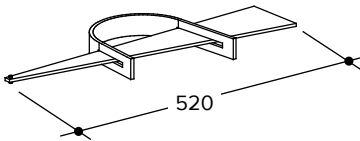

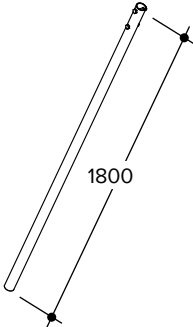
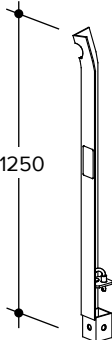
	Component	Product code	Weight [kg]
	TOPEC retaining clip Secures the TOPEC bearing from dropping out of the steel prop when the bearing is fully inserted (not valid for EUROPLUSnew props) (see page 33).	477151	0.03
	TOPEC securing bolt Mounted to the TOPEC bearing when a retainer against lift off by wind is required.	479415	0.08
Arresting (10 x)  Allen key (1 x)	TOPEC arresting set Needed for an additional prop under the center profile of the large panel 180 x 180. It secures the correct position and prevents dislocation of the prop. Delivered in packs of 10 pieces including the required allen key.	580	0.65
	TOPEC bolt Self-locking bolt to fix the TOPEC bearing and the TOPEC edge support N (see page 22) and to fix the TOPEC drophead (see page 43).	470804	0.15
	TOPEC bolt alu 500 Self-locking bolt to fix the TOPEC bearing and the TOPEC edge support N (see page 22).	569384	0.15
	TOPEC AS sleeve Compensates the larger inner diameter of the AS-steel props when installing the TOPEC bearing or the TOPEC edge support N.	409800	0.33
	Uni tripod Erleichtert das Aufstellen von allen EUROPLUS Stützen und der Alu 500 DC (Innenrohr unten). $\varnothing_{\min.}$: 57 mm. $\varnothing_{\max.}$: 90 mm	587377	11.82



WARNING

Warning!

Must only be used as an assembling aid. It does not replace the proper lateral bracing of the shoring system.

	Component	Product code	Weight [kg]
	Bracing clamp Z	573810	1.83
	TOPEC alu erection rod 365 The TOPEC alu erection rod 365 facilitates the forming and stripping of TOPEC panels up to room heights of 3.50 m (adjustable from 205 - 365 cm in steps of 5 cm).	565434	3.02
	TOPEC rod extension 180 For room heights above 3.50 m up to 5.30 m the TOPEC rod extension 180 is connected with two included bolts to the TOPEC alu erection rod.	570151	1.39
	TOPEC stacking angle The TOPEC stacking angle is used to stack and transport TOPEC panels.	575100	8.70



WARNING

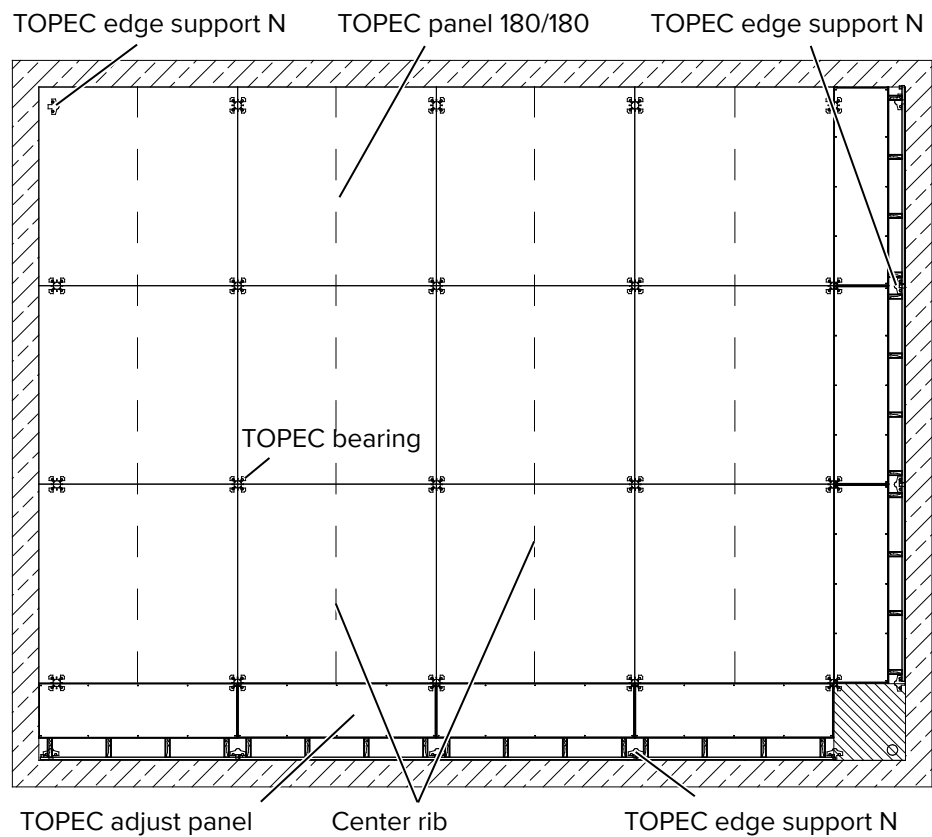
Warning!

Follow the separate operating Instructions for the TOPEC stacking angle!

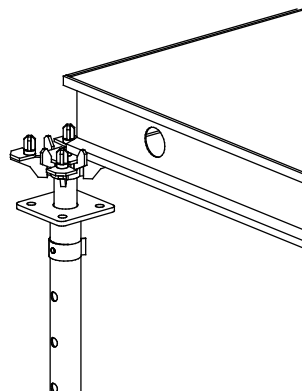
4 Planning

As far as the floor plan allows, it is most economical to use the TOPEC panel 180/180. The TOPEC bearings are mounted directly underneath the panel joint. At wall junctions the panels are pushed over the TOPEC bearing close to the wall. The panel level is stabilized by the surrounding walls.

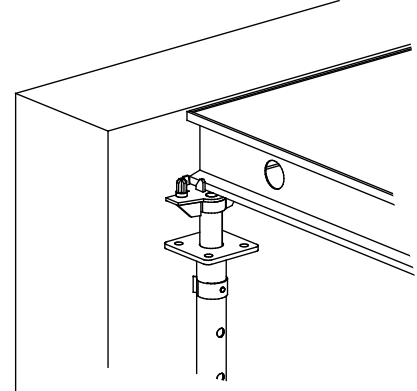
The majority of the slab area can be formed with the basic panels of the TOPEC system. Adjustment areas of 55 - 90 cm width can be formed with the TOPEC adjustment panels 90/180. Smaller adjustment areas can be formed with the TOPEC adjustment beam or the TOPEC head support shoe, square timbers and adequate plywood by the contractor.



TOPEC bearing



TOPEC edge support N



NOTE

Note!

The TOPEC panels must all be assembled in the same direction.

5 Permitted slab thickness

Panel size 180x180

When using TOPEC panels 180/180 with EUROPLUSnew props, the max. slab thickness is 50 cm! The information is valid for a system that is braced in all directions to the surrounding structures at panel level (walls, columns) so that the system cannot be dislocated.

The maximum area of influence per prop is:

$$A = 3.24 \text{ m}^2$$

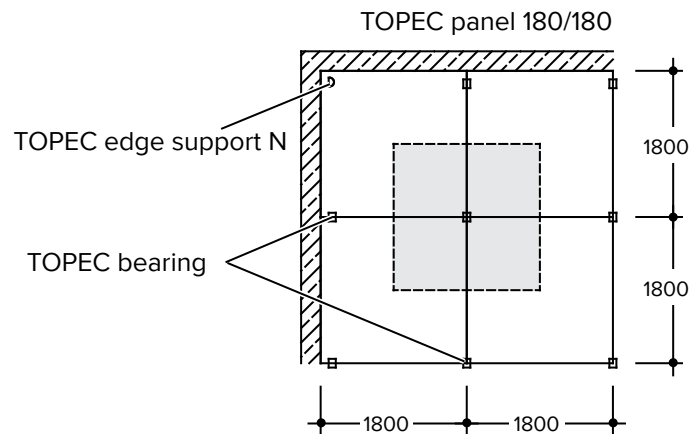
The TOPEC bearing must be secured with the TOPEC bolt.



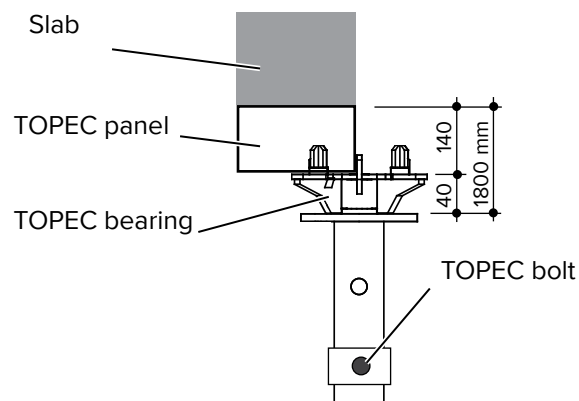
WARNING

Warning!

When using EUROPLUSnew 30-400 or 20-250 props with the inner tube down, the TOPEC bearing must be secured with the TOPEC bolt alu 500 DC!



TOPEC bearing fully inserted



Permitted slab thickness

Permitted clear height [m] at slab thickness d [cm]

d [cm]	15.0	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	40.0	42.5*	45.0*	47.5*	50.0*
N [kN]	17.0	19.0	21.1	23.1	25.1	27.1	29.2	31.4	33.6	35.8	38.1	20.1	21.3	22.4	23.5
20-250	2.68	2.68	2.68	2.56	2.27	2.07	-	-	-	-	-	2.68	2.68	2.65	2.51
20-300	3.18	3.18	3.18	3.10	2.98	2.87	2.69	2.48	2.21	2.16	2.10	3.18	3.18	3.13	3.07
20-350	3.68	3.68	3.68	3.68	3.68	3.68	-	-	-	-	-	3.68	3.68	3.68	3.68
20-400	4.18	4.18	4.18	4.12	4.00	3.88	3.75	-	-	-	-	4.18	4.18	4.17	4.10
20-550	5.68	5.68	5.68	5.51	5.33	5.16	5.01	4.88	4.75	4.61	4.48	5.68	5.66	5.52	5.47
30-250	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.60	-	-	2.68	2.68	2.68	2.68
30-300	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.17	3.00	-	3.18	3.18	3.18	3.18
30-350	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.63	3.54	3.45	3.68	3.68	3.68	3.68
30-400	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.15	4.18	4.18	4.18	4.18

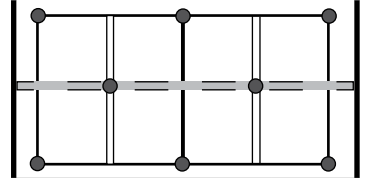
N [kN] according to DIN EN 12812

NOTE

Note!

When using TOPEC panels 90/180 no center beam is required for slab thicknesses or more than 40 cm.

