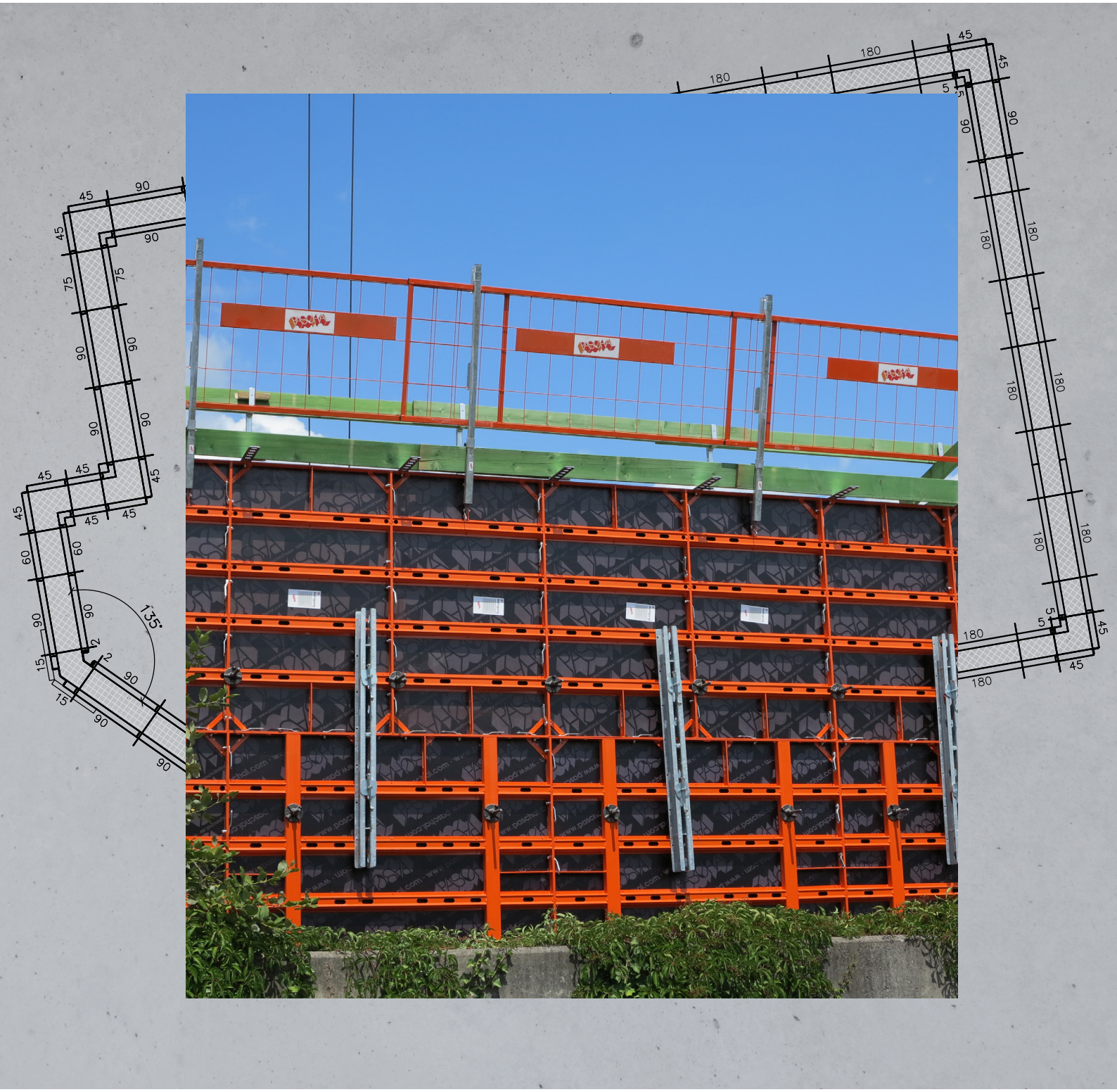
NeoR

TECHNICAL INFORMATION



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GSV guidelines

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

The contractor is responsible for drawing up a comprehenrisk assessment and a set of installation instructions.
The latter is not usually identical to the assembly instructions.

- **Rick Assessment**
  The contractor is responsible for the compilation, documentation, implementation and revision of a risk assessment for each construction site. His 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 assembly instructions forms part of the basic for the compilation of a set of installation instructions.
- **Assembly Instructions**
  Formwork is technical work equipment which is intended for commercial use only. The intended use must take place exclusively through properly trained personnel and appropriately qualified supervising personnel.
  The assembly instructions are an integral component of the formwork construction. They comprise at least safety guidelines, details on the standard configuration and intended use, as well as the system description. The functional instructions (standard configuration) contained in the assembly instructions 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 which 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.
- **Availability of the Assembly Instructions**
  The contractor has to ensure that the assembly instructions provided by the manufacturer or formwork supplier are available at the place of use. Site personnel are to be informed of this before assembly and use takes place, and that they are available at all times.
- **Representations**
  The representations shown in the assembly instructions are, in part, situations of assembly and not always complete in terms of safety considerations. The safety installations which havepossibly not been shown in these representations must nevertheless be available.
- **Storage and Transportation**
  The special requirements of the respective formwork constructions regarding transportation procedures as wellas storage must be complied with. By way of example, name the appropriate lifting gear to be used.
- **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 conditionand 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 assembly instructions required for the installation of the equipment.
- **Safety Symbols**
  Individual safety symbols are to be complied with. Examples:

Safety information:
non-compliance can lead to damage tomaterials or risk to the health of sitepersonnel (also life).

Visual check:
the intended operation is to be carried out through a visual check.

Note:
supplementary information for safe, correct and professional execution of work activities.

- **Miscellaneous**

Technical improvements and modifications are subject to change without notice. For the safetyrelated applicationand use of the products, all current country-specific laws, standards as well as 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, dismantling 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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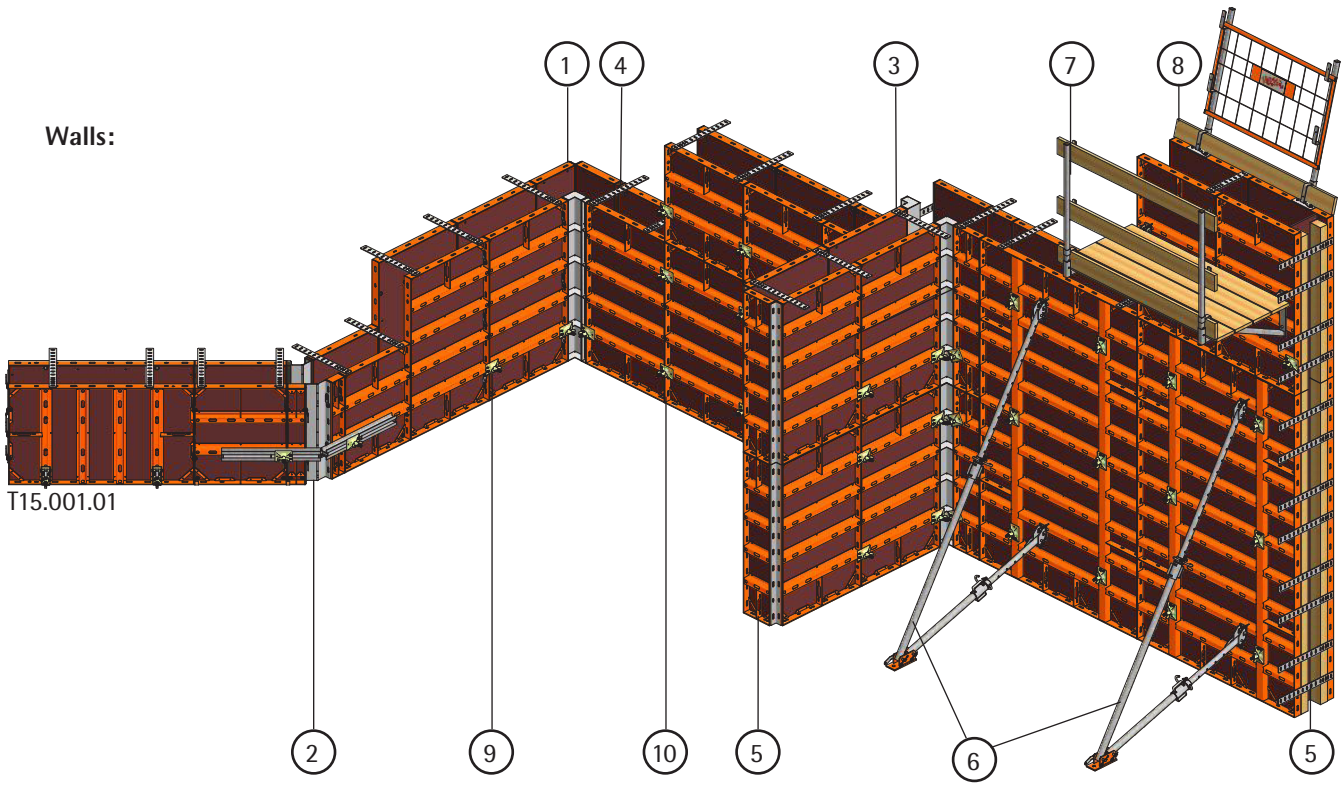
Contents

System description, technical data

- NeoR can be used as a small size formwork for all the different construction parts.
- Thanks to the light panel weight, the NeoR can be used as manual formwork.
- With the 180 x 300 cm panel, the NeoR is extended to a large-size system.
- Available panel heights: 300 cm; 150 cm; 90 cm
- The maximum permissible fresh concrete pressure is 50 kN/m². The tolerances of deflection according to DIN 18202, Table 3, Line 6 are observed.
- DW 15 tie rods are used as formwork anchors.
- The powder-coated panel frame has a structural height of 7.5 cm. It consists of highly-stable flat steel that is 6 mm thick. This is resistant to mechanical loads and can be repaired in the case of damage.
- 12 mm thick, 9 layer, Finnish birch plywood panels are mounted as standard facing.

Walls:



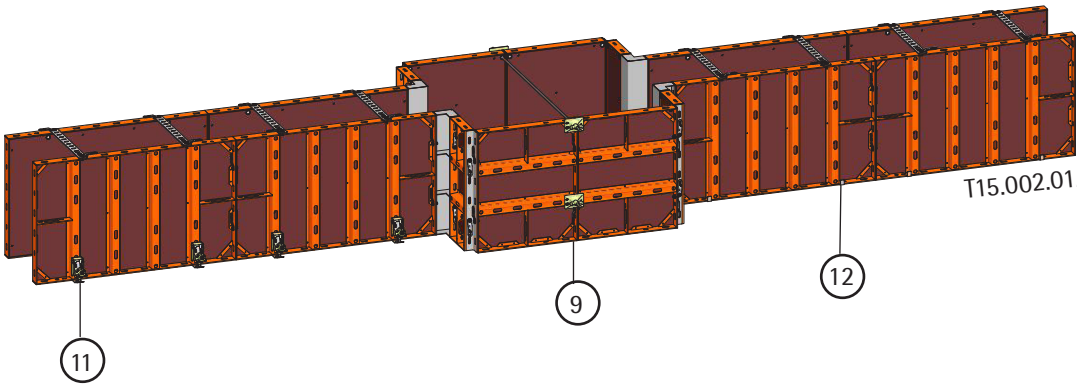
T15.001.01

① Corner / right angle
② Hinged corner post / any angle
③ T-walls
④ Compensation
⑤ Stop end
⑥ Adjustable props
⑦ Bracket with board and lateral protection
⑧ Fall protection on opposite side
⑨ Tie points
⑩ Connecting pieces
⑪ Tie clamp
⑫ Foundation strap

System description, technical data

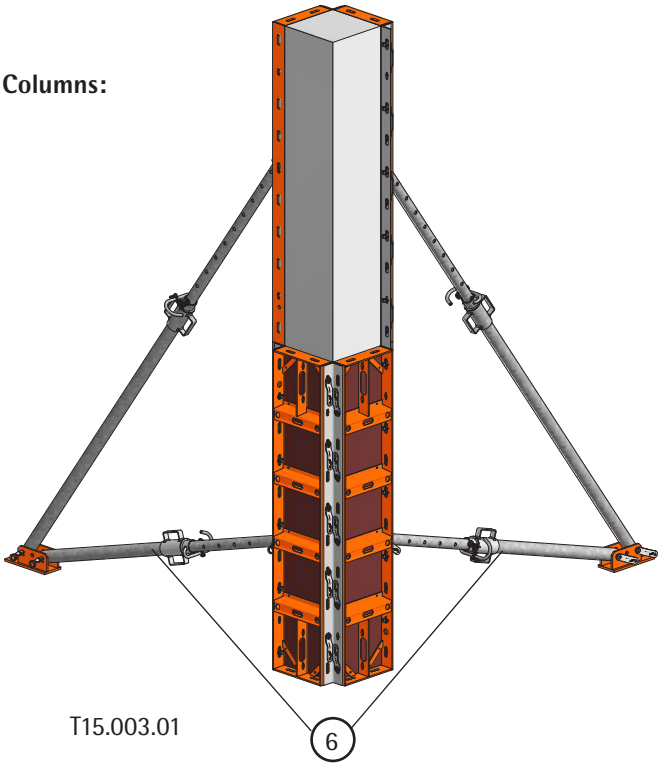
- The NeoR technical information contains all the required information on the standard assemblies. Uses beyond these application cases require consultation with the manufacturer's application engineering department and possibly separate static dimensioning.
- For safe use and application of PASCHAL products, respect to the locally applicable laws, standards, and directives for safety at work, and other safety regulations as last amended.

Foundations:



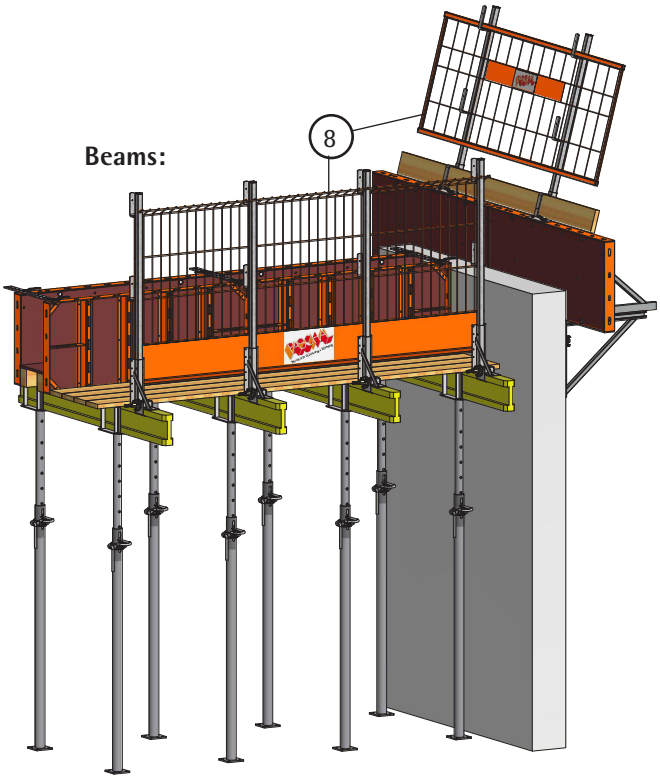
Slab edges:

Columns:



T15.003.01

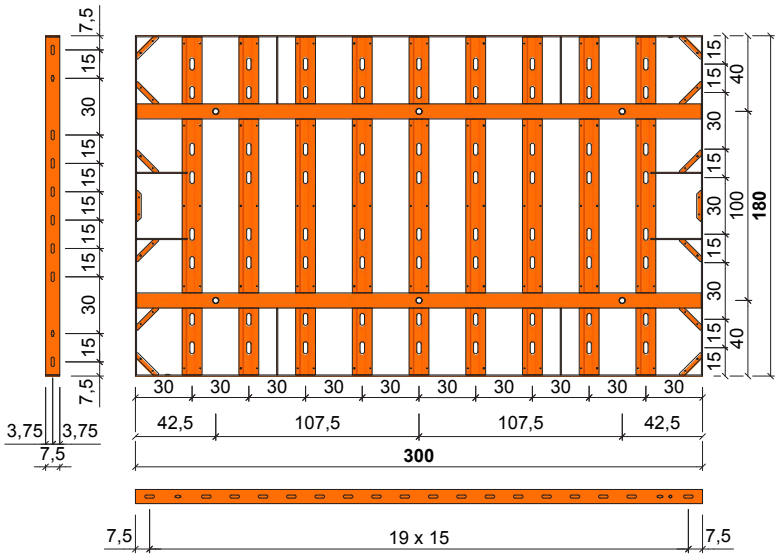
Beams:

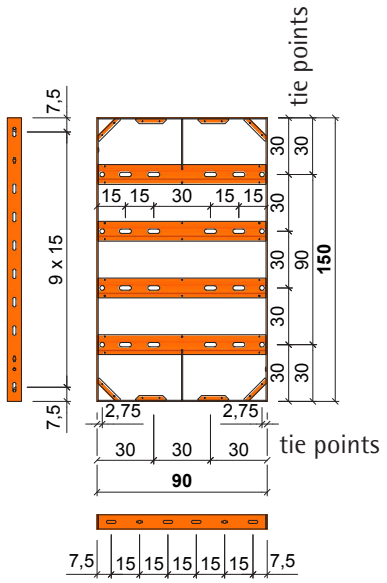


T15.004.01

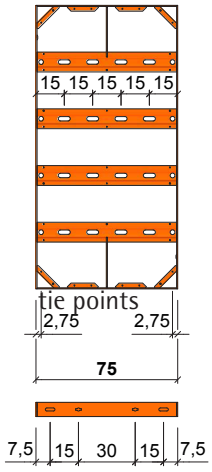
Panel overview, height 300 cm / 150 cm

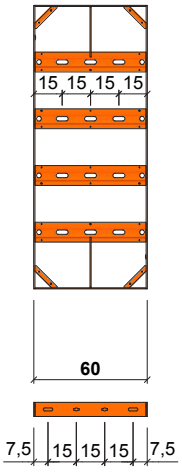
	Panel 180 x 300 cm (drawn lying down)	Panel 90 x 150 cm
Art. no.	167.001.1800	164.001.0900
Weight	186,00 kg	41,30 kg

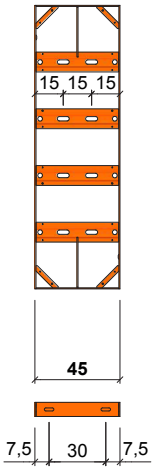


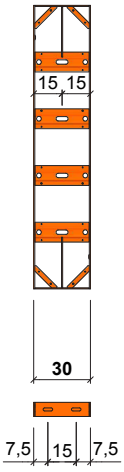


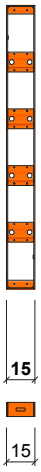
	Panel 75 x 150 cm	Panel 60 x 150 cm	Panel 45 x 150 cm	Panel 30 x 150 cm	Panel 15 x 150 cm
Art. no.	164.001.0750	164.001.0600	164.001.0450	164.001.0300	164.001.0150
Weight	36,30 kg	30,90 kg	25,90 kg	21,00 kg	15,80 kg



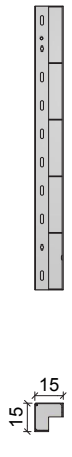
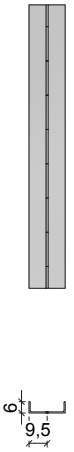
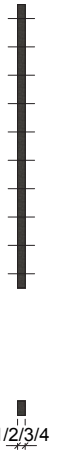
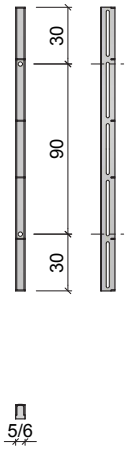
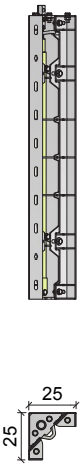




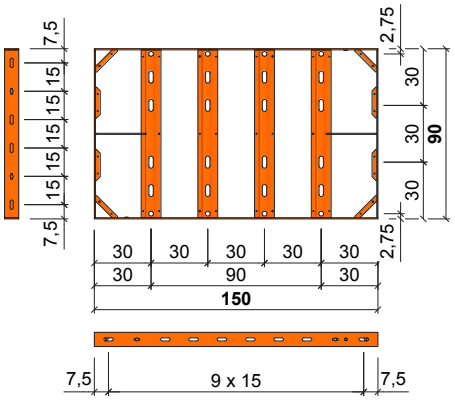
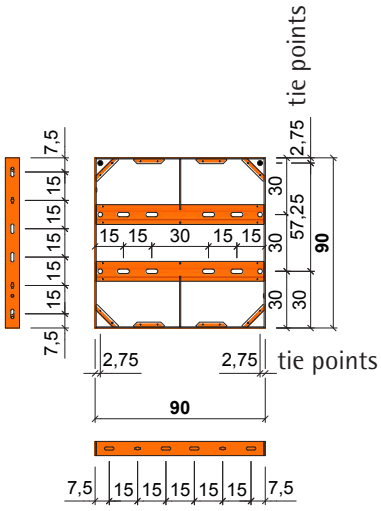


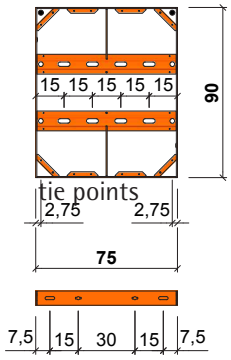
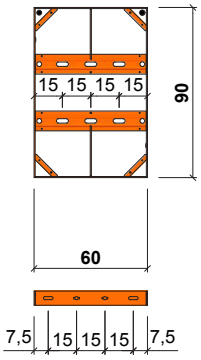
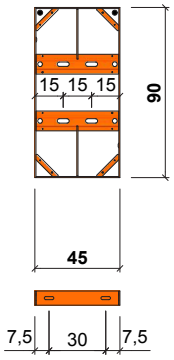
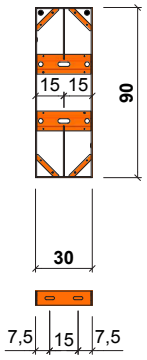
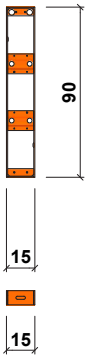


Panel overview, height 300 cm / 150 cm

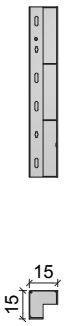
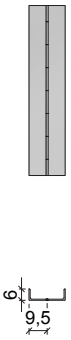
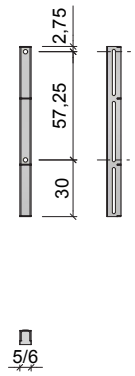
Art. no. Weight	**NeoR** **Inside corner post** **15 x 15 x 150 cm** 164.005.0150 20,70 kg	**NeoR** **Outside corner post** **150 cm** 164.006.0000 7,50 kg	**NeoR** **Hinged corner post** **9,5 x 9,5 x 150 cm** 164.007.0001 20,85 kg	**NeoR** **Plastic filler piece** **1 – 4 x 150 cm** 164.011.1010 / 1020 / 1030 / 1040	**NeoR** **Filler post** **5 / 6 x 150 cm** 164.003.0050/ 0060 10,50 kg / 11.01kg	**NeoR** **Dismantling inside corner** **25 x 25 x 150 cm** 164.005.0251 71,10 kg	
							
Art. no. Weight							

Panel overview, height Höhe 90 cm

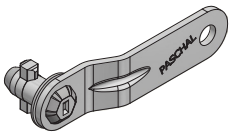
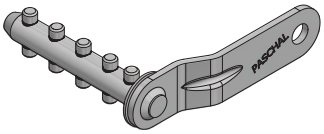
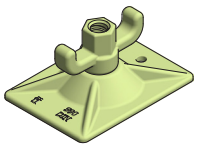
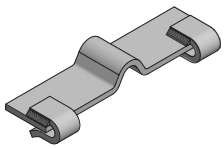
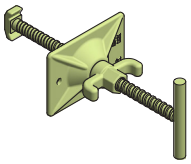
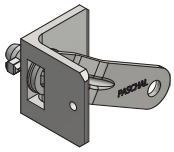
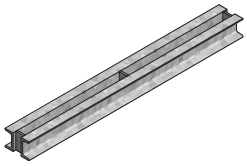
Art. no. Weight	**Panel 90 x 150 cm** **(drawn lying down)** 164.001.0900 41,30 kg	**Panel** **90 x 90 cm** 162.001.0900 22,50 kg
		