*Propping with center beam



6 Assembly and stripping

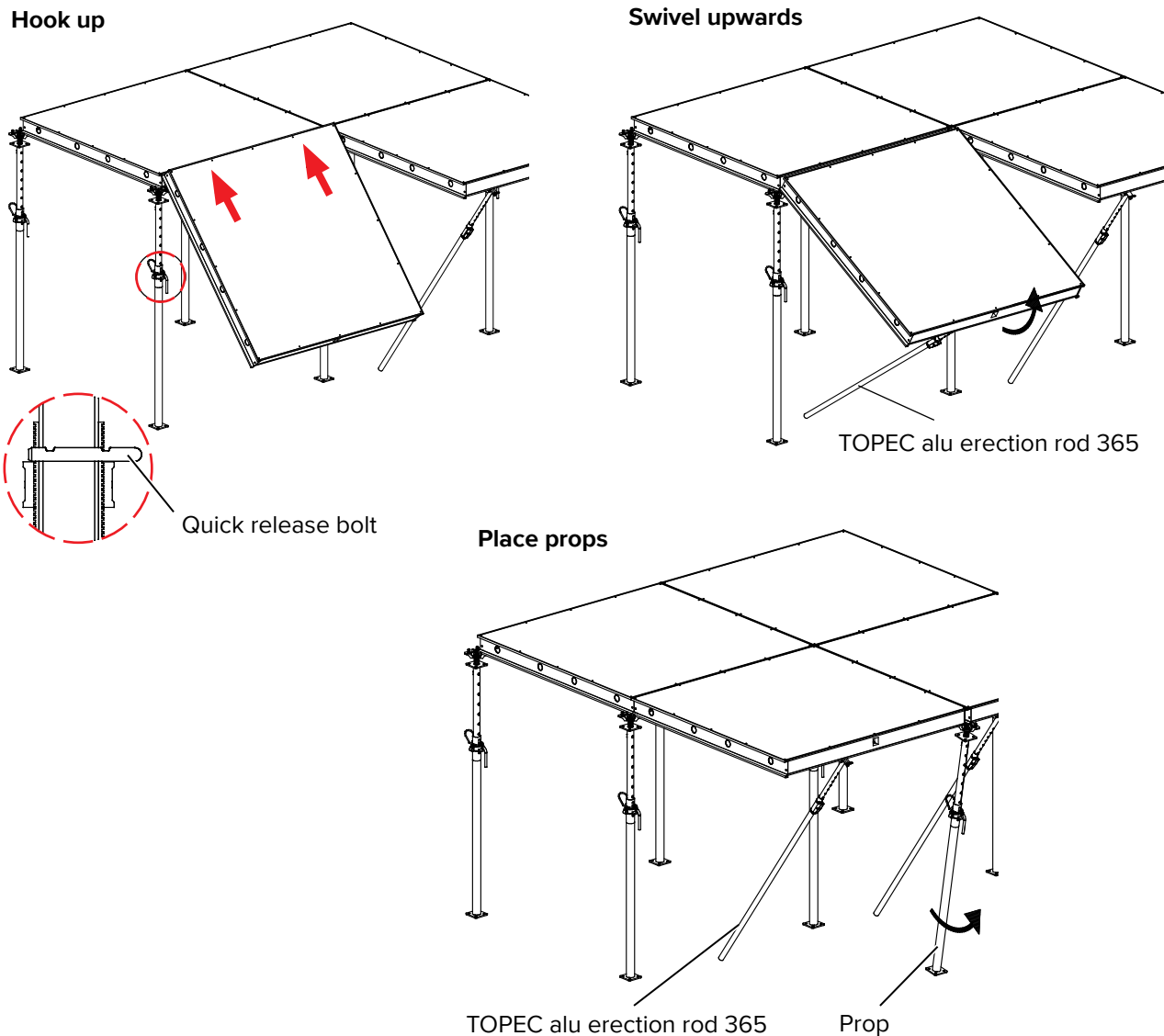
The TOPEC slab formwork system, with only two basic system components, reduces the number of single parts and accelerates the forming work.

6.1 Assembly

The assembling procedure up to a height of max. 3.50 m is done from the ground:

Hook up - swivel upwards - place props.

The TOPEC panel is swiveled up and then temporarily supported with the TOPEC alu erection rod. Now place the steel props.



WARNING

Warning!

When placing the steel props, rest the inner tube on the full diameter of the quick-release bolt and not in the two grooves (see detail). This ensures that the quick release mechanism is usable during stripping of the formwork later.

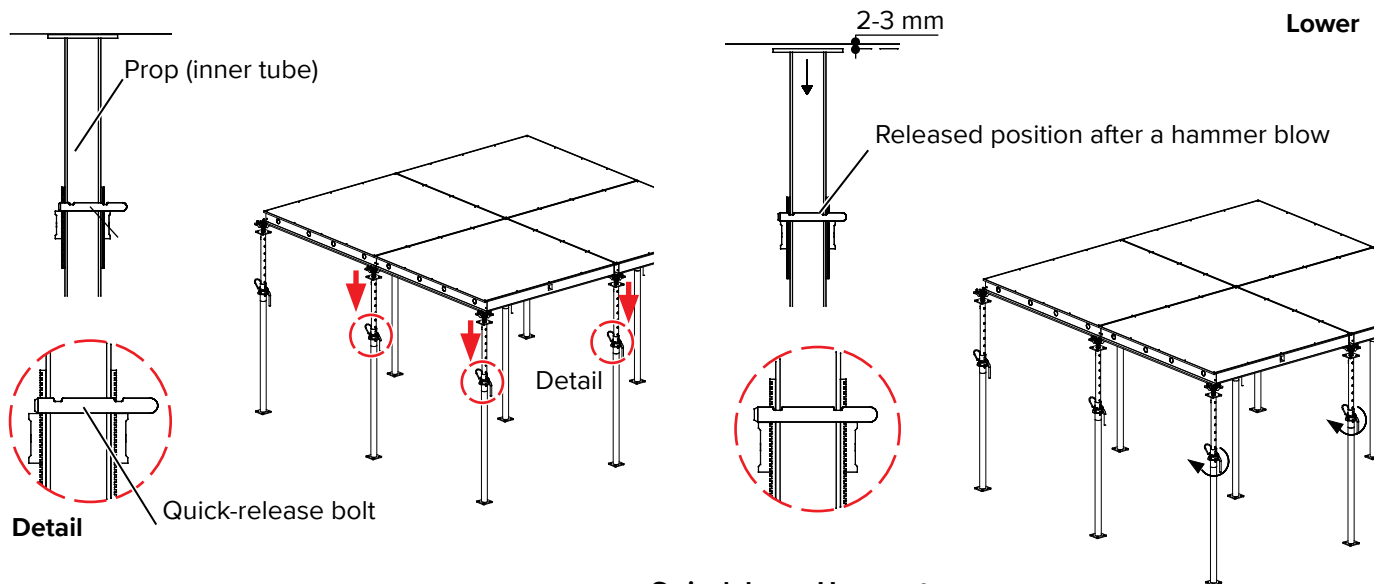
6.2 Overview TOPEC bolts

Description	Product code	Direction	Ø [mm]	T-Bolt	TOPEC bolt D14	TOPEC bolt alu 500
EUROPLUS ^{new} 20-250	601390	Inner tube _{Up}	51.0	X	-	-
		Outer tube _{Up}	63.5	X	-	-
EUROPLUS ^{new} 20-300	601400	Inner tube _{Up}	51.0	X	-	-
		Outer tube _{Up}	63.5	X	-	-
EUROPLUS ^{new} 20-350	601410	Inner tube _{Up}	63.5	X	-	-
		Outer tube _{Up}	76.1	-	X	X
EUROPLUS ^{new} 20-400	601415	Inner tube _{Up}	63.5	X	-	-
		Outer tube _{Up}	76.1	-	X	X
EUROPLUS ^{new} 20-550	601425	Inner tube _{Up}	76.1	-	X	X
		Outer tube _{Up}	88.9	-	X	X
EUROPLUS ^{new} 30-150	601460	Inner tube _{Up}	51.0	X	-	-
		Outer tube _{Up}	63.5	X	-	-
EUROPLUS ^{new} 30-250	601430	Inner tube _{Up}	63.5	X	-	-
		Outer tube _{Up}	76.1	-	X	X
EUROPLUS ^{new} 30-300	601440	Inner tube _{Up}	63.5	X	-	-
		Outer tube _{Up}	76.1	-	X	X
EUROPLUS ^{new} 30-350	601445	Inner tube _{Up}	63.5	X	-	-
		Outer tube _{Up}	76.1	-	X	X
EUROPLUS ^{new} 30-400	601450	Inner tube _{Up}	76.1	-	X	X
		Outer tube _{Up}	88.9	-	X	X
EUROPLUS 260 DB/DIN	463021	Inner tube _{Up}	51.0	X	-	-
		Outer tube _{Up}	63.5	no hole		
EUROPLUS 300 DB/DIN	555118	Inner tube _{Up}	51.0	X	-	-
		Outer tube _{Up}	63.5	-	-	X
EUROPLUS 350 DB/DIN	552147	Inner tube _{Up}	61.7	X	-	-
		Outer tube _{Up}	76.1	-	-	X
EUROPLUS 400 EC	583780	Inner tube _{Up}	76.1	-	X	X
		Outer tube _{Up}	88.9	-	-	X
EUROPLUS 550 DC	583725	Inner tube _{Up}	76.1	-	X	X
		Outer tube _{Up}	88.9	-	-	X
ALU 500 DC	558898	Inner tube _{Up}	86.0	-	X	X
		Outer tube _{Up}	104.5	-	-	X

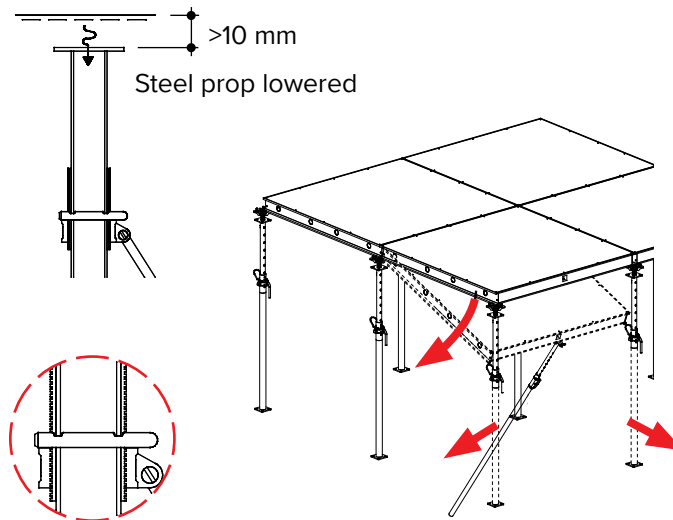
6.3 Stripping

Stripping the TOPEC panel 180 x 180 is as simple as erecting it. Stripping is carried out in reverse order than setting up the formwork. Slabs up to a room height of 3.50 m are stripped from the floor without an auxiliary scaffold.

Quick-release of props



Swivel down, Hang out



Lowering - swinging down - detaching

Note	Note! To avoid any damage of the TOPEC panels during stripping, release the loads by hammer blows onto the quick-release bolts of all props prior to further lowering and hanging out the panels.
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Note	Note! For storing of the single components see chapter <i>Storage and transport</i> on page 44 or corresponding transport and packaging guidelines.
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6.4 Assembly and stripping with the TOPEC lift

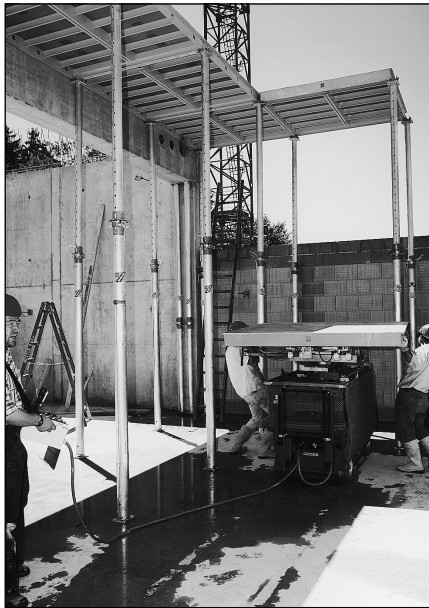
Assembly

TOPEC panels 180/180 can be assembled and dismantled with the TOPEC lift.

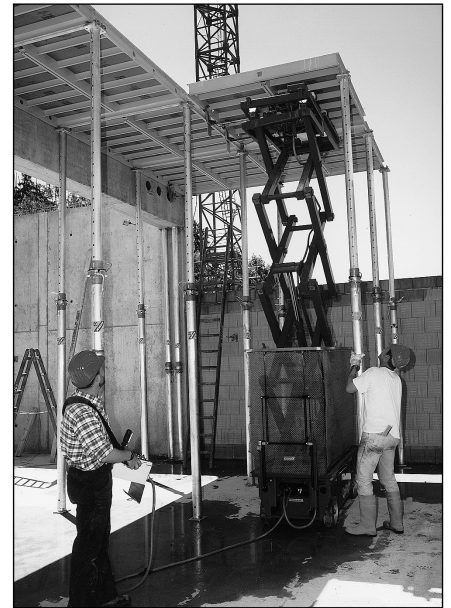
Maximum operating height: 5.75 m

The TOPEC lift is a motorized hydraulic scissor lift that is operated by a remote control unit. With this remote control, the TOPEC lift can be directed to the rough position of the TOPEC panel. After placing the panel on the TOPEC lift, the panel is lifted quickly by the hydraulic scissor-mechanism. At the correct height the TOPEC panel is moved closely to the previously installed panels via the positioning unit.

Loading



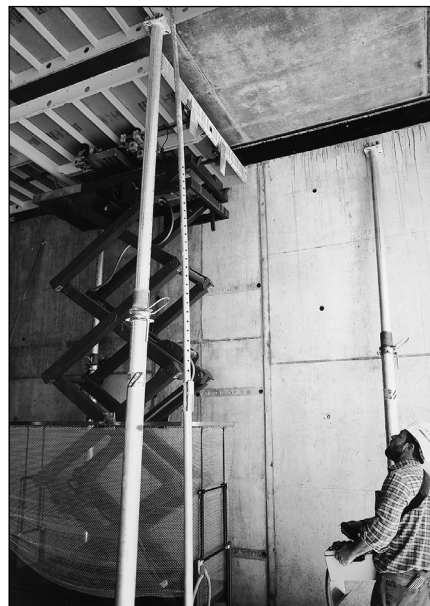
Lifting



Stripping:

When stripping the formwork, the TOPEC lift is positioned under the TOPEC panel and then raised up to the bottom side of the panel. While releasing the loads from the props the panel will be clamped and secured by grippers. After removing the steel props the TOPEC panel is lowered hydraulically and then removed.