Art. no. Weight	**Panel** **75 x 90 cm** 162.001.0750 20,00 kg	**Panel** **60 x 90 cm** 162.001.0600 17,50 kg	**Panel** **45 x 90 cm** 162.001.0450 15,50 kg	**Panel** **30 x 90 cm** 162.001.0300 12,80 kg	**Panel** **15 x 90 cm** 162.001.0150 10,50 kg
					

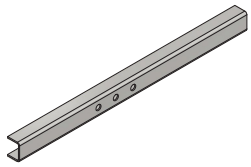
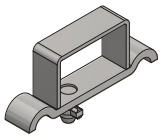
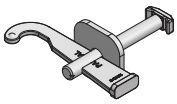
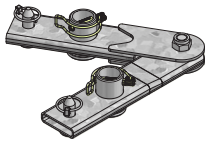
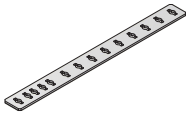
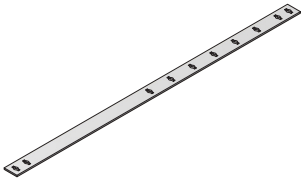
Panel overview, height Höhe 90 cm

Art. no. Weight	**NeoR** **Inside corner post** **15 x 15 x 90 cm** 162.005.0150 12,70 kg	**NeoR** **Outside corner post** **90 cm** 162.006.0000 4,50 kg	**NeoR** **Hinged corner post** **9,5 x 9,5 x 90 cm** 162.007.0001 12,50 kg	**NeoR** **Plastic filler piece** **1 – 4 x 90 cm** 162.011.1010 / 1020 / 1030 / 1040	**NeoR** **Filler post** **5 / 6 x 90 cm** 162.003.0050/ 0060 6,40 kg / 6.70 kg	**NeoR** **Dismantling inside corner** **25 x 25 x 90 cm** 162.005.0251 46,30 kg	
							
Art. no. Weight							

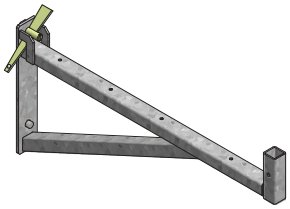
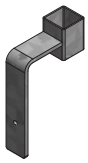
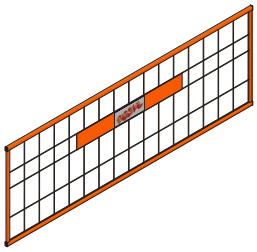
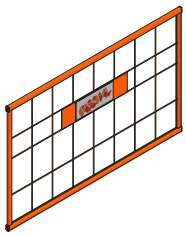
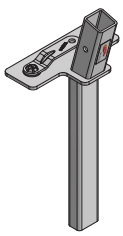
Parts list

	Art. no.	Description	Weight [kg]
	189.001.0100	Keybolt	0,18
	189.001.0105	5-pin Keybolt	0,30
	189.006.0650	Tie rod DW15 x 65 cm	0,90
	189.006.8500	Tie rod DW15 x 85 cm	1,19
	189.006.1000	Tie rod DW15 x 100 cm	1,40
	189.001.0059	Plate with ball-and-socket joint DW15 10 x 14 cm inclination max. 12°	1,20
	189.001.0086	Tie rod guide N/R	0,73
	187.500.0021	Support for walers clamping length 6-20cm L/N/A	1,95
	189.001.0017	Fixing bracket for 21 mm Plywood	0,45
	189.001.0118	Double channel waler U 60 x 800	8,38

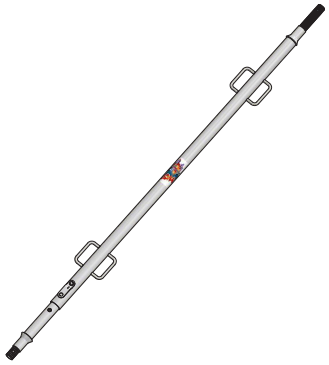
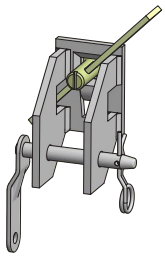
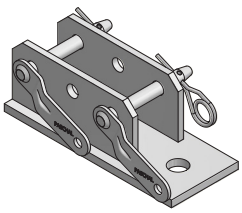
Parts list

	Art. no.	Description	Weight [kg]
	189.001.0067	Bracing channel 85 cm	4.01
	189.001.0071	Bracing channel support bracket	0,60
	187.500.0164	Multi waler 140	16,44
	187.500.0165	Clamping piece 10cm L/N	1,27
	187.500.0168	Hinged part multi waler cpl. galvanized	5,04
	189.001.0020	Spacer strap 6-50cm N/TR/R	1,55
	189.001.0021	Spacer strap 50-120cm N/TR/R	3,60

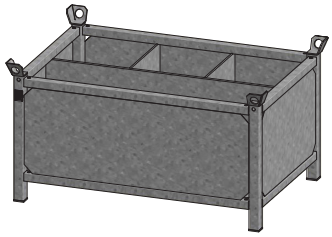
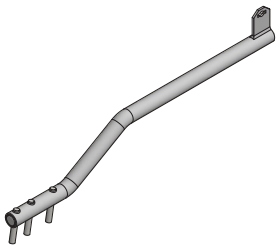
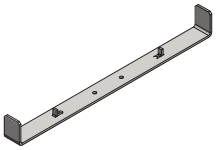
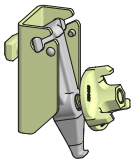
Parts list

	Art. no.	Description	Weight [kg]
	189.000.0040	NeoR bracket lateral protection	8,21
	189.000.1001	Railing post 120 cm lateral protection	3,20
	189.000.1010	Support for toe board lateral protection	0,46
	189.000.1035	Lateral protection fence 230 x 80 cm	10,10
	189.000.1036	Lateral protection fence 130 x 80 cm	6,50
	189.000.0041	Support NeoR cpl. lateral protection	2,87

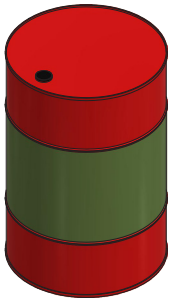
Parts list

	Art. no.	Description	Weight [kg]
	189.005.0001	Support variable 105-150 cm	9,50
	189.005.0014	Adjustable prop 175-285 cm galvanized	18,20
	189.005.0015	Adjustable prop 255-405 cm galvanized	33,50
	187.500.0003	Suspending piece for props cpl. L/N/A	2,00
	189.005.0023	Foot plate 3-holes cpl.	4,20

Parts list

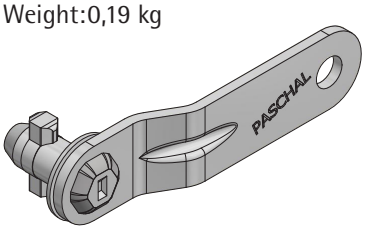
	Art. no.	Description	Weight [kg]
	189.002.0003	Transportation box hot-dip galvanized	93,50
	189.002.0008	Crane lifting clamp KA admissible capacity 600kg	4,00
	189.003.0000	Assembly tool	3.80
	180.001.xxxx	Foundation strap (variable lengths) N/R	0,87 / lfm.
	940.100.0000	Perforated tie 50 x 2 roll 25 m	16,70
	187.500.0125	Foundation tie clamp L/N	1,70

Parts list

	Art. no.	Description	Weight [kg]
	189.003.0018	PASCHAL parting compound P 2000 (barrel 200 l)	0,94 kg / l
	189.003.0011	PASCHAL parting compound P 300 (barrel 200 l)	0,94 kg / l
	189.003.0019	PASCHAL parting compound P 2000 (can 30 l)	0,83 kg / l
	189.003.0013	PASCHAL parting compound P 300 (can 30 l)	0,83 kg / l
	189.003.0009	Parting compound pistol 5 l	4,30 kg / l
	189.003.0008	Parting compound pistol 10 l	5,75 kg / l
	680.000.0150	PVC-plug D.21 sinkable PE-LD for panels L/N	0,01

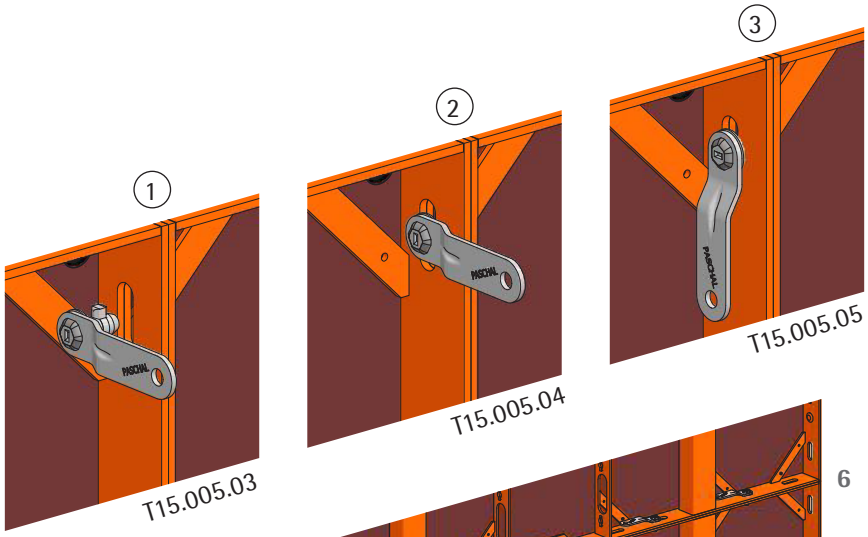
Connecting pieces

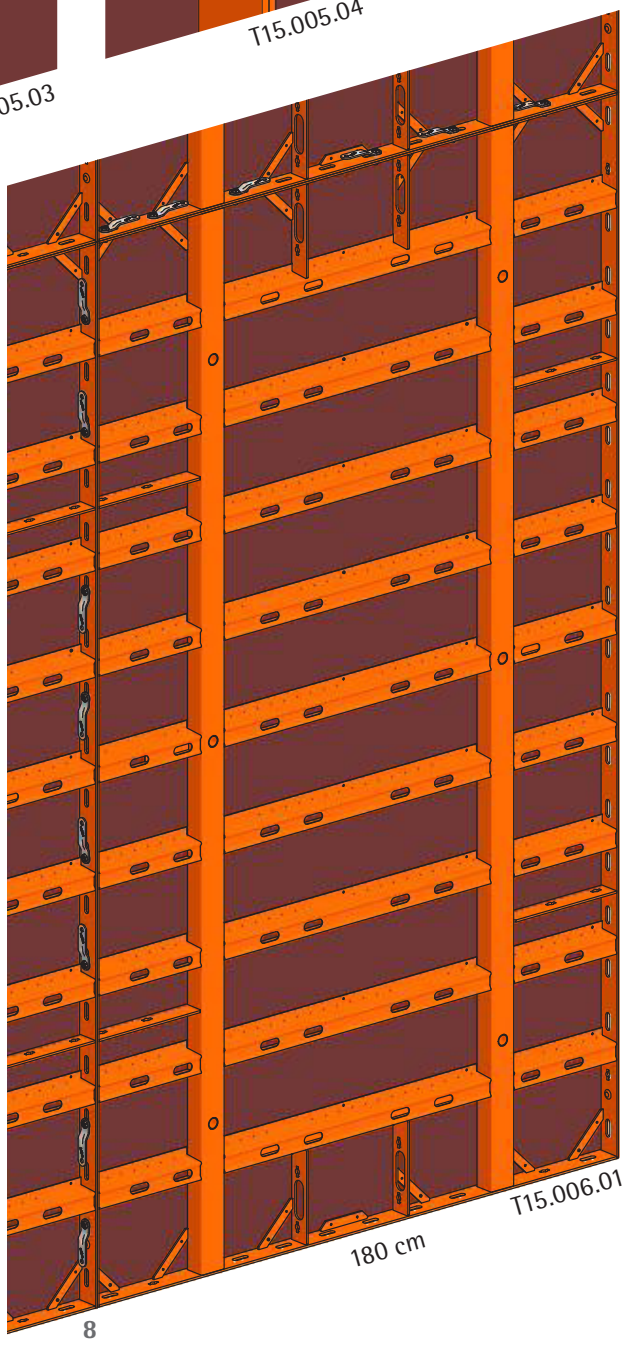
Keybolt
Art. no.:189.001.0100
Weight:0,19 kg



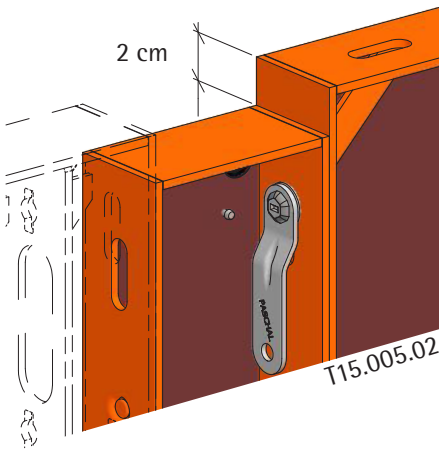
Use the keybolts to connect the panels, filler pieces (steel) and corners (inside corner post, outside corner post, hinged corner post). The required number and the position of the keybolts for a leak-tight and flush panel connection to the vertical and horizontal joints are shown in the adjacent illustrations for the different panel heights and widths.