Lowering



7 Assembly of adjustment areas

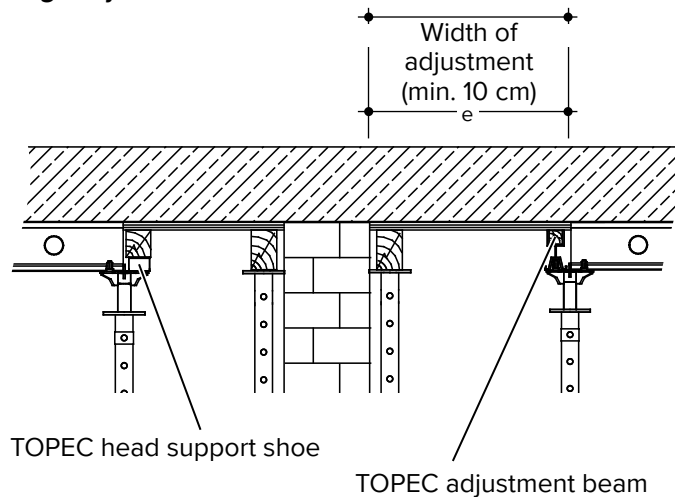
7.1 With TOPEC adjustment beams (or TOPEC head support Shoes)

The TOPEC slab formwork can be adapted to the dimensions of the building in steps of 15 cm by using different panel widths.

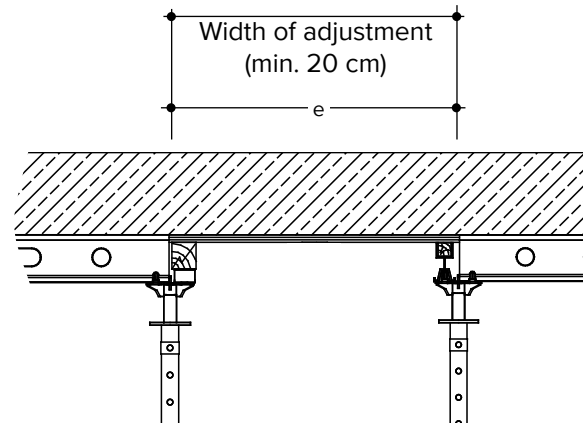
Now the remaining adjustment areas are formed. A 21 mm thick plywood that is cut to size at the site is used to cover the adjustment areas. There are two ways to adapt the adjustment areas to the TOPEC panels:

- The TOPEC head support shoe is placed on the TOPEC bearing and carries a 8 cm high square timber. The plywood is secured to the timber with nails.
- The aluminium TOPEC adjustment beam with integrated nailing strip can be used instead of the TOPEC head support shoe. This beam is simply positioned on the TOPEC bearing. The orientation of the TOPEC panels is not relevant for installing the beam.

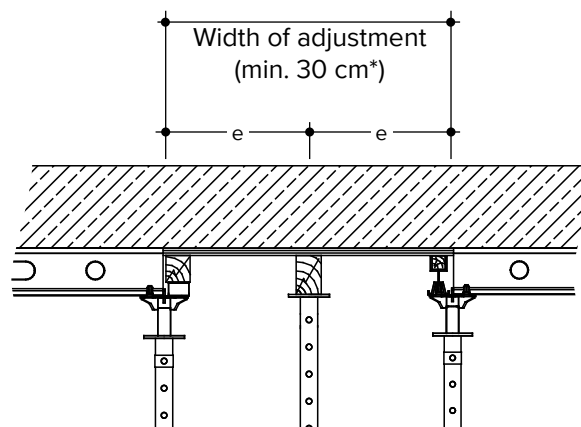
Edge adjustments



Adjustments between the TOPEC panels



Both, TOPEC adjustment beam or TOPEC head support shoe with on site square timber can be used to form adjustment areas. Additional center propping allows larger adjustment areas that are have to be arranged as shown in the table on page 26.



**With intermediate support



WARNING

Warning!

Refer to the table on page 26!

Maximum adjustment width

Using a plywood sheet with a thickness of 21 mm according to DIN 68792 (Quality F25/10) and depending on the slab thickness, the maximum adjustment width can be found in the adjacent table.

e_{\max} : max. prop spacing

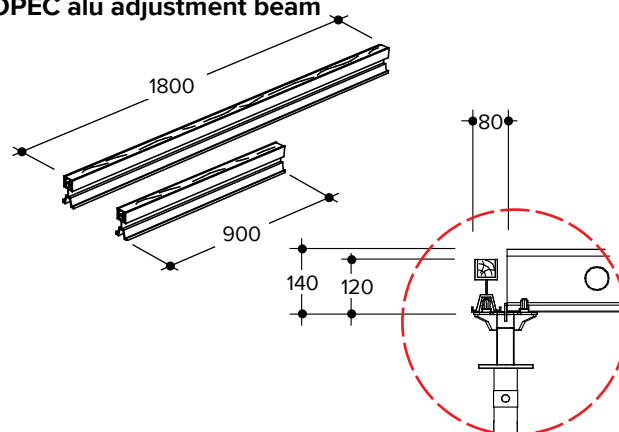
Slab thickness [cm]	e_{\max} [m]
15	0.67
20	0.63
25	0.60
30	0.57
35	0.55
40	0.53
45	0.52
50	0.50

TOPEC adjustment beam, static properties

$M_{\text{perm.}} = 3.00 \text{ kNm}$

$Q_{\text{perm.}} = 15 \text{ kN}$

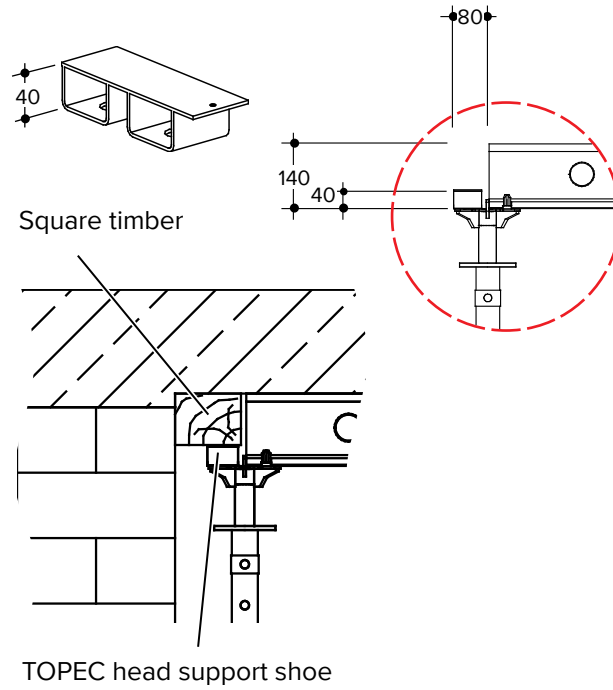
TOPEC alu adjustment beam



TOPEC head support shoe

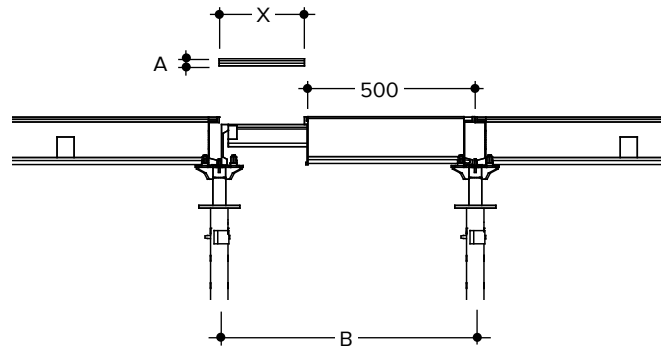
Very often, the height of a brick wall (residential construction) is a few centimeters lower than the clear room height. To close the remaining gap, it is recommended to use the TOPEC head support shoe combined with on site square timber 8 x 10 or 10 x 10 cm. In this case, the square timber serves as side form and prevents the leaking of concrete.

TOPEC head support shoe

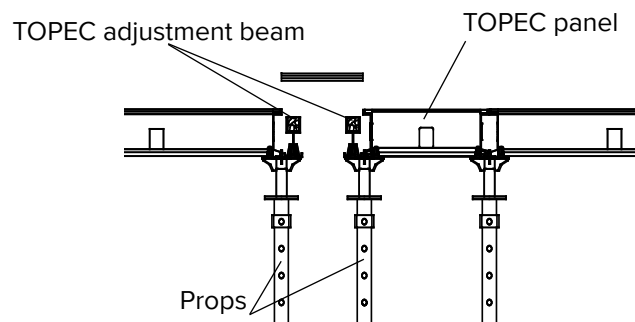


7.2 With TOPEC Adjustment panels 90/180 and TOPEC Adjustment Panels 90/90

These telescopic TOPEC panels can be easily and quickly adjusted without steps to the required width of the filler area. The width of the panel varies from 55 cm to 90 cm (system width). Only a plywood strip has to be cut-to-size and placed on the telescopic part and nailed to the integrated nailing strip.



Width (X) = Adjustment width (B) - 50 cm



A: Plywood thickness = 21 mm

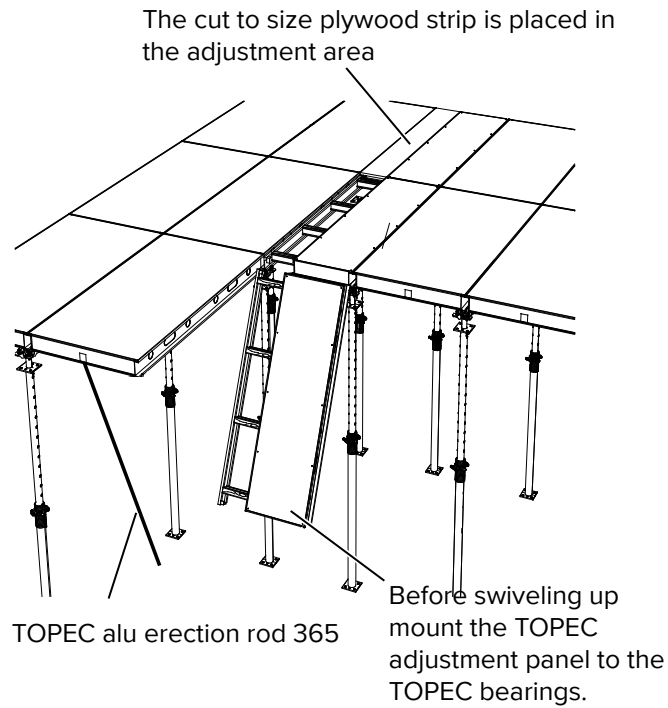
B: Adjustment width = 55 - 90 cm

X: Extension length = min - max 5 - 40 cm

One adjustment panel replaces in one adjustment:

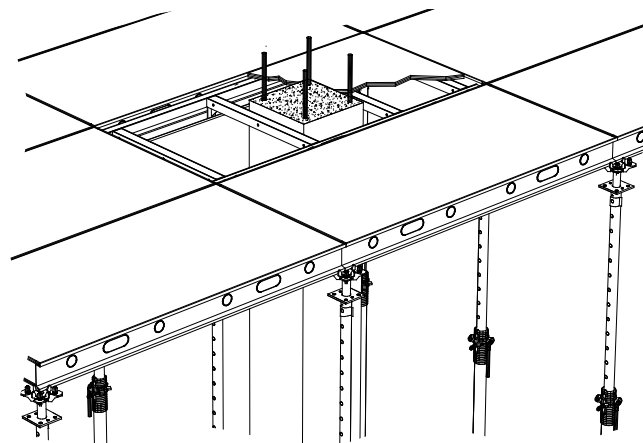
- 1 TOPEC panel
- 2 Adjustment beams
- 2 Steel props
- 2 TOPEC bearings.

Assembly and stripping of the TOPEC adjustment panels is performed in the same way as with the standard panels of the TOPEC slab formwork system.