1., 2. Insert keybolt in the oblong hole (or bolt hole) in the panel frame.
3. Turn the keybolt by 90° using a hammer.

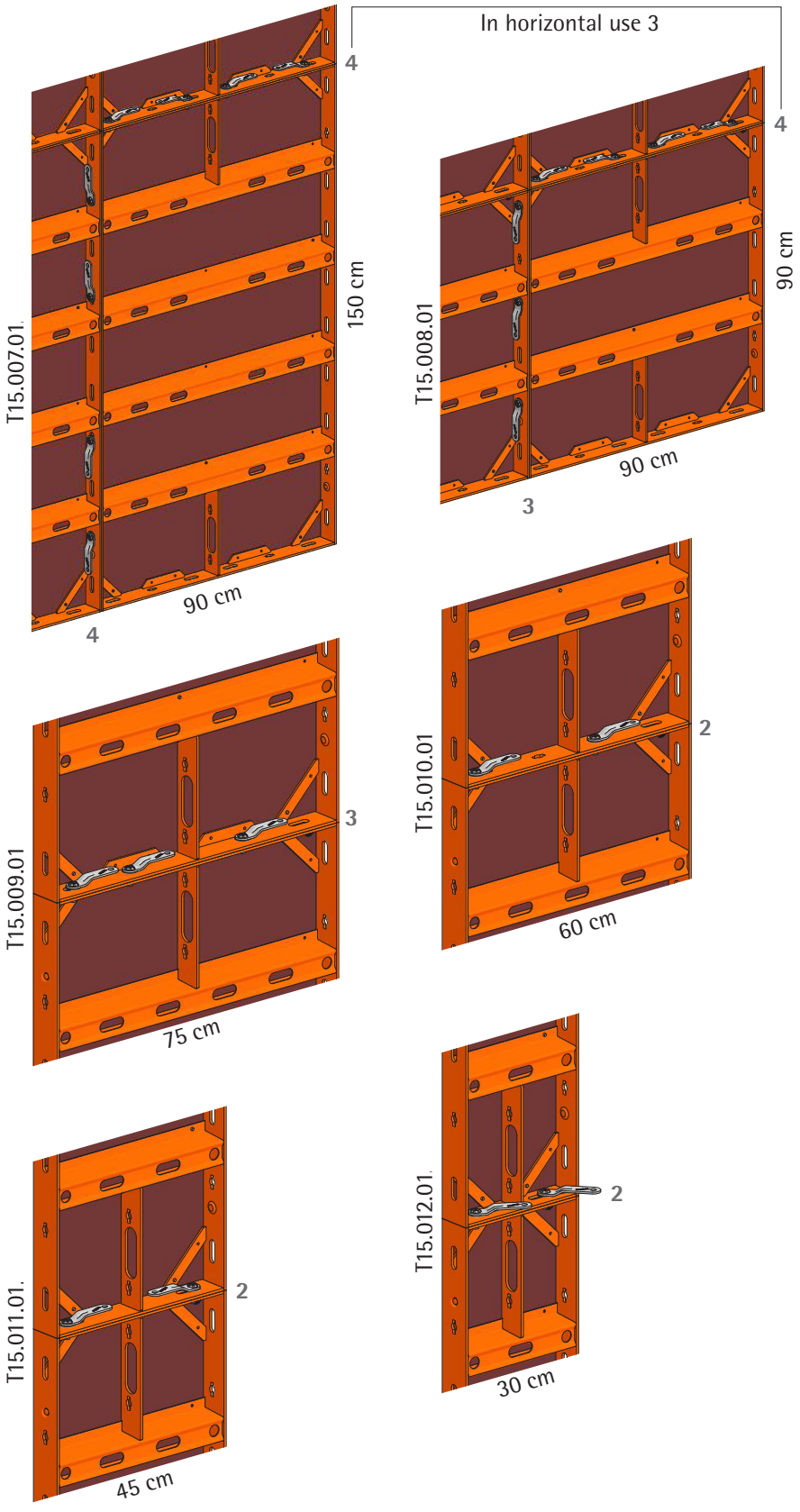




The oblong holes in the panel side parts allow a height offset of up to 2.0 cm.



Connecting pieces



Panel width: 90 cm

Heights: 150 cm und 90 cm

Panel widths 75 cm; 60 cm; 45 cm und 30 cm

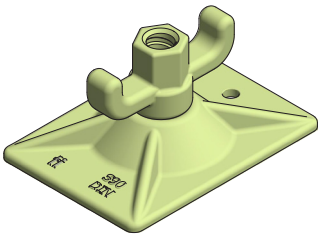
The number of keybolts required horizontally applies for both 150 cm and 90 cm panel heights.

For the 30 cm panel width, one keybolt is enough when the panel is positioned in a group with additional panels next to it.

The 15 cm panel width has no oblong hole for connecting in the upper or bottom part.

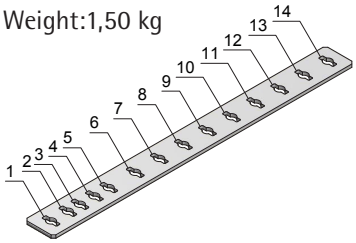
Tie points position

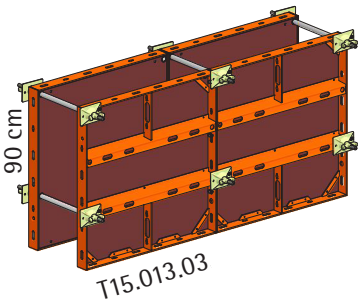
Plate with ball-and-socket joint
Art. no.:189.001.0059
Weight:1,20 kg

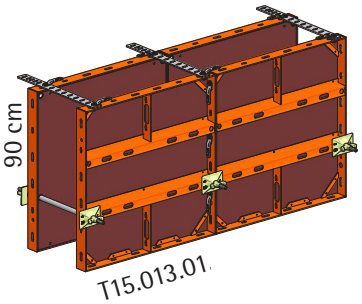


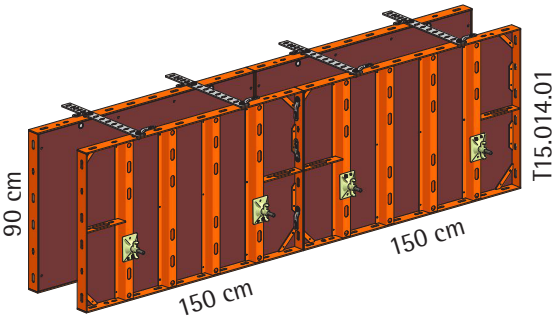
DW 15 tie rod x xxx cm
Art. no.:189.006.0xxx

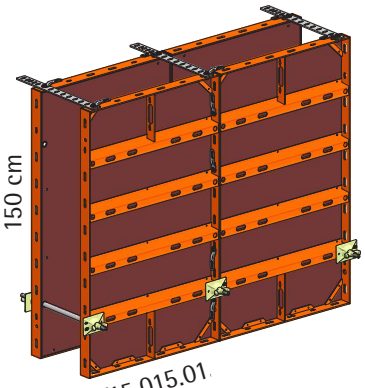
Spacer strap 6-50 cm N/TR/R
Art. no.:189.001.0020
Weight:1,50 kg

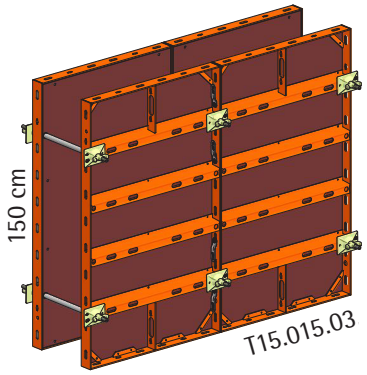


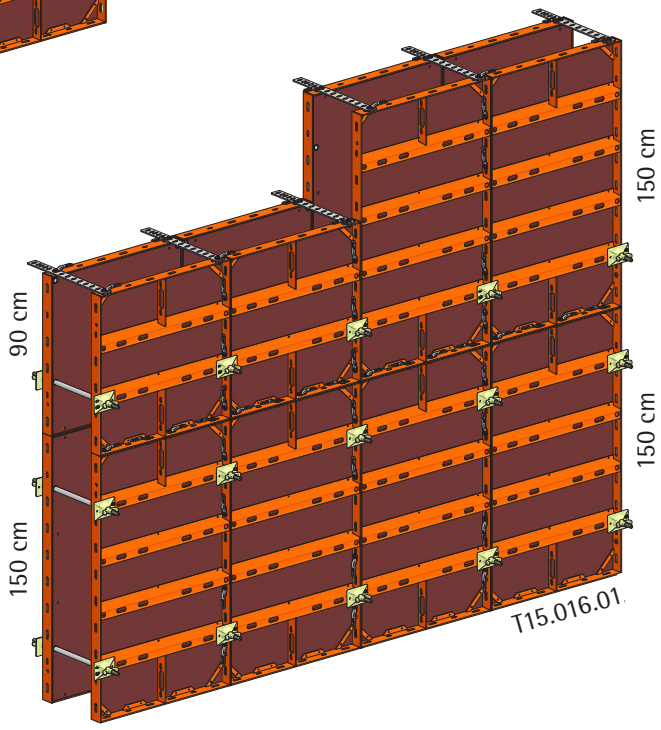








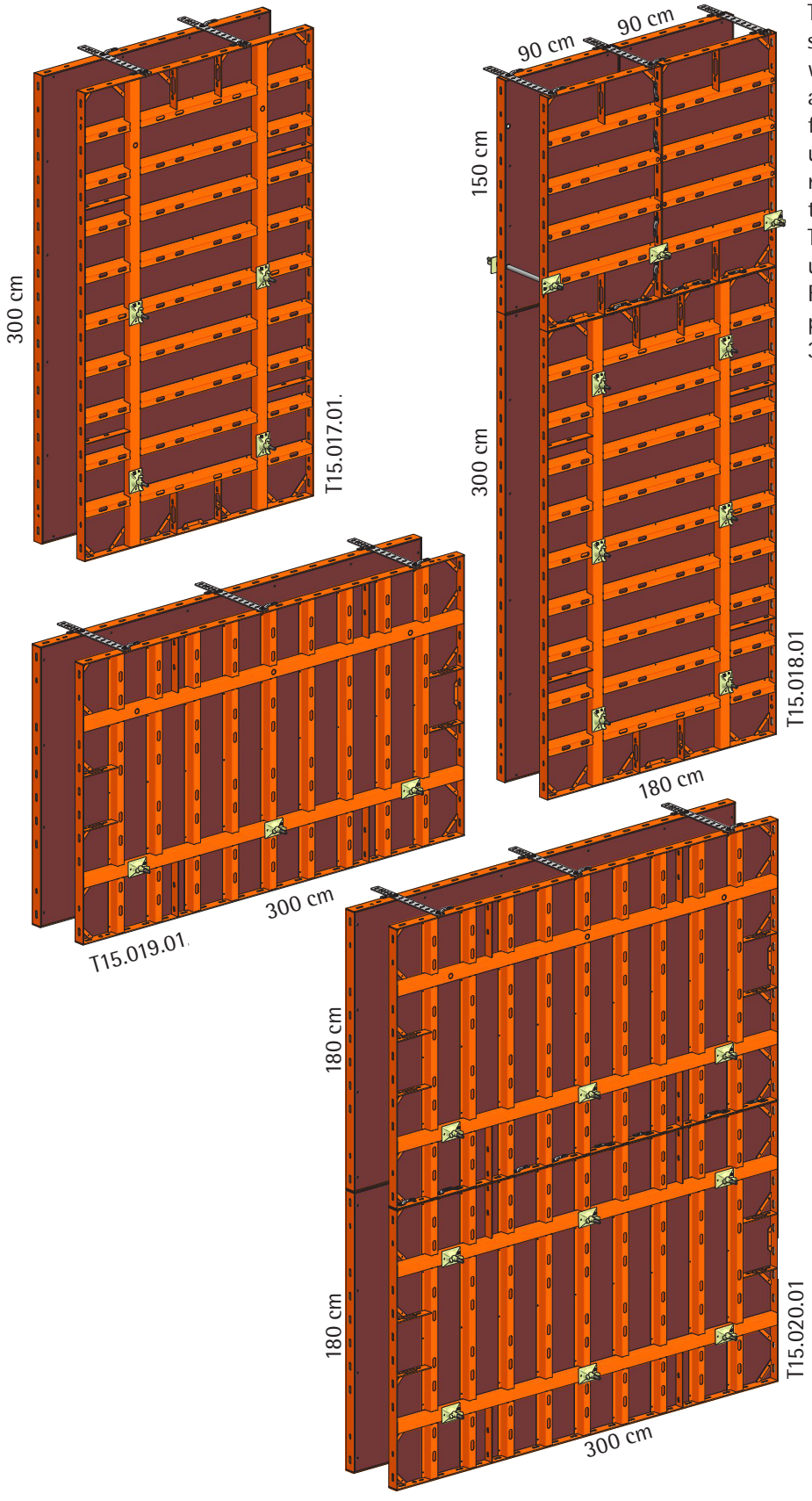




All panels with 150 cm and 90 cm formwork heights have outer tie points so that they can be tensioned on the left or right at the panel joint. The 90 x 150 cm panel can also be tensioned inwards when used horizontally.

Note:
For 150 cm and 90 cm panel heights, there are two tie points across the height. It is always possible to replace the top tie point in the upper formwork panel with the spacer strap and keybolts, regardless of the formwork height.
The illustrations on the following pages always show only one version for the different application cases. Both are possible, however.

Tie points position



The 180 x 300 cm large-size panel has six tie points. The two lower positions with tie rods and plate with ball-and-socket joints are used at 3.00 m formwork height. The spacer strap is used for tensioning at the top. Alternatively, it is possible to tension three times across the height.
The same principle applies for horizontal use with a 1.80 m formwork height.
For the height extension, all six tie points are required in the lower 180 x 300 cm panel.

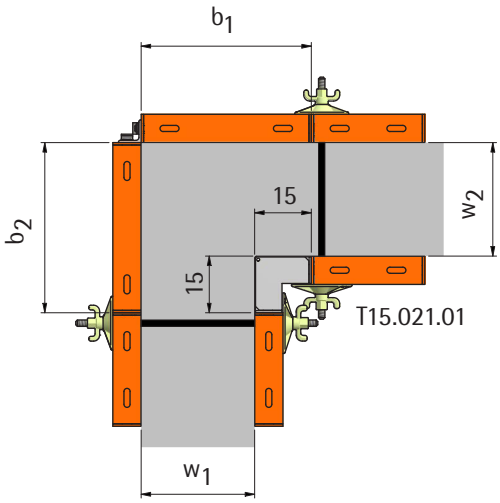
90° corner

The inside corner post, outside corner post, and two compensation panels are used for forming right-angles (90° corner).The width of the compensation panels is based on the wall thicknesses to be formed - w1 and w2.

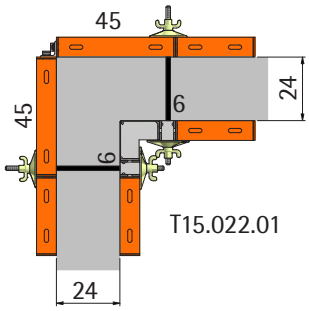
The 45 cm wide panel fits to the 30 cm wall thickness, for example.

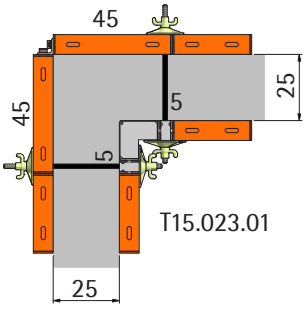
A 5 cm or 6 cm wide filler post is added at the inside corner post for smaller wall thicknesses. For bigger wall thicknesses, the same parts come outside to the panel. All parts are connected with the keybolt.

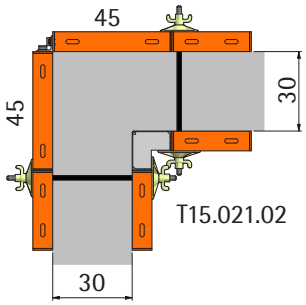
In the case of wall thicknesses outside the 5 cm pattern (6 cm pattern), plastic filler pieces with widths of 1 cm to 4 cm can be used outside or inside. Refer to the chapter on adjustment fillers.

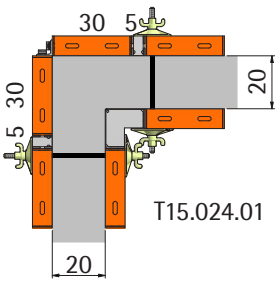


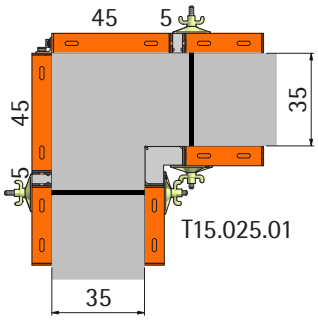
Width of the compensation panels	$b_1 = w_1 + 15$ cm
	$b_2 = w_2 + 15$ cm



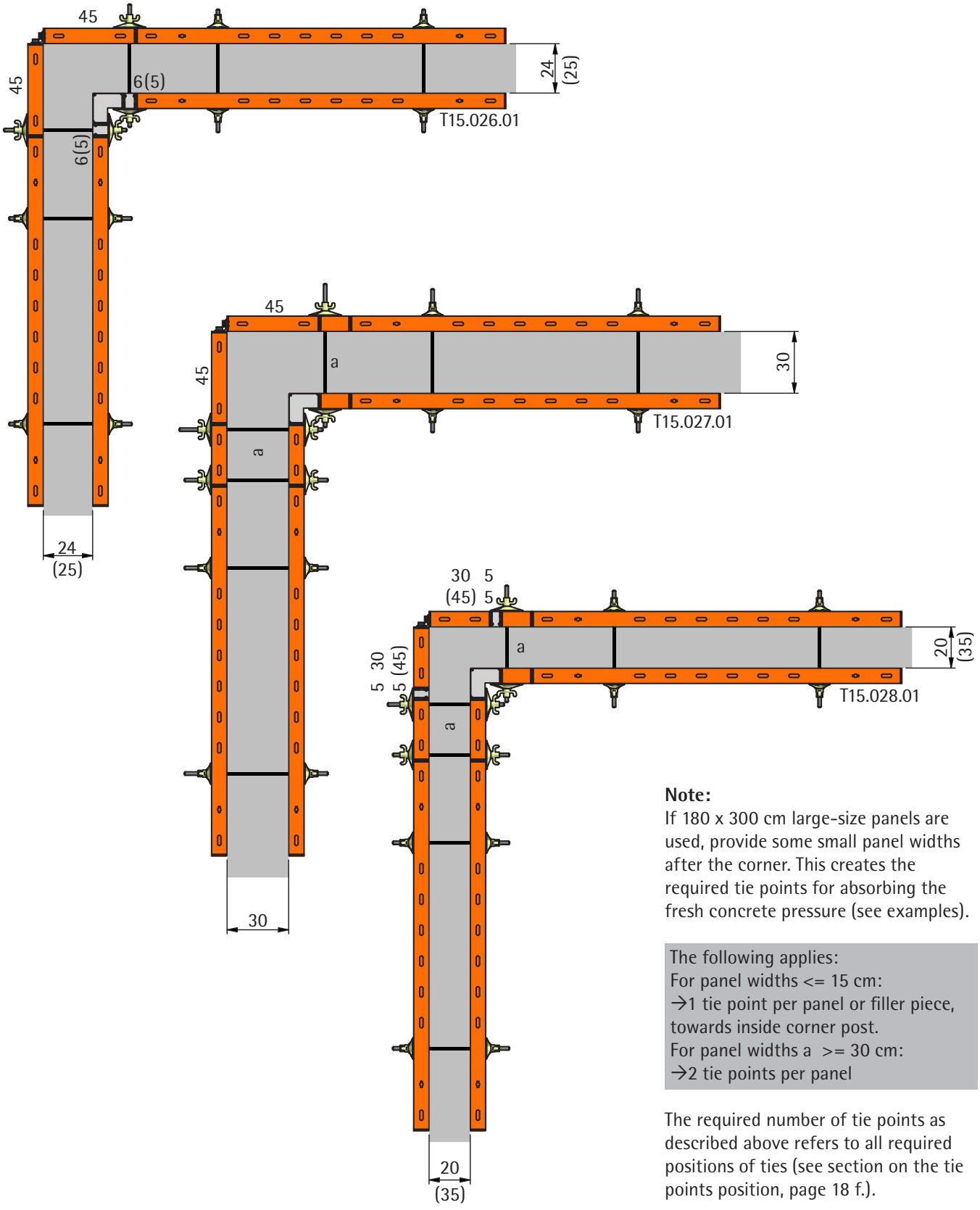








90° corner



Note:
If 180 x 300 cm large-size panels are used, provide some small panel widths after the corner. This creates the required tie points for absorbing the fresh concrete pressure (see examples).

The following applies:
For panel widths <= 15 cm:
→1 tie point per panel or filler piece, towards inside corner post.
For panel widths a >= 30 cm:
→2 tie points per panel

The required number of tie points as described above refers to all required positions of ties (see section on the tie points position, page 18 f.).

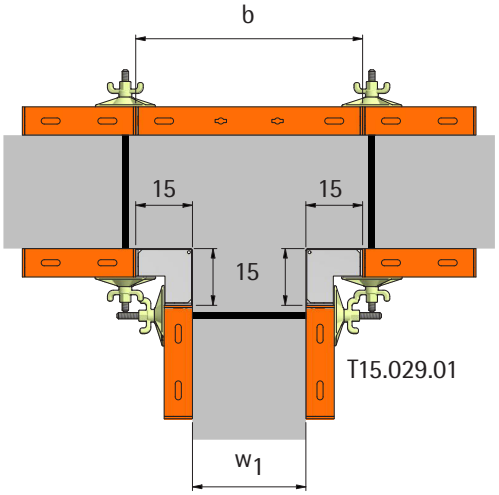
T-wall /pilaster strip

In the case of T-walls and pilaster strips, mount inside corner posts on both sides of the right-angled component.

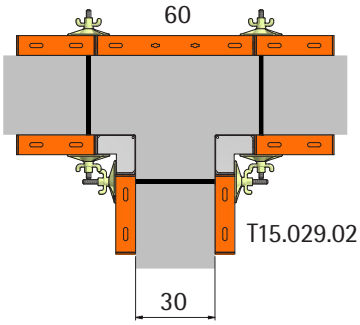
On the opposite side, the width of the compensation panel to be arranged is based on the side length of the inside corner post (15 cm) and the wall thickness w of the T-wall part:

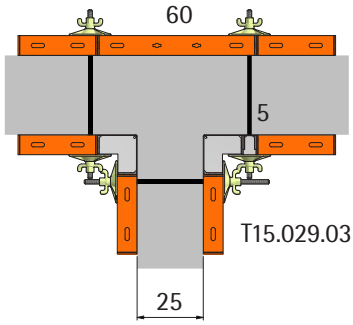
$b = w_1 + 2 \times 15$ cm

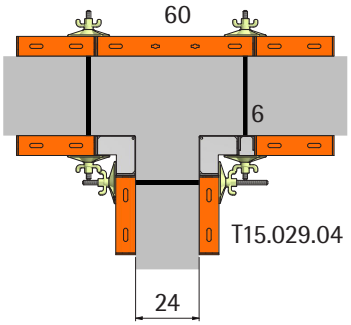
If the calculation does not result in any available panel width, 5 cm or 6 cm wide filler posts (steel) can be added on the inside or outside, or 1 cm to 4 cm wide plastic filler pieces. If, in the case of large differences, two filler pieces are required, these are to mount on both sides of the T-wall part.