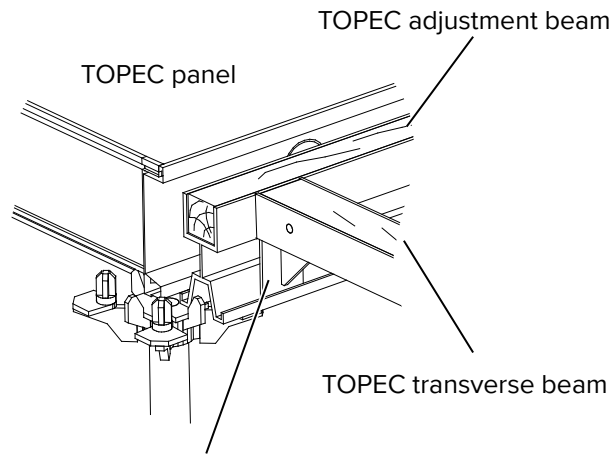
7.3 With TOPEC transverse Beams

The TOPEC transverse beam is used for adjustments within the modular panel grid of 90 cm. These adjustments are necessary around columns. These areas are formed with TOPEC adjustment beams, with TOPEC transverse beams and with the fitted 21 mm plywood sheet



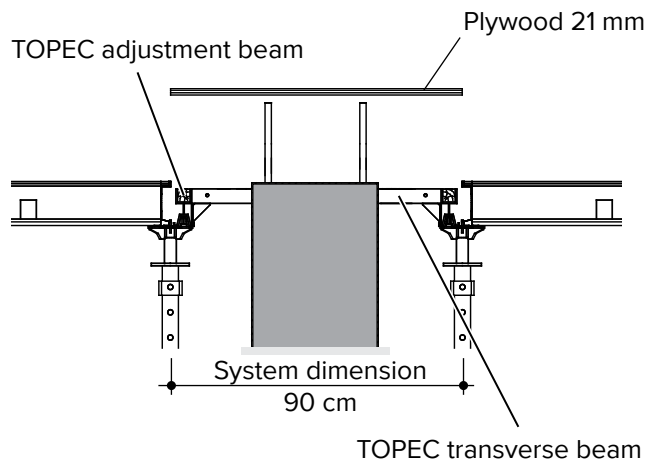
The number of beams is defined by the width of the adjustment area and the permitted span of the plywood.

Assembly of adjustment areas



The end plate of the TOPEC transverse beam is positioned in the bottom groove of the TOPEC adjustment beam.

The TOPEC transverse beam as well as the TOPEC adjustment beam are equipped with nailing strips. The fitted 21 mm thick plywood can easily be fixed on these strips.

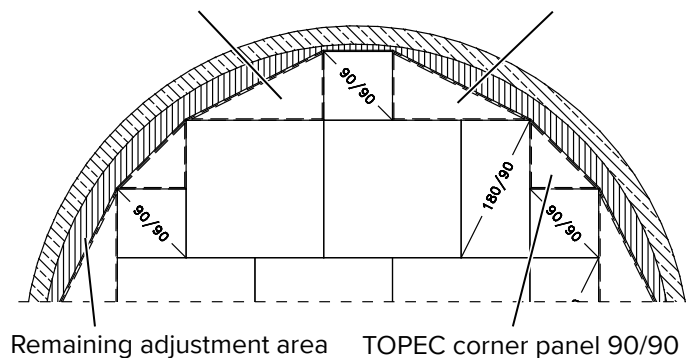


7.4 With TOPEC Triangular Panels

Wood fillers at complicated floor plans can be reduced significantly by using TOPEC corner panels 90/90 and/or TOPEC corner frames 180/90 cm with TOPEC corner sheets 180/90.

TOPEC corner frame 180/90 with TOPEC corner sheet 180/90 as left-hand unit

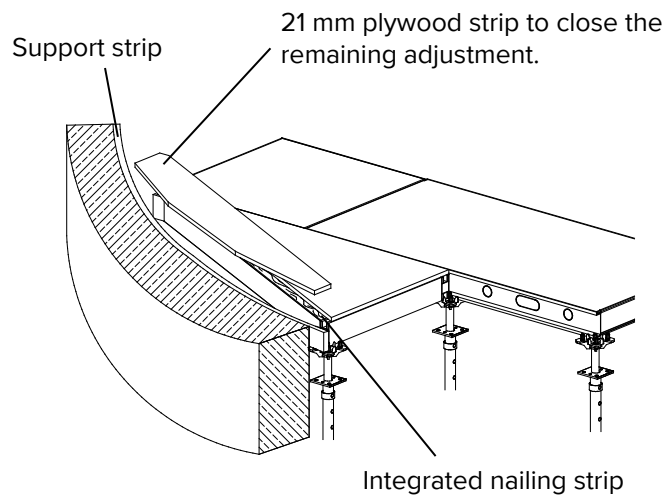
TOPEC corner frame 180/90 with TOPEC corner sheet 180/90 as right-hand unit



The TOPEC corner panels 90/90 are equipped with plywood sheets. For the TOPEC corner frames 180/90 it is necessary to order the TOPEC plywood sheet for corner panel separately. This plywood sheet can be mounted on the aluminium profile of the frame from both sides. Therefore both components can be applied as right-hand and left-hand triangular panel.



TOPEC corner frames and TOPEC corner panels are simply placed on the TOPEC bearings like the other TOPEC panels. An additional support is not required. The diagonal edge profiles of the TOPEC corner panels and TOPEC corner frames are equipped with nailing strips to support and fix the remaining plywood fillers.



WARNING

Warning!

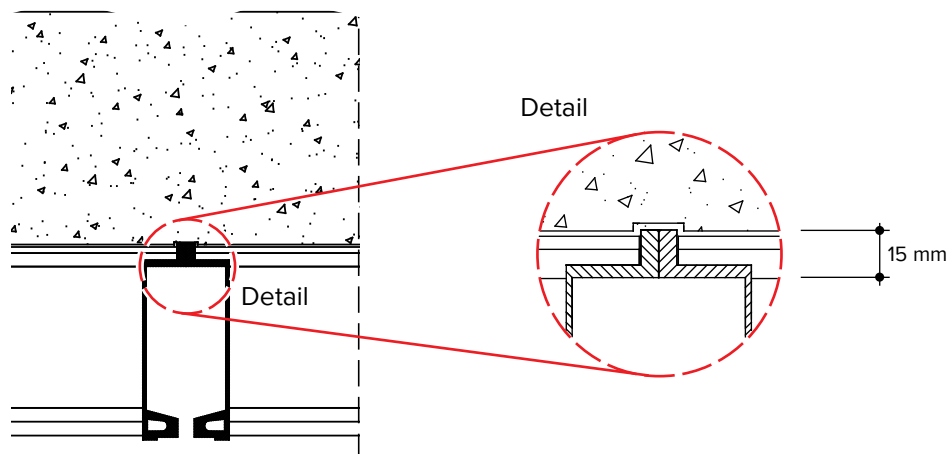
Props that support separately arranged TOPEC corner panels must be secured by tripods in order to avoid dislocation!

8 Cleaning

For the proper function of the formwork, the surrounding 1.5 cm edges of the panels must kept clean. Stripping and cleaning of the formwork is simplified by using release agent prior to every use..

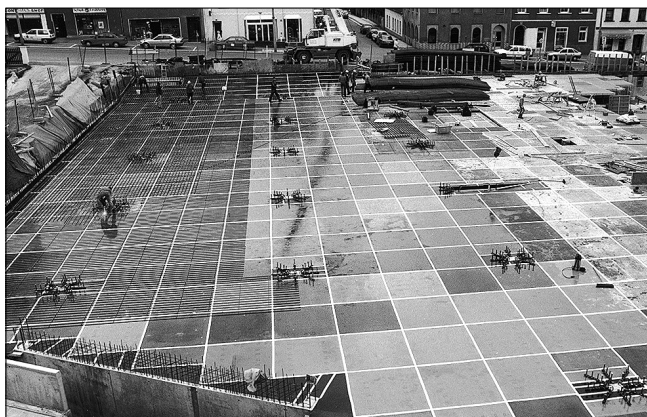
VISUAL CHECK

Check the cleanness of the 1.5 cm high panel edges prior to every reuse!



Professional cleaning

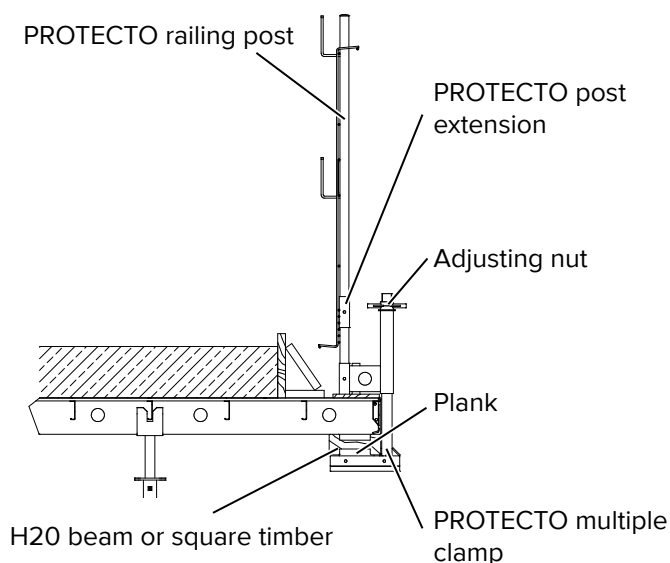
For a professional final cleaning of the formwork it is recommended to make use of the HÜNNEBECK cleaning service. Modern special cleaning machines ensure careful, economical and environmentally friendly cleaning.



9 Fall protection

9.1 Using PROTECTO

Side protection for TOPEC is realized according to the adjacent illustrations. The PROTECTO multiple clamp is clamped together with a H20 beam to the edge of the panels by rotating the adjusting nut. To protect the form sheet it is recommended to use an additional plank. The side protection must be at least 1 m higher than the deck level. Also pay attention to the floor thickness after concreting! The fitting PROTECTO post extension has to be inserted into the PROTECTO multiple clamp until the audible “click” is heard. The same is valid for the PROTECTO railing post.

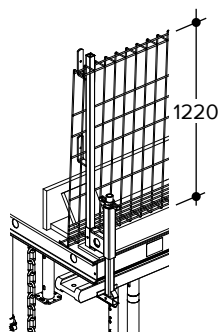


VISUAL CHECK

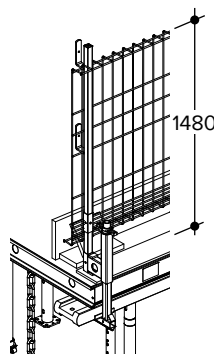
Make sure that the locking pin is locked in the holder. .

As side protection, the PROTECTO protective mesh panel is hooked to the posts. Toe boards are attached with the PROTECTO toe board retainer. All boards can be fixed with nails.

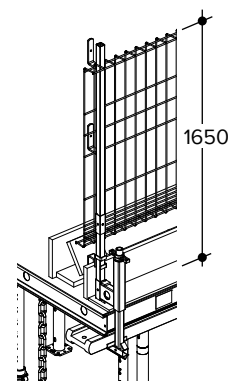
Post
without extension



Post
with Extension 26



Pfosten
mit Verlängerung 42



NOTE

Note!

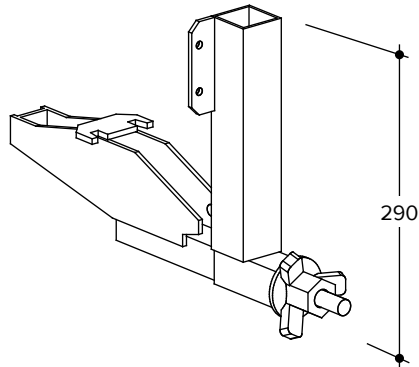
Pay attention to the PROTECTO instructions for assembly and use!

9.2 Using the TOPEC railing shoe

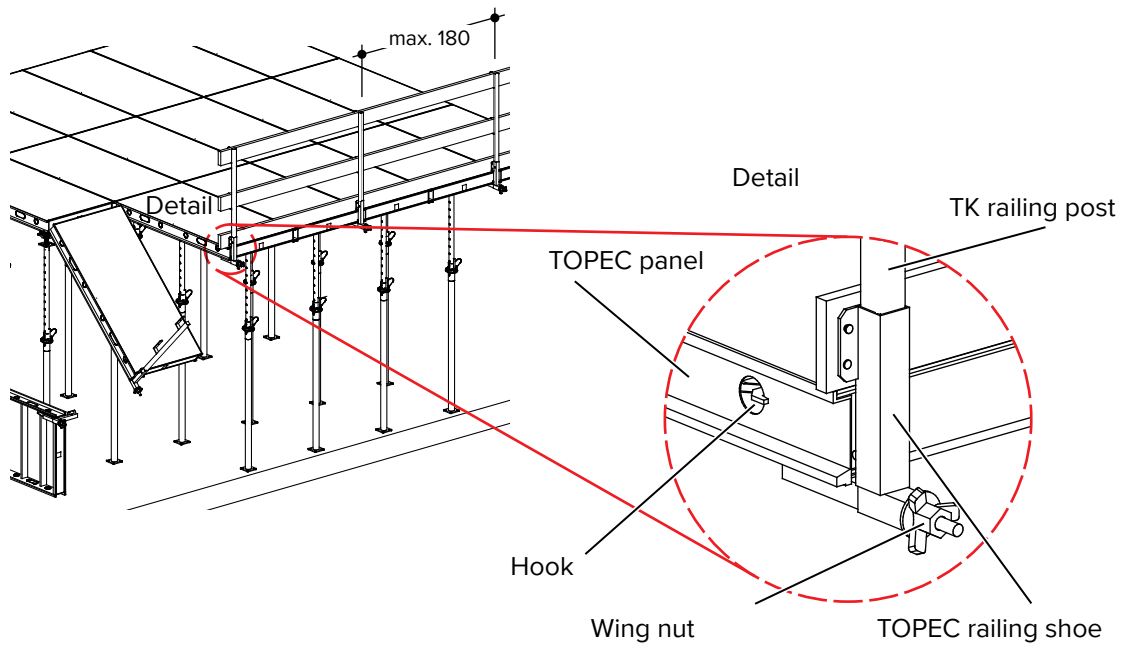
The TOPEC railing shoe may be used for the required guard rail when it comes to cantilevering panels. The TOPEC railing shoe with the TK railing post can be attached on the ground before lifting of the TOPEC panel.

The TOPEC panels with attached TOPEC railing shoe and inserted TK railing post are assembled as described before. After attaching adequate railing boards, the side protection is completed.

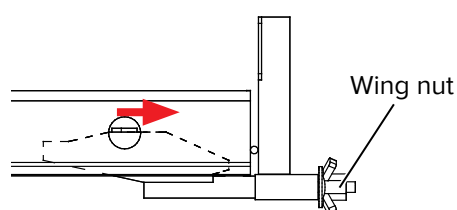
TOPEC railing shoe

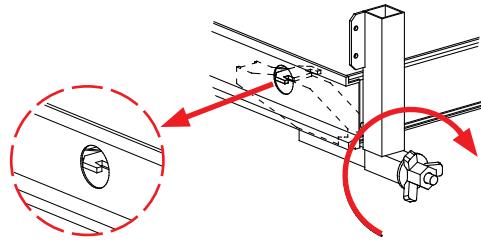


The TOPEC railing shoe is attached to the TOPEC panel with the clamping hook and fixed with the wing nut. For more detail see next page.



The clamping mechanism of the TOPEC railing shoe is operated by the wing nut. The TOPEC railing shoe is attached to the corner area of the panel.





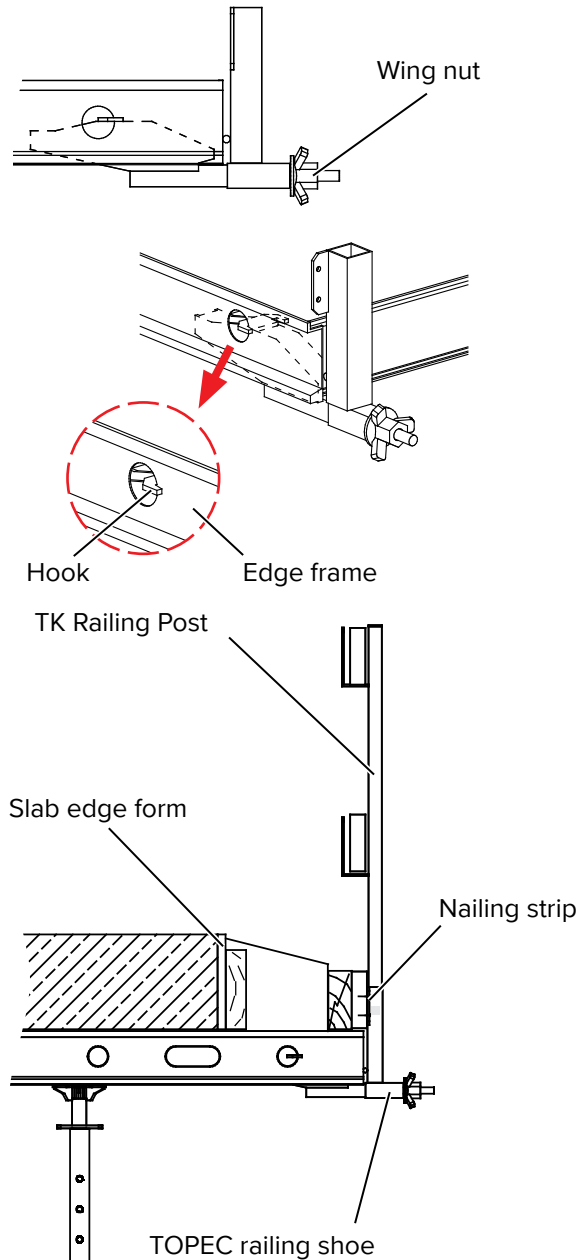
WARNING

Warning!
At slab thicknesses greater than >20 cm up to a maximum of 30 cm, the horizontal distance between the railing shoes has to be limited to 90 cm.

VISUAL CHECK

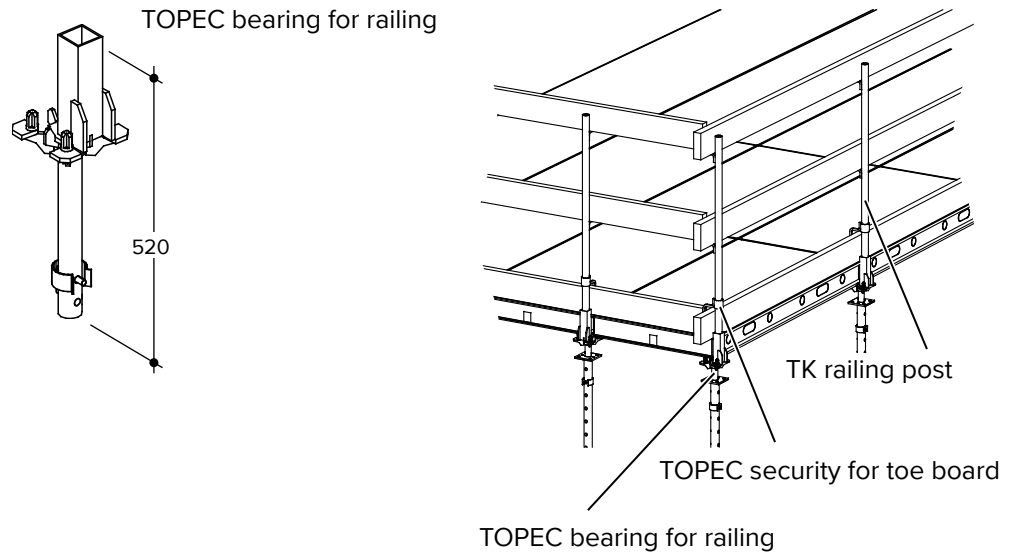
The hook of the shoe must be positioned in the first large hole of the TOPEC panels edge profile

The TOPEC railing shoe is designed to withstand additional loads from a slab edge form up to a maximum slab thickness of <20 cm. A nailing plate for the slab edge form is attached to the socket tube of the railing post; this way, damages to the high-quality TOPEC formsheet can be avoided.



9.3 TOPEC bearing for railing

The TK railing post must be inserted into the TOPEC bearing for railing. The TOPEC bearing for railing is used instead of the TOPEC bearing at slab edges and is equipped with a socket for the TK railing post. This way guard rails can be installed in longitudinal and in transversal direction at the TOPEC slab formwork. The 3-part and 1 m high side protection, consists of the TK railing post, the TOPEC security for toe boards and the timber railings.

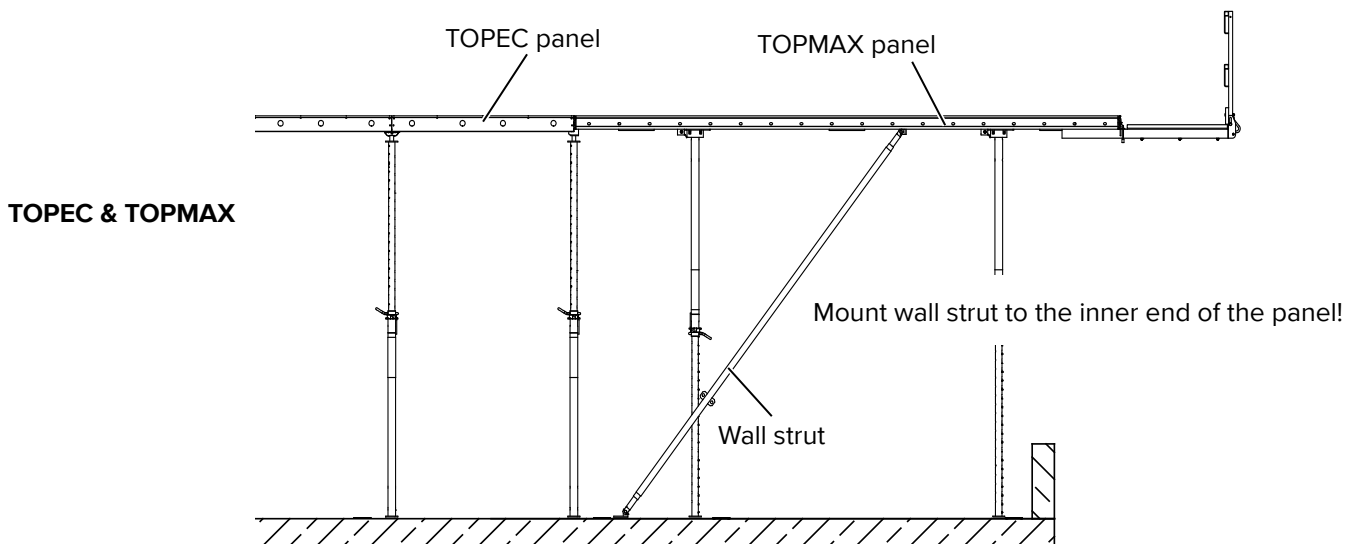


WARNING

Warning!

The TOPEC bearing for Railing can not be used for TOPEC panels at cantilevers!

9.4 With TOPMAX edge tables



NOTE

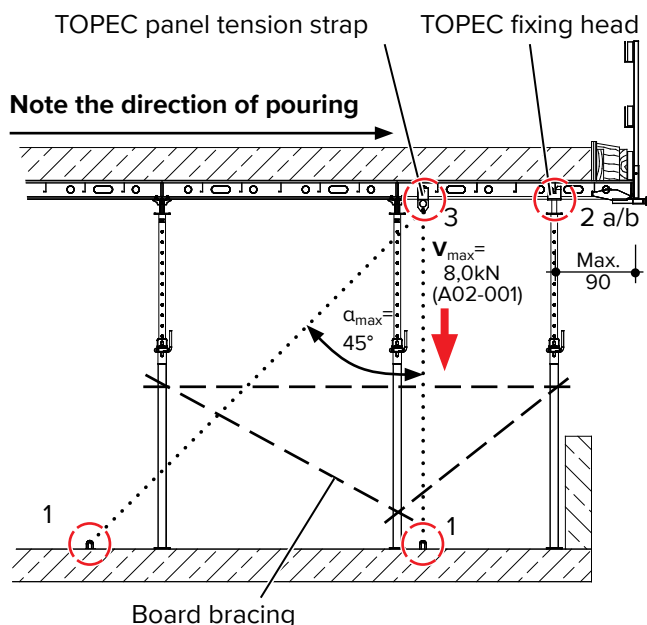
Note!

Information for the connection to TOPMAX can be found in the TOPMAX instructions for assembly and use!

10 Projecting panels

TOPEC panels 90/180 and 180/180 can projection a max. of 90 cm with full load. Starting at projections of 10 cm, the TOPEC panel must be secured with a tension strap. Also see general notes on page 39!

With the TOPEC fixing head and the TOPEC panel tension strap projecting TOPEC panels are secured against “uplift” and “tipping over”.



WARNING

Warning!

Do not start to pour at edges or projections. Verify the direction of concrete placement prior pouring.

Step 1 Anchoring of the tension strap to a sufficiently strong point in the structure.

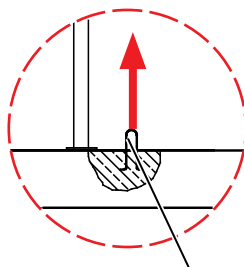


WARNING

Warning!