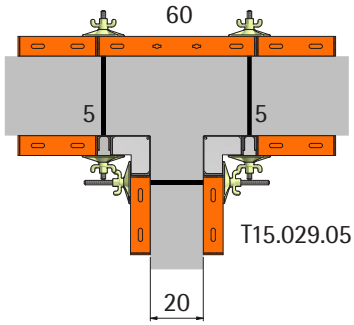


Width of the compensation panels	$b = w_1 + 2 \times 15$ cm

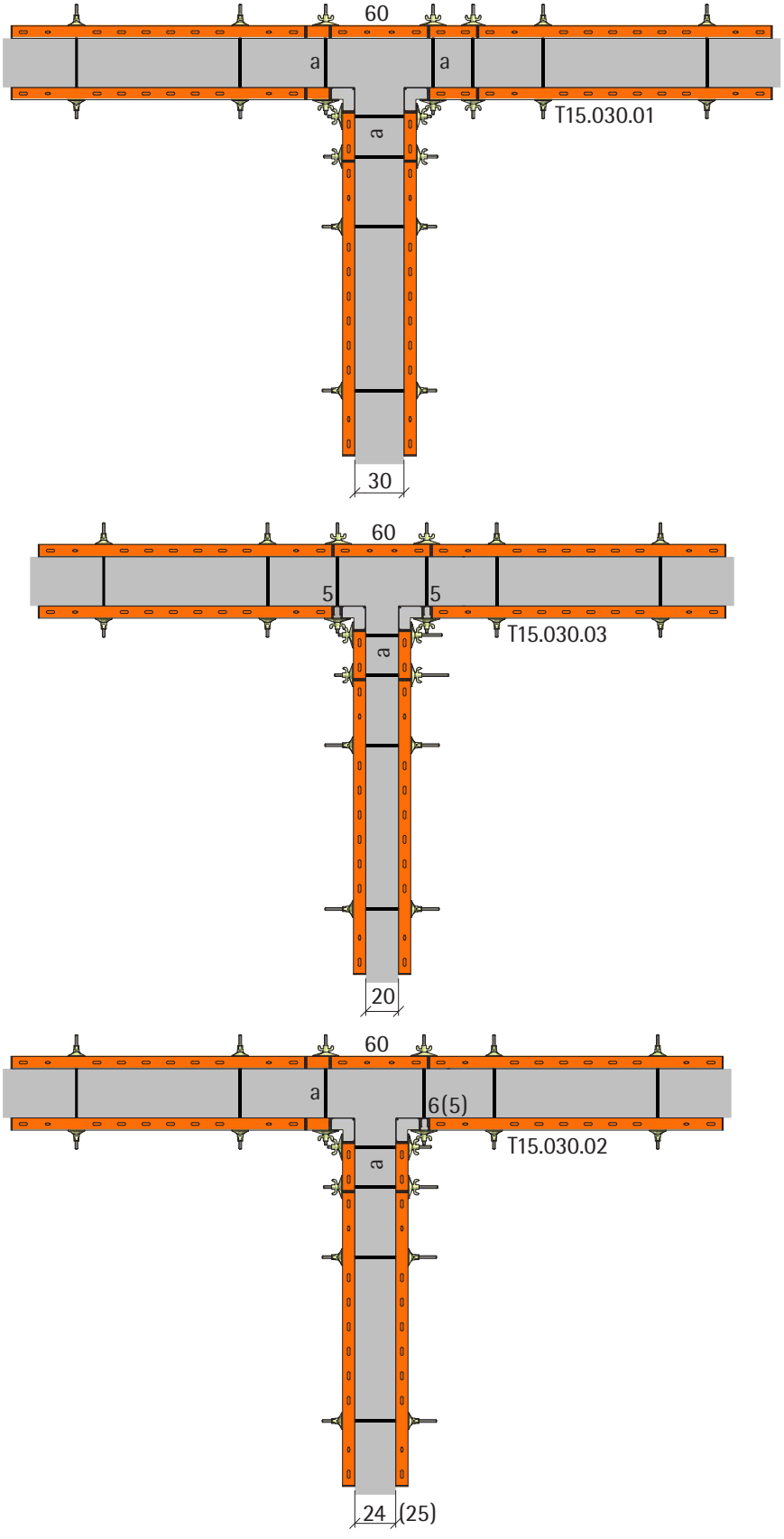








T-wall / pilaster strip



Note:
If 180 x 300 cm large-size panels are used, small panel widths are to be employed at different positions of the T-shaped component. This creates the required tie points for absorbing the fresh concrete pressure (see examples).

The following applies:
For panel widths a <= 15 cm
→1 tie point per panel or filler piece, towards inside corner post.
For panel widths a >= 30 cm:
→2 tie points per panel

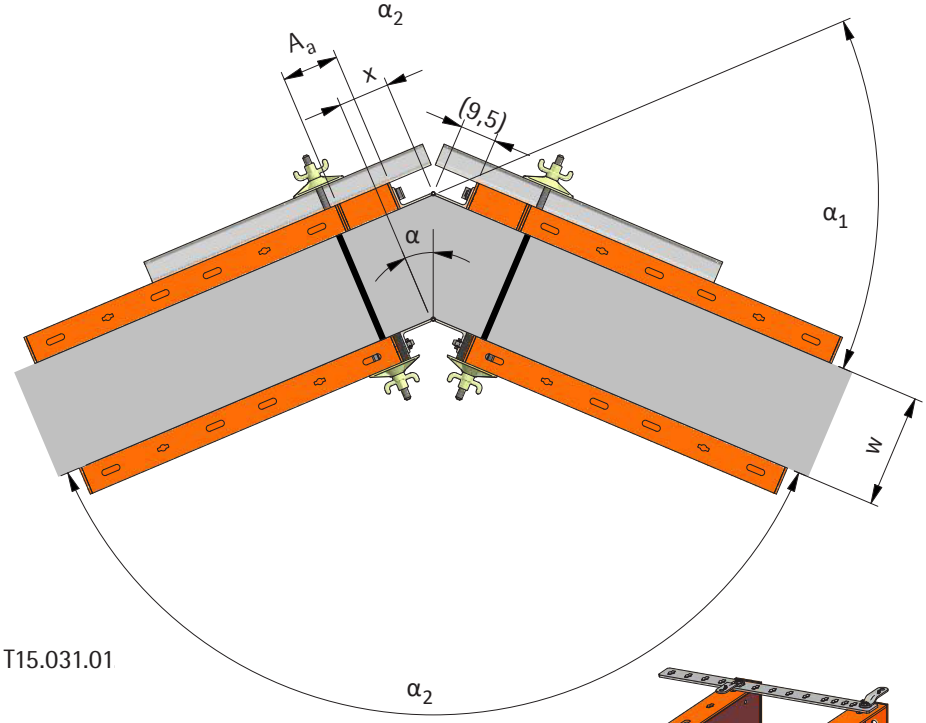
The required number of tie points as described above refers to all required positions of tie points (see section on the tie points position, page 18f.).

Corner, any angle

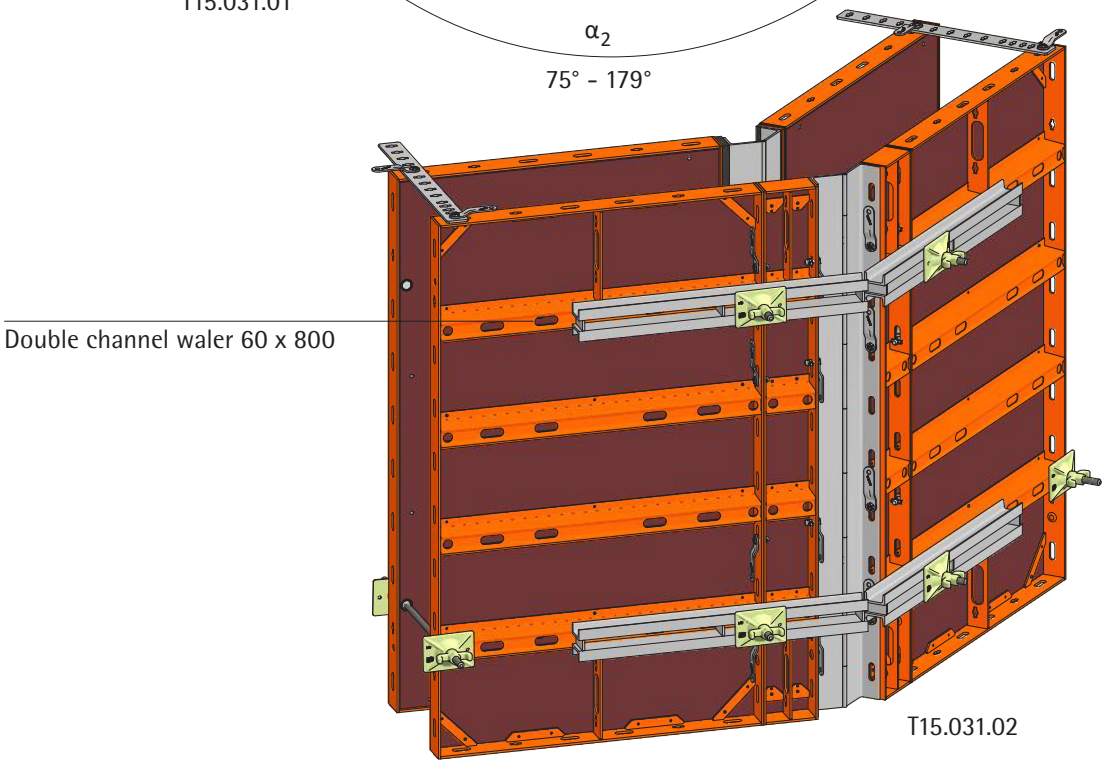
In the case of oblique-angled corners, the hinged corner post with a side length of 9.5 cm is used on both formwork sides to form inside angle α_2 up to 75°
The outer formwork is always longer than the inner formwork. The respective difference is dependent on the wall thickness w and the enclosed angle α_2 and can be found in the table.
At the first tie points after the corner area, employ 60 x 800 double channel walers or 140 cm multi walers at every tie point level according to the selected panel widths..

$x = \tan \alpha \times w$	$\alpha = \alpha_1 / 2$
$Aa = x + \Delta L_{se}$	$\alpha_1 + \alpha_2 = 180°$

x	=	difference of dimension, outside / inside
w	=	wall thickness
Aa	=	outer filler piece
ΔL_{se}	=	difference of real lengths of inside and outside hinged corner posts dependant on α_2



T15.031.01



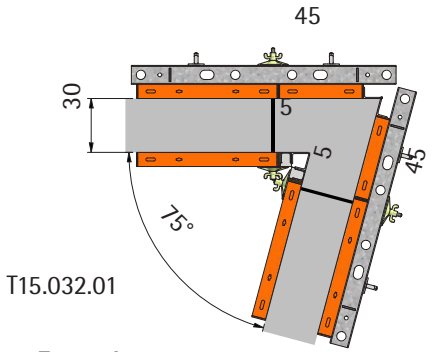
T15.031.02

Corner, any angle

Table for the filler piece A_a [cm] to be attached on the outside depending on the enclosed α_2 and wall thickness w.