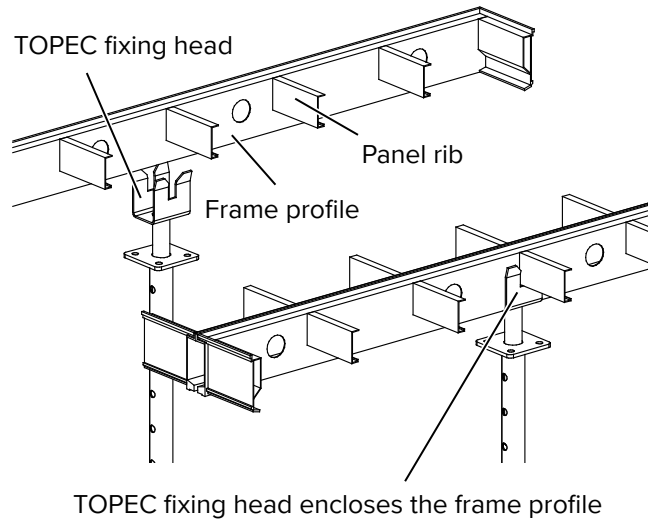
Secure the slab formwork at the panel level adequately by board bracing and vertical tie downs so that the system cannot be dislocated.

Tensioning of projecting panels to the floor

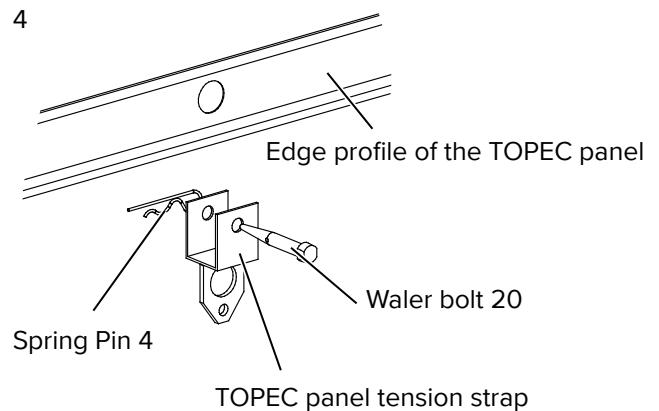
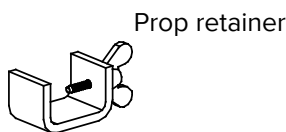
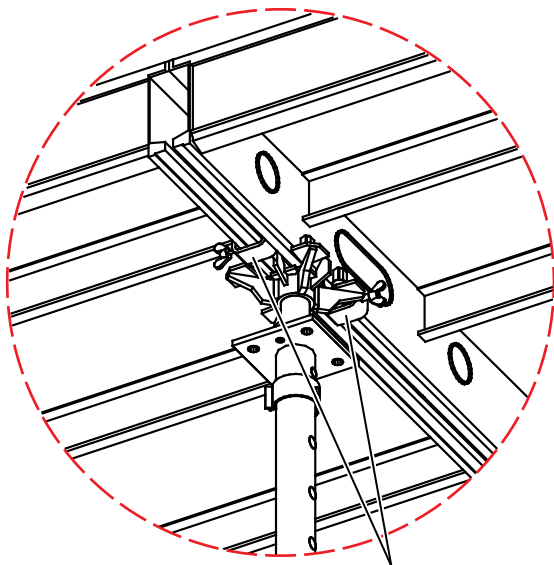


E.g. round steel stirrup encased in concrete

Step 2 The TOPEC fixing head is fixed to the prop like the TOPEC bearing. To secure the head to the prop additionally order a TOPEC bolt. The steel prop has to be placed at the crossing point of the frame and rib profile. The TOPEC fixing head encloses the rib profile to secure the prop against tipping over.



Step 3 Props with TOPEC bearing placed in intermediate position underneath the TOPEC panel, must be secured with the TOPEC prop retainer! To connect the TOPEC panel tension strap to the edge profile of the panel, a Waler bolt 20 (Product code 420000) and a Spring pin 4 (Product code 173776) must be ordered additionally. Props with TOPEC bearing placed in intermediate position underneath the TOPEC panel, must be secured with the TOPEC prop retainer! An adequate tensioning part can be attached directly to the plate of the panel tension strap or to an additional scaffold tube inserted through the plate.



General notes:

Pay attention to the max. deflection of the panel.

Design values of the TOPEC panel 90/18

$$I = 2 \times 203 \text{ cm}^4 \text{ (406 cm}^4\text{) at the panel joint}$$

$$E = 7,000 \text{ kN/cm}^2$$

Design values of the TOPEC panel 180/180:

$$I = 2 \times 203 \text{ cm}^4 \text{ (406 cm}^4\text{) at panel joint}$$

$$I = 264 \text{ cm}^4 \text{ (in the middle of the panel)}$$

$$E = 7,000 \text{ kN/cm}^2$$



WARNING

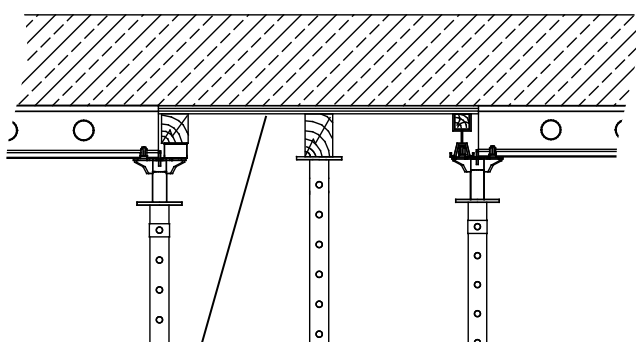
Warning!

At open structures, secure the system against uplift by wind (eg.TOPEC securing bolt)!
 The concreting sequence must always be carried out from the supported to the projecting area!
 Props with TOPEC bearing placed in intermediate position, e.g. within the panels, must be secured against dislocation with prop retainers!
 Projections above 10 cm require a tension strap to the floor to prevent uplift!
 Secure the slab formwork at the panel level by board bracing and vertical tie downs so that the system cannot be dislocated.

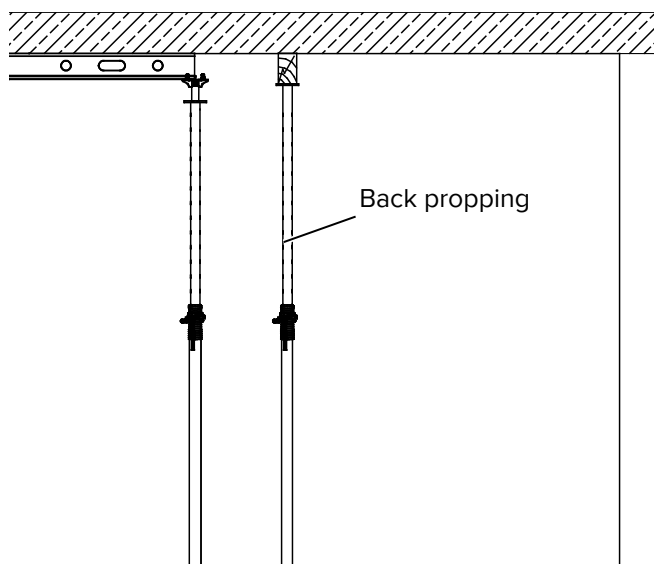
11 Early stripping

11.1 With auxiliary support (back propping)

As stated the German Standard DIN 1045 back propping must be installed after stripping. That should be done to allow the slab to support itself. The props for back propping should be arranged in mid-span of the slab and in the same location on the other floors.



According to DIN 1045 the adjustment strip is placed in the middle of the room.



WARNING

Warning!

HÜNNBECK is not responsible for the design and method of the reshoring/back propping. The contractor has to verify safe methods for back propping with the structural designer of the building and verify the local and overall load distribution before the start of the field works.

11.2 With the TOPEC drophead

When the formwork is stripped early, the props with TOPEC dropheads and cover strips stay in place. The panels can be removed and used for the next pouring cycle, while the slab remains supported.

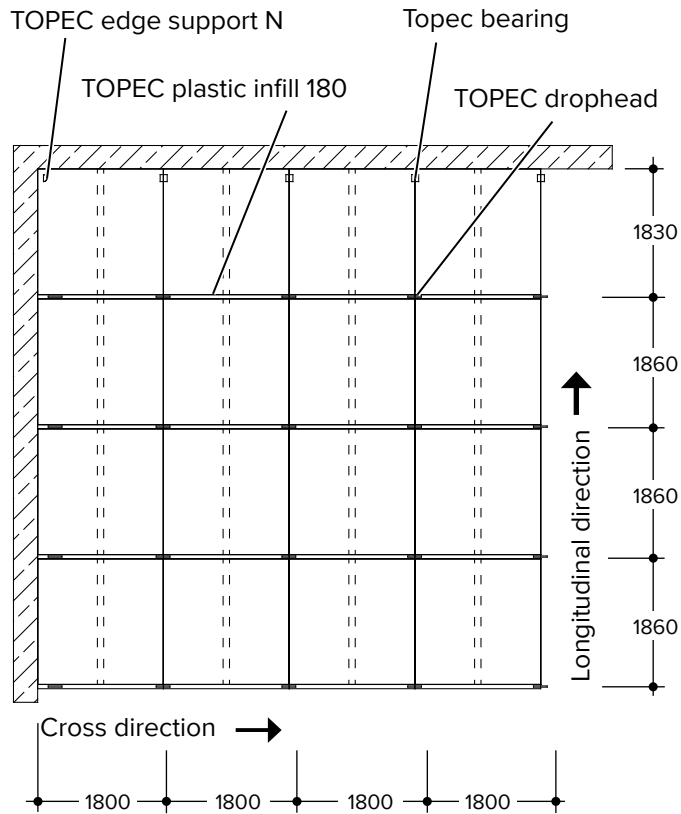


WARNING

Warning!

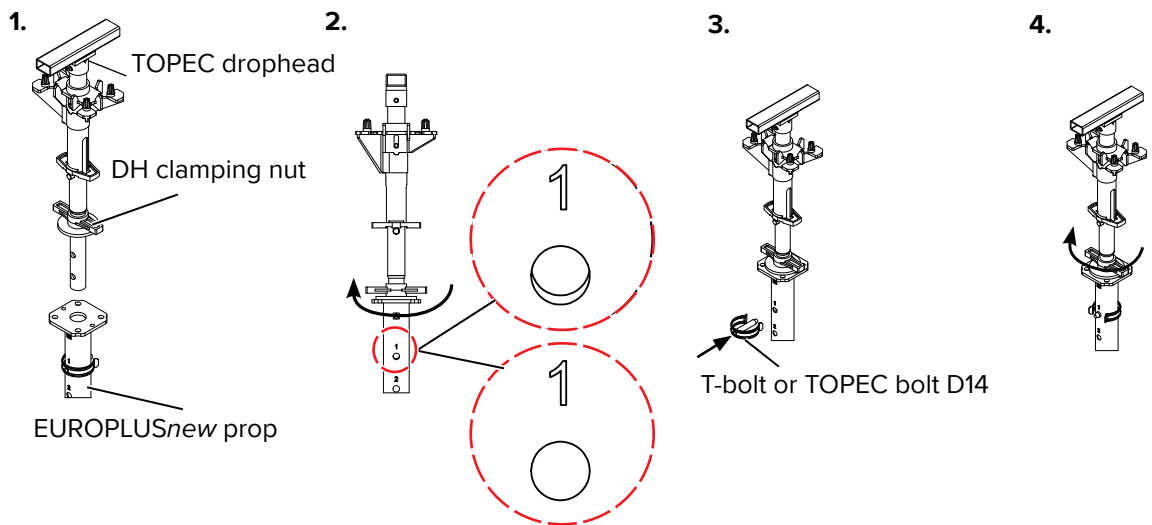
Essential for early stripping is a structural calculation that considers the concrete quality, the reinforcement configuration as well as the processes on site!

Top view



Mounting of the TOPEC Drophead to a tubular steel prop

- Step 1** Screw the DH clamping nut to the upper position and insert the TOPEC drophead into the steel prop.
- Step 2** Rotate the TOPEC drophead clamping nut clockwise until the hole in the TOPEC drophead fits to the upper hole in the steel prop.
- Step 3** Depending on the diameter of the prop tube the TOPEC drophead is fastened with a T bolt or a TOPEC bolt D14.
- Step 4** Tighten the TOPEC drophead clamping nut by hand and fasten it with a hammer stroke to clamp the TOPEC drophead to the steel prop.
Now fix the TOPEC drophead with the TOPEC bolt and the clamping nut to the EUROPLUSnew prop.

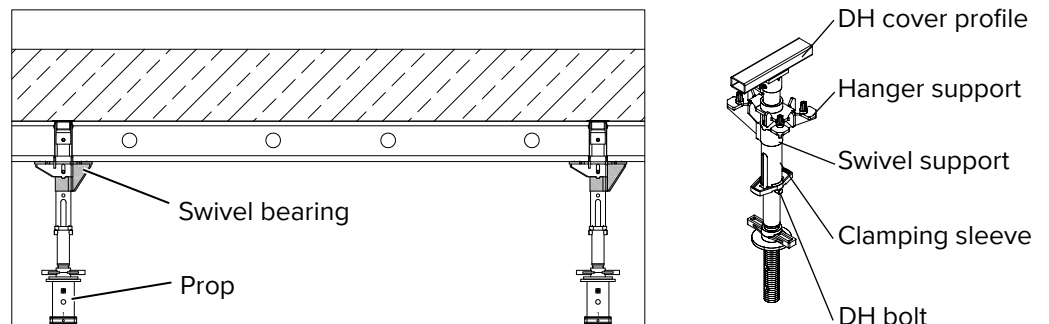


11.2.1 Stripping

Concrete pouring state

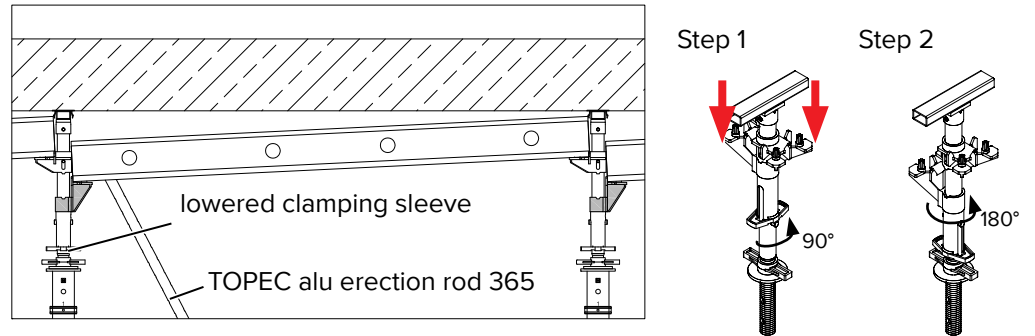
Align the swivel bearings of the TOPEC drophead always in the same direction. The DH bolt bears the clamping sleeve. The supporting surface of the bearings is on one level.

Concrete pouring state



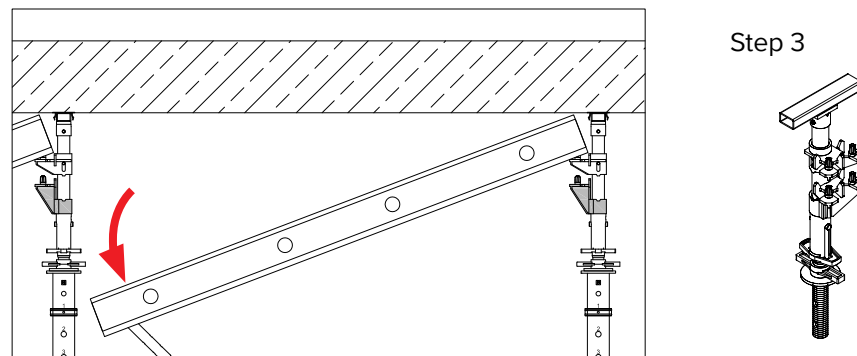
- Step 1** Turn the clamping sleeve 90° to lower the swivel support by 10 cm and the hanger support by 2 cm. The DH cover profile still supports the poured slab.
- Step 2** Slightly lift the TOPEC panel with the TOPEC erection rod. Then rotate the swivel bearing about 180°.

Stripping step 1 and 2



- Step 3** Now the swivel bearing is positioned directly under the hanger bearing. The TOPEC panel can be lowered easily and stripped as usual without interrupting the propping of the poured slab.

Stripping step 3



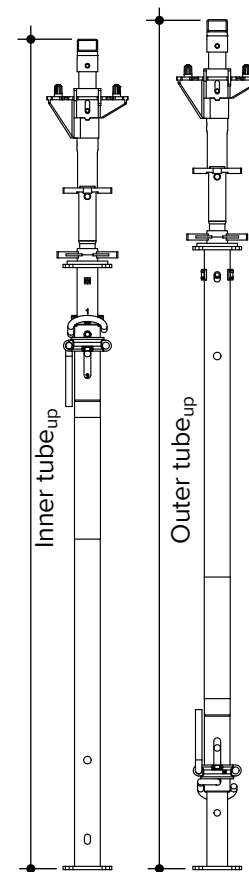
WARNING

Warning!

Before loading the poured slab always allow the slab to carry its own weight by releasing the props!

Min clear height

Description	Product Code	Direction	Ø [mm]	T Bolt	TOPEC bolt D14	Min. clear height [m]
EUROPLUS ^{new} 20-250	601390	Inner tube _{Up}	51.0	X	-	2.10
		Outer tube _{Up}	63.5	X	-	2.15
EUROPLUS ^{new} 20-300	601400	Inner tube _{Up}	51.0	X	-	2.36
		Outer tube _{Up}	63.5	X	-	2.40
EUROPLUS ^{new} 20-350	601410	Inner tube _{Up}	63.5	X	-	2.62
		Outer tube _{Up}	76.1	-	X	2.66
EUROPLUS ^{new} 20-400	601415	Inner tube _{Up}	63.5	X	-	2.88
		Outer tube _{Up}	76.1	-	X	2.93
EUROPLUS ^{new} 20-550	601425	Inner tube _{Up}	76.1	-	X	3.66
		Outer tube _{Up}	88.9	-	X	3.72
EUROPLUS ^{new} 30-150	601460	Inner tube _{Up}	51.0	X	-	1.58
		Outer tube _{Up}	63.5	X	-	1.68
EUROPLUS ^{new} 30-250	601430	Inner tube _{Up}	63.5	X	-	2.10
		Outer tube _{Up}	76.1	-	X	2.15
EUROPLUS ^{new} 30-300	601440	Inner tube _{Up}	63.5	X	-	2.36
		Outer tube _{Up}	76.1	-	X	2.40
EUROPLUS ^{new} 30-350	601445	Inner tube _{Up}	63.5	X	-	2.62
		Outer tube _{Up}	76.1	-	X	2.66
EUROPLUS ^{new} 30-400	601450	Inner tube _{Up}	76.1	-	X	2.88
		Outer tube _{Up}	88.9	-	X	2.94

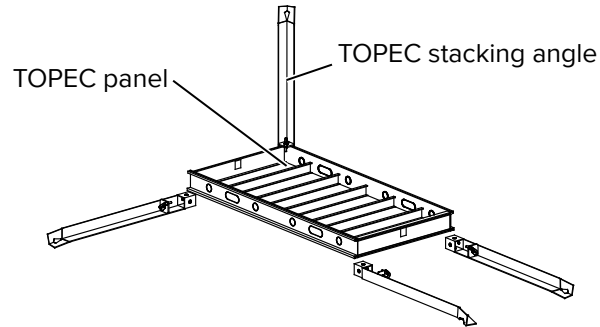

Maximum clear height [m] with slab thickness d [cm]

d [cm]	15.0	17.5	20.0	22.5	25.0	27.5	30.0	32.5	35.0	37.5	40.0
N [kN]	17.0	19.0	21.1	23.1	25.1	27.1	29.2	31.4	33.6	35.8	38.1
20-250	2.68	2.68	2.68	2.56	2.27	2.07	-	-	-	-	-
20-300	3.18	3.18	3.18	3.10	2.98	2.87	2.69	2.48	2.21	2.16	2.10
20-350	3.68	3.68	3.68	3.68	3.68	3.68	-	-	-	-	-
20-400	4.18	4.18	4.18	4.12	4.00	3.88	3.75	-	-	-	-
20-550	5.68	5.68	5.68	5.51	5.33	5.16	5.01	4.88	4.75	4.61	4.48
30-250	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.60	-	-
30-300	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.18	3.17	3.00	-
30-350	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.68	3.63	3.54	3.45
30-400	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.15

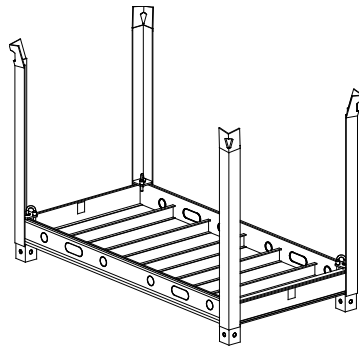
N [kN] acc. to DIN EN 12812

12 Storage and transport

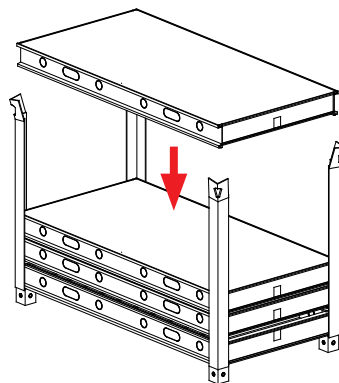
The TOPEC panels are stacked into bundles by using the TOPEC stacking angles. One TOPEC stacking angle is attached to each corner of the TOPEC panel (plywood face down). The stacking angles are automatically connected to the panels with the integrated gravity bolt.



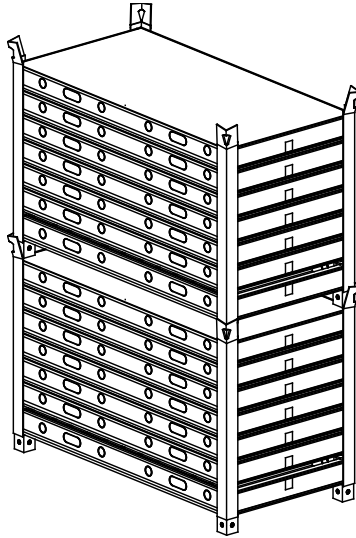
The assembled parts form a ready-to-use stacking pallet.



Insert the other TOPEC panels (plywood face up) between the stacking angles.



A complete bundle includes 7 TOPEC panels. Two stacked bundles fit to the permitted loading height of a typical truck. The individual bundles can be moved by crane or forklift.

**WARNING****Warning!**

Follow the operating instructions for the TOPEC stacking angle!

13 Permitted prop loads

HÜNNEBECK EUROPLUSnew Permissible load [kN] with system-bound applications										
Description $L_{min.} - L_{max.}$ Position Inner-tube L [m]	20 - 250 1.47 m - 2.50 m		20 - 300 1.72 m - 3.00 m		20 - 350 1.98 m - 3.50 m		20 - 400 2.24 m - 4.00 m		20 - 550 3.04 m - 5.50 m	
	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}
1.10										
1.20										
1.30										
1.40										
1.50	27.76	27.76								
1.60	27.76	27.76								
1.70	26.54	27.76								
1.80	25.02	27.76	38.48	38.48						
1.90	24.02	27.76	38.48	38.48						
2.00	23.12	27.76	35.09	38.48	27.76	27.76				
2.10	22.72	27.76	32.52	38.48	27.76	27.76				
2.20	22.32	27.76	30.91	38.48	27.76	27.76				
2.30	21.80	27.76	29.30	38.48	27.76	27.76	30.97	30.97		
2.40	21.21	26.52	28.01	38.48	27.76	27.76	30.97	30.97		
2.50	20.61	24.73	27.21	38.48	27.76	27.76	30.97	30.97		
2.60			26.40	35.55	27.76	27.76	30.97	30.97		
2.70			25.44	32.42	27.76	27.76	30.97	30.97		
2.80			23.83	29.69	27.76	27.76	30.97	30.97		
2.90			22.22	26.95	27.76	27.76	30.97	30.97		
3.00			20.61	24.21	27.76	27.76	30.97	30.97		
3.10					27.76	27.76	30.97	30.97	38.48	38.48
3.20					27.76	27.76	30.97	30.97	38.48	38.48
3.30					27.19	27.76	30.37	30.97	38.48	38.48
3.40					25.70	27.76	29.19	30.97	38.48	38.48
3.50					24.21	27.76	28.02	30.97	38.48	38.48
3.60							26.75	30.97	38.48	38.48
3.70							25.35	30.97	38.48	38.48
3.80							23.94	28.95	38.48	38.48
3.90							22.53	26.84	38.48	38.48
4.00							21.12	24.73	38.48	38.48
4.10									38.48	38.48
4.20									38.29	38.48
4.30									36.58	38.48
4.40									34.99	38.48
4.50									33.40	38.48
4.60									31.82	38.48
4.70									30.23	36.71
4.80									28.64	34.12
4.90									27.13	31.71
5.00									26.04	30.29
5.10									24.95	28.87
5.20									23.87	27.45
5.30									22.78	26.03
5.40									21.69	24.60
5.50									20.61	23.18

HÜNNEBECK EUROPLUSnew Permissible load [kN] with system-bound applications										
Description L _{min.} - L _{max.} Position Inner- tube L [m]	30 - 150 1.04 m - 1.50 m		30 - 250 1.47 m - 2.50 m		30 - 300 1.72 m - 3.00 m		30 - 350 1.98 m - 3.50 m		30 - 400 2.24 m - 4.00 m	
	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}	IT _{up}	IT _{down}
	1.10	36.06	38.48							
1.20	35.63	38.48								
1.30	35.03	38.48								
1.40	35.03	38.48								
1.50	35.03	38.48	33.33	33.33						
1.60			33.33	33.33						
1.70			33.33	33.33						
1.80			33.33	33.33	37.21	37.21				
1.90			33.33	33.33	37.21	37.21				
2.00			33.33	33.33	37.21	37.21	49.45	49.45		
2.10			33.33	33.33	37.21	37.21	49.45	49.45		
2.20			33.22	33.33	37.21	37.21	49.45	49.45		
2.30			32.74	33.33	37.21	37.21	49.45	49.45	38.48	38.48
2.40			32.34	33.33	36.83	37.21	48.91	49.45	38.48	38.48
2.50			31.94	33.33	36.19	37.21	47.56	49.45	38.48	38.48
2.60					35.55	37.21	46.20	49.45	38.48	38.48
2.70					34.77	37.21	44.85	49.45	38.48	38.48
2.80					33.48	37.21	43.57	48.56	38.48	38.48
2.90					32.20	37.21	42.35	47.07	38.48	38.48
3.00					30.91	36.58	41.13	45.58	38.48	38.48
3.10							39.91	44.09	38.48	38.48
3.20							37.82	41.73	38.48	38.48
3.30							35.52	39.15	38.48	38.48
3.40							33.21	36.58	38.48	38.48
3.50							30.91	34.00	38.48	38.48
3.60									38.48	38.48
3.70									38.48	38.48
3.80									38.48	38.48
3.90									37.94	38.48
4.00									36.06	38.48



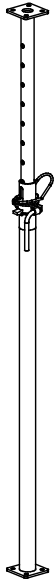
WARNING

Warning!