α_1 [°]	α [°]	α_2 [°]	Δl_{se}	W [cm]						
				20 cm	24 cm	25 cm	30 cm	35 cm	36,5 cm	40 cm
5	2.5	175	0	0.9	1	1.1	1.3	1.5	1.6	1.7
10	5	170	0.1	1.8	2.2	2.3	2.7	3.2	3.3	3.6
15	7.5	165	0.1	2.7	3.3	3.4	4	4.7	4.9	5.4
20	10	160	0.1	3.6	4.3	4.5	5.4	6.3	6.5	7.2
25	12.5	155	0.2	4.6	5.5	5.7	6.9	7.9	8.3	9.1
30	15	150	0.2	5.6	6.6	6.9	8.2	9.6	10	10.9
35	17.5	145	0.3	6.6	7.9	8.2	9.8	11.3	11.9	12.9
40	20	140	0.3	7.6	9	9.4	11.2	13	13.6	14.9
45	22.5	135	0.3	8.6	10.2	10.7	12.7	14.8	15.4	16.9
50	25	130	0.4	9.7	11.6	12.1	14.4	16.7	17.4	19.1
55	27.5	125	0.4	10.8	12.9	13.4	16	18.6	19.4	21.2
60	30	120	0.5	12	14.4	14.9	17.8	20.7	21.6	23.6
65	32.5	115	0.5	13.2	15.8	16.4	19.6	22.8	23.8	26
70	35	110	0.6	14.6	17.4	18.1	21.6	25.1	26.2	28.6
75	37.5	105	0.6	15.9	19	19.8	23.6	27.3	28.6	31.3
80	40	100	0.7	17.5	20.8	21.7	25.9	30.1	31.3	34.3
85	42.5	95	0.7	19	22.7	23.6	28.2	32.8	34.1	37.4
90	45	90	0.8	20.8	24.8	25.8	30.8	35.8	37.3	40.8
95	47.5	85	0.8	22.6	27	28.1	33.5	39	40.6	44.5
100	50	80	0.9	24.7	29.5	30.7	36.7	42.6	44.3	48.6
105	52.5	75	1	27.1	32.3	33.6	40.1	46.6	48.6	53.1

Note:
In case of angles α_2 that are smaller than 90°, always employ a filler piece on the inside so that tie rod and plate with ball-and-socket joint have enough space.

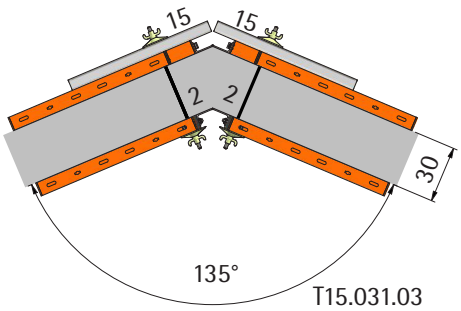


T15.032.01

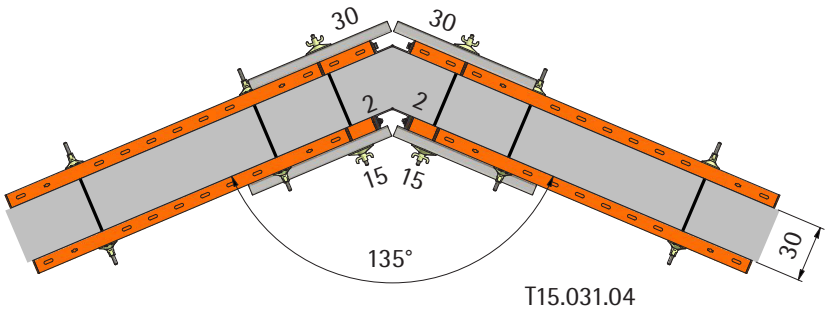
Example 2:
α_2 = 75°; w = 30 cm; --> Aa = 40,1 cm
selected: 45 cm compensation panel outside, 5 cm filler piece inside

Note:
For panel widths >= 45 cm in the compensation area, select the 140 multi waler as waler per tie point level.

Note:
If using 180 x 300 cm panels next to the hinged corner posts, employ small panel widths at first, because of the required tie point.



T15.031.03



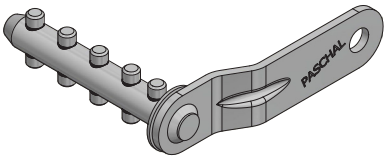
T15.031.04

Example 1:
α_2 = 135°; w = 30 cm; --> Aa = 12.7 cm
selected: 15 cm compensation panel outside + 2 cm plastic filler piece inside

Example 3:
α_2 = 135°; w = 30 cm; --> Aa = 12,7 cm
selected: 30 cm compensation panel outside + 15 cm compensation panel + 2 cm plastic filler piece inside

Adjustment fillers

5-pin keybolt
Art. no.:189.001.0105
Weight:0,30 kg



The following parts are used for adjustment fillers beyond the standard panel pattern:

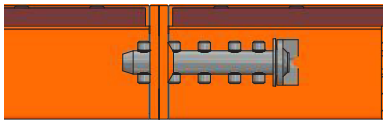
- Plastic filler pieces 1 cm to 4 cm
- Filler posts 5 cm and 6 cm
- Keybolts
- 5-pin Keybolts

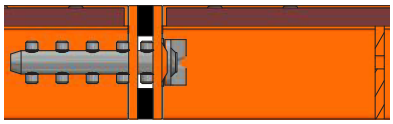
The number of 5-pin keybolts corresponds, dependent on the panel height, to the number of keybolts.

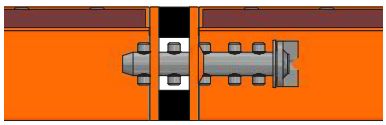
Note:
No additional 5 cm or 6 cm filler post can be located next to a 1 cm or 3 cm wide plastic filler piece because of the position of the 5- pin keybolt.

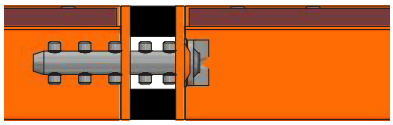
For wider compensations between 11 cm and 14 cm, we recommend to mount two small filler pieces on two panel joints.

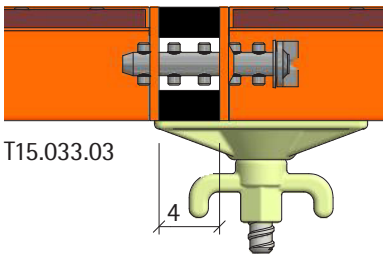
Caution:
When installing plastic filler pieces and/or filler posts, ensure that the tie point (plate with ball-and-socket joint) required in the area of the filler piece, covers and therefore secures the mounted filler piece(s) and the two adjacent formwork panels. If this is not the case (see examples), another waler is necessary between the formwork panel and plate with ball-and-socket joint, for example: Double channel waler 60 x 800 mm.


T15.033.01

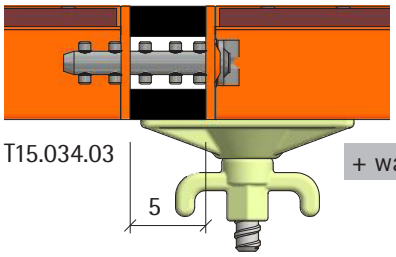

T15.034.01


T15.033.02

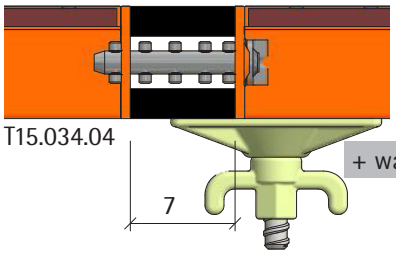

T15.034.02



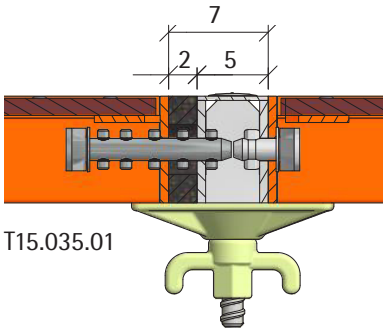
T15.033.03



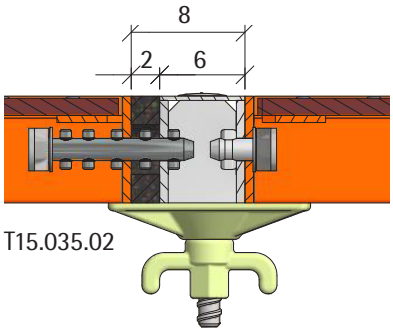
T15.034.03 + waler



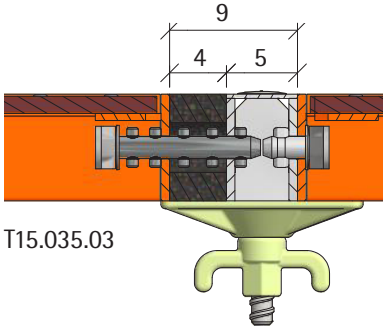
T15.034.04 + waler



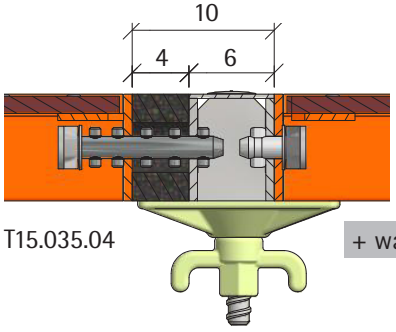
T15.035.01



T15.035.02

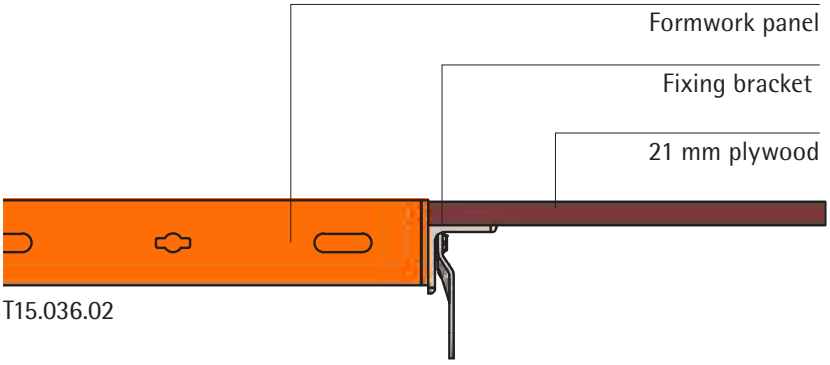


T15.035.03



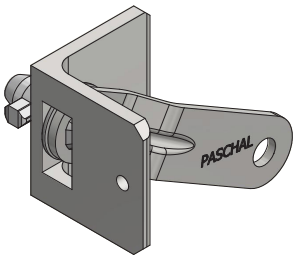
T15.035.04 + waler

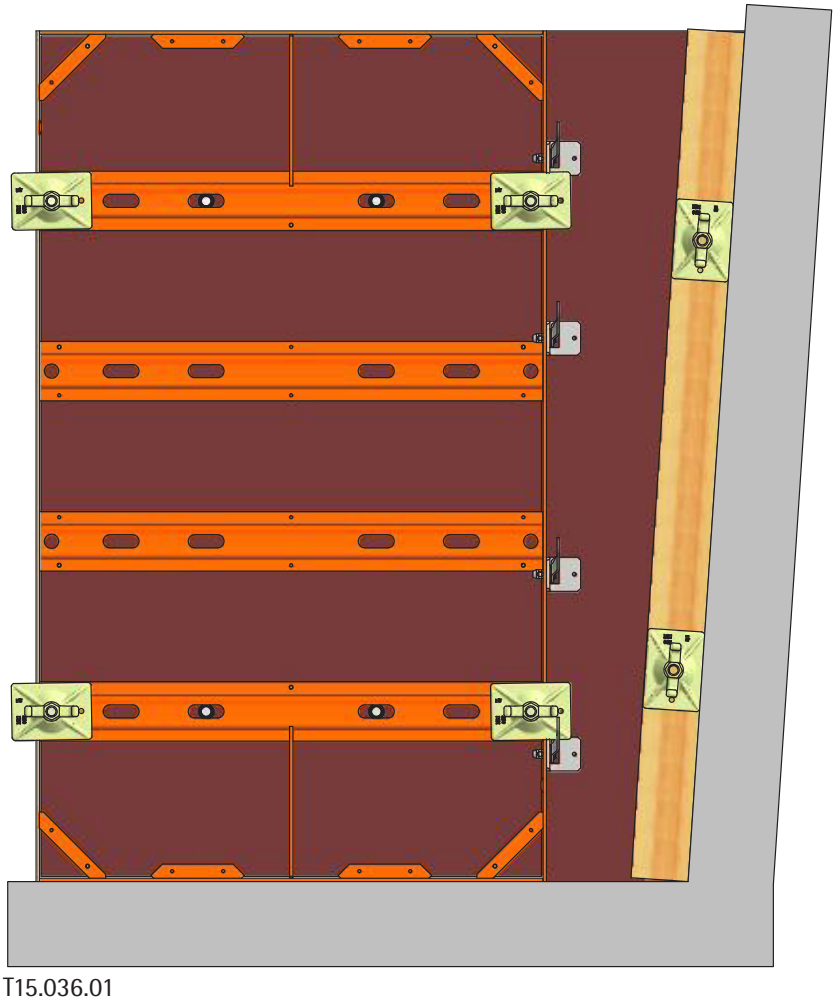
Adjustment fillers



T15.036.02

Fixing bracket for 21 mm plywood
Art. no.:189.001.0017
Weight:0,45 kg





T15.036.01

Plywood can be connected by site to the formwork panels with the fixing bracket in order to build own adjustment fillers. The fixing bracket is attached with an integrated bolt on the flat steel frame of the formwork panel.

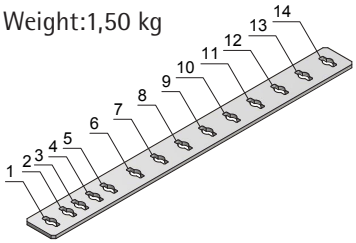
Examples of use:

- Formwork on inclined surfaces
- To fit openings for tubes on shafts
- Connection to inclined surfaces

Caution:
Walers and ties are required in the area of the adjustment fillers, depending on the size of the plywood to be integrated and the fresh concrete pressure.

Stop end

Spacer strap 6-50 cm N/TR/R
Art. no.:189.001.0020
Weight:1,50 kg

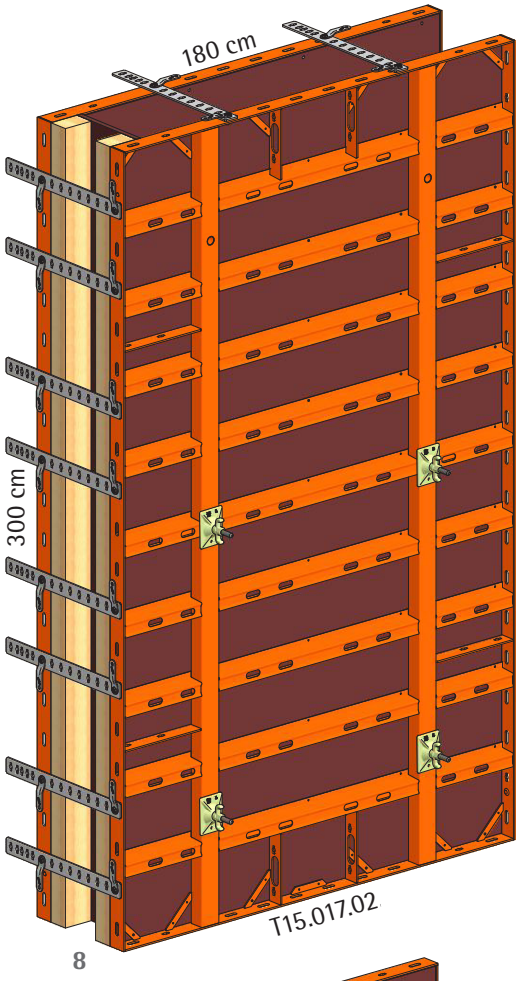


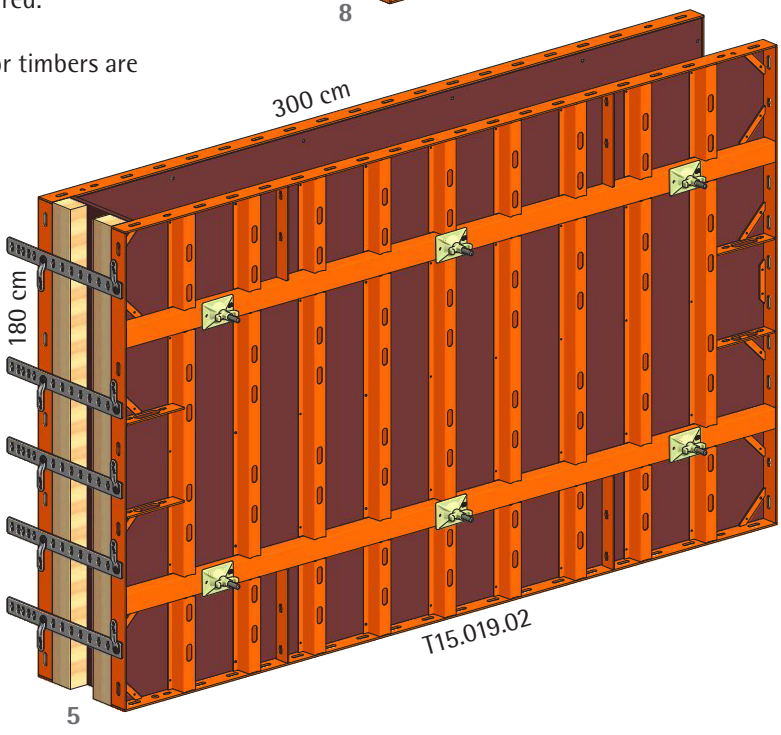
The spacer strap is secured with keybolts to the formwork panels on both formwork sides for the stop end or front formwork. The number and position of the required spacer straps depends on the respective panel height. It corresponds to the position of the keybolts for panel connection. In the case of horizontally used panels <= 75 cm panel height, two spacer straps are sufficient.

Wall thicknesses of up to 50 cm can be set across the entire 14 perforations of the spacer strap (see table).

Note:
In the case of panel widths <= 90 cm, the last tie point at the end of the formwork is not required.

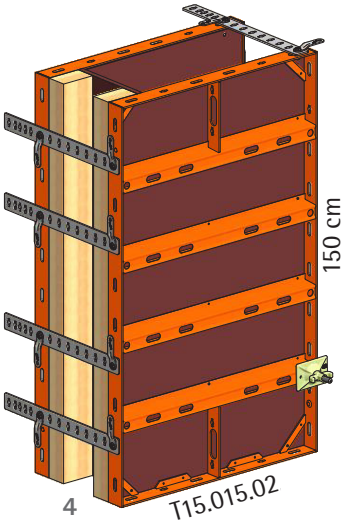
The required boards or timbers are provided by site.

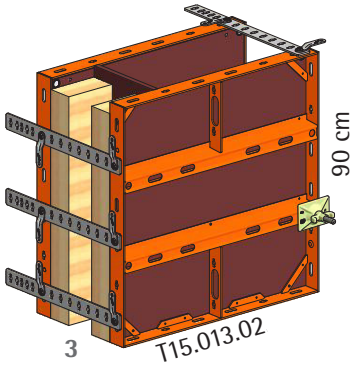




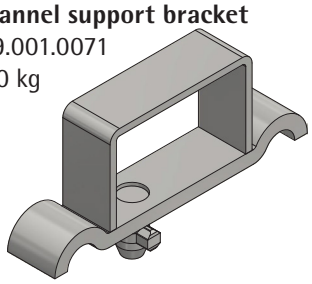
Wall thickness [cm]	holes no.
6	4 - 7
6.5	2 - 6
7.5	6 - 9
8	5 - 8
9	3 - 7
10	1 - 6
11	4 - 8
11.5	2 - 7
12.5	6 - 10
13	5 - 9
14	3 - 8
15	1 - 7
16	4 - 9
16.5	2 - 8
17.5	6 - 11
18	5 - 10
19	3 - 9
20	1 - 8
21	4 - 10
21.5	2 - 9
22.5	6 - 12
23	5 - 11
24	3 - 10
25	1 - 9
26	4 - 11
26.5	2 - 10
27.5	6 - 13
28	5 - 12
29	3 - 11
30	1 - 10
31	4 - 12
31.5	2 - 11
32.5	6 - 14
33	5 - 13
34	3 - 12
35	1 - 11
36	4 - 13
36.5	2 - 12
38	5 - 14
39	3 - 13
40	1 - 12
41	4 - 14
41.5	2 - 13
44	3 - 14
45	1 - 13
46.5	2 - 14
50	1 - 14

Stop end





Bracing channel support bracket
Art. no.:189.001.0071
Weight:0,60 kg

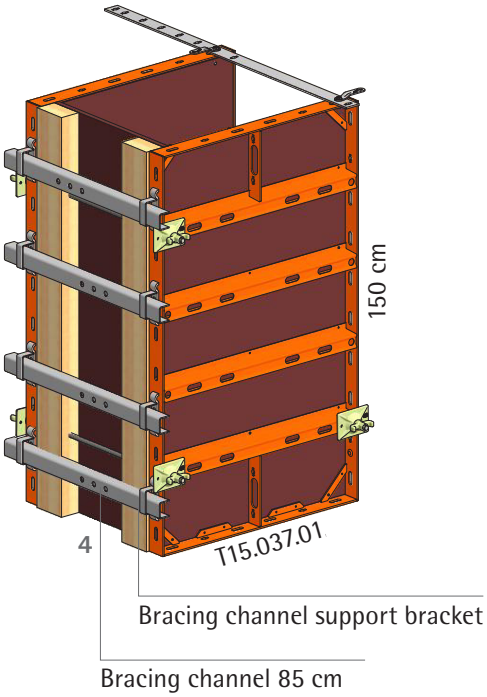


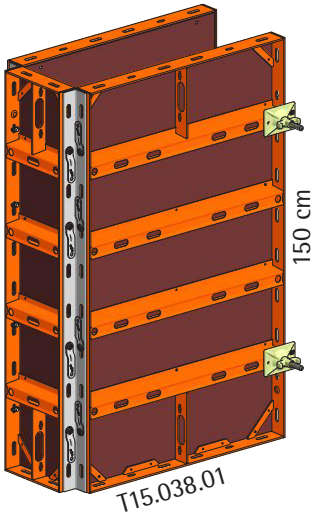
For wall thicknesses between 51 cm and 70 cm or conical walls, 85 cm bracing channels are mounted to the formwork panels using bracing channel support brackets. The number and position of the required bracing channels depend on the respective panel height. It corresponds to the number and position of the keybolts for the usual panel connection.
Two bracing channel support brackets are locked onto both formwork sides via the integrated bolts. Then the bracing channel is pushed in.

Note:
The last tie point at the end of the formwork is absolutely necessary here.

The required boards or squared timbers are provided by site.

If the wall thickness corresponds to an available panel width, this panel can be attached on the front of the wall formwork panels with two outside corner posts.





Connection to existing walls

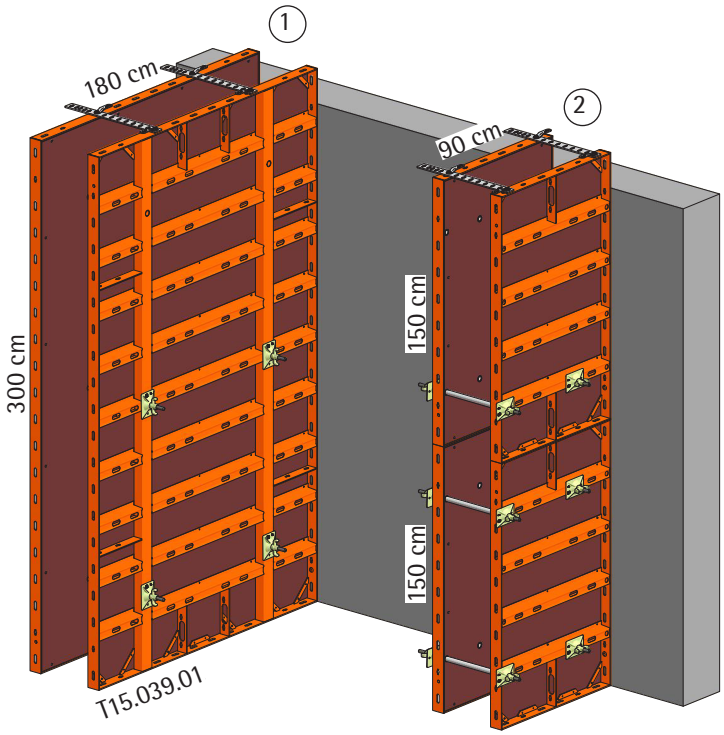
In the case of a right-angled connection to existing walls, there are different ways of arranging the formwork panels with the required tie