This information is valid for a system that is held at formwork level

14 Older props

All steel props are provided with a quick-lowering mechanism, anti-crush guard and a protection against sliding-out of the inner tube and are also protected for a long service-life by hot-dip galvanization.

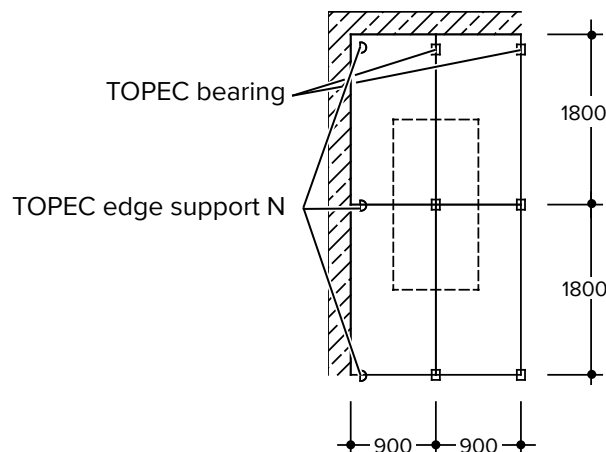


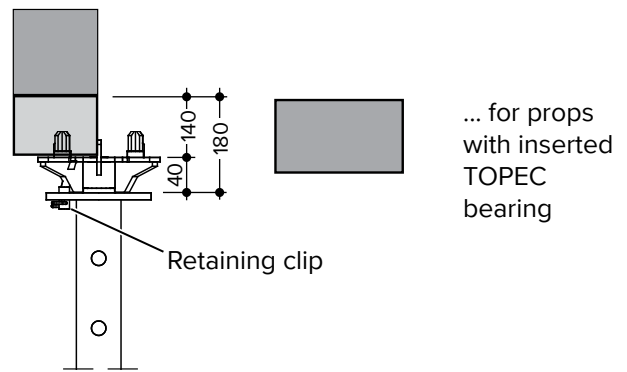
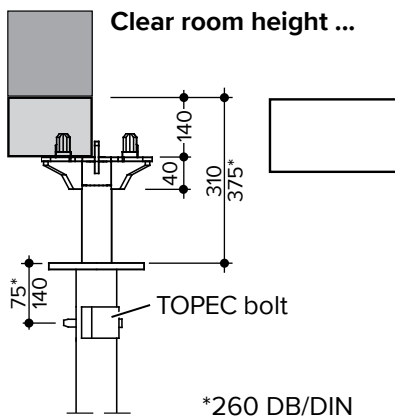
Component	Product code	Weight [kg]
EUROPLUS 260 DB/DIN	463021	15,88
154 cm - 260 cm	555118	
EUROPLUS 300 DB/DIN	552147	17,53
172 cm - 300 cm		
EUROPLUS 350 DB/DIN		21,34
198 cm - 350 cm		
Permissible load*: up to 30 kN (class B) depending on extension length, or a constant load of 20 kN (class D) at any extension length.	583780	
		27,11
EUROPLUS 400 EC		
224 cm - 400 cm		
Permissible load*: up to 35 kN (class C) depending on extension length, or a constant load of 30 kN (class E) at any extension length.	583725	
		36,08
Europlus 550 DC		
303 cm - 550 cm		
Permissible load*: up to 35 kN (class C) depending on extension length, or a constant load of 20 kN (class D) at any extension length.		

14.1 Clear room height with older props

14.1.1 TOPEC Panels 180/90

The data is based on a stable TOPEC system that is horizontally held at the formwork level by existing structures with adequate load bearing capacity in such a way that the system cannot be dislocated. Max. permitted slab thickness: 50 cm. The maximum influence area per prop is: $A = 1.62 \text{ m}^2$



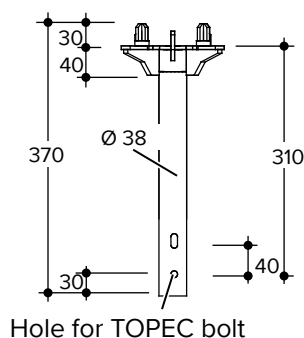


TOPEC panel 180/90

Steel props	Max. clear room height h [m]								DIN EN 12812 Design class B1							
Slab thickness	15	20	25	30	35	40	45	50	15	20	25	30	35	40	45	50
EUROPLUS 260 DB/DIN Product code: 463021	2.98	2.98	2.98	2.98	2.98	2.98	2.86	2.78	2.98	2.98	2.98	2.98	2.98	2.98	2.86	2.78
EUROPLUS 300 DB/DIN Product code: 555118	3.31	3.31	3.31	3.31	3.31	3.31	3.29	3.06	3.31	3.31	3.31	3.31	3.31	3.29	3.18	3.06
EUROPLUS 350 DB/DIN Product code.: 552147	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.68	3.81	3.81	3.81	3.81	3.81	3.81	3.71	3.68
EUROPLUS 400 EC Product code: 583780	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18
EUROPLUS 550 DC Product code 583725	5.68	5.68	5.68	5.68	5.68	5.68	5.68	5.40	5.68	5.68	5.68	5.68	5.68	5.68	5.55	5.40

NOTE **Note!** These two tables indicate only the min/max prop extensions and are not based on the structural design criteria of the props or allowable loads.

TOPEC bearing



Clear room height [cm] with extended TOPEC bearing			
EUROPLUS	Product Code	min.	max.
260 DB/DIN	463021	193	297
300 DB/DIN	555118	210	331
350 DB/DIN	552147	235	381

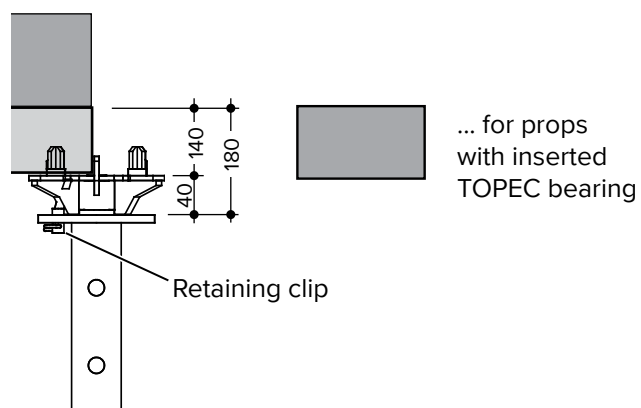
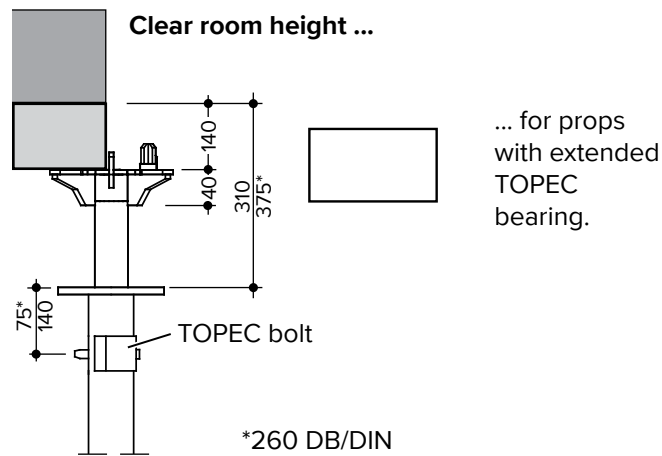
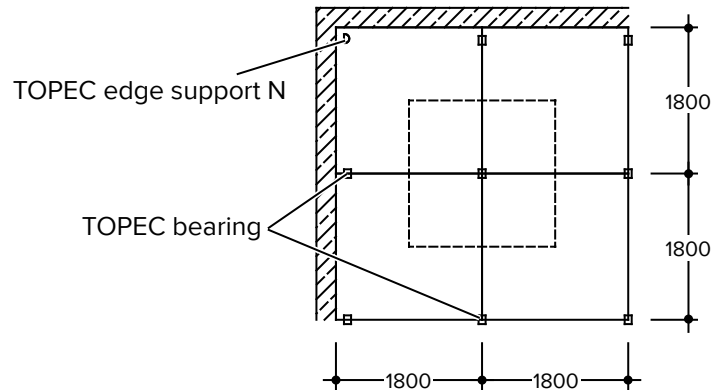
Clear room height [cm] with inserted TOPEC bearing			
EUROPLUS	Product Code	min.	max.
260 DB/DIN	463021	172	278
300 DB/DIN	555118	206	318
350 DB/DIN	552147	233	368
550 DC	583725	336	568
400 EC		258	418

14.1.2 TOPEC Panels 180/180

The data is based on a stable TOPEC system that is horizontally held at the formwork level by existing structures with adequate load bearing capacity in such a way that the system cannot be dislocated.

Max. permitted slab thickness: 40 cm, 50 cm with center beam

The maximum influence area per prop is: $A = 3.24 \text{ m}^2$



TOPEC panel 180/180

Steel props	Max. clear room height h [m] DIN EN 12812 Design class B1							
Slab thickness	15	20	25	30	35	40	45	50
							with center beam	
EUROPLUS 260 DB/DIN Product code 463021	2.98	2.88	2.78	2.67	2.27	-	2.86	2.78
Europlus 300 DB/DIN Product code 555118	3.31	3.15	2.97	2.74	-	-	3.18	3.06
EUROPLUS 350 DB/DIN Product code 552147	3.81	3.73	3.63	3.41	-	-	3.68	3.68
EUROPLUS 400 EC Product code 583780	4.18	4.18	4.18	4.18	4.18	-	4.18	4.18
EUROPLUS 550 DC Product code 583725	5.68	5.61	5.26	4.96	4.69	4.37	5.59	5.40

15 Notes on structural analysis

Unless explicitly stated otherwise, all load specifications in this document are safe working loads. This means that characteristic loads can be used for calculations. The following safety factors are included in the safe working load (where applicable):

Load:

$$\gamma_f = 1.5$$

Resistances:

Steel:

$$\gamma_m = 1.1$$

Imperfections, load assumptions and additional rules:

According to DIN EN 1993 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

Aluminium:

$$\gamma_m = 1.1$$

Imperfections, load assumptions and additional rules:

According to DIN EN 1999 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

Timber:

$$\gamma_m = 1.3;$$

$$K_{mod} = 0.9$$

Imperfections, load assumptions and additional rules:

According to DIN EN 1995 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

Concrete:

$$\gamma_m = 1.5$$

Imperfections, load assumptions and additional rules:

According to DIN EN 1992 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

Concrete steel:

$$\gamma_m = 1.15$$

Imperfections, load assumptions and additional rules:

According to DIN EN 1992 / DIN EN 12810 / DIN EN 12811 / DIN EN 12812 / DIN EN 1991

These values only include those loads that derive from the respective part itself (unless stated otherwise).

An increase in the loads due to effects in the full system (e.g. Theory II, substitute horizontal loads, scaffolding class...) must be considered.

16 Chronology

Changes since edition 2014-08		
Change	Page	Date
Layout updated	div	2018-09
TOPEC head support sleeve removed		2018-09

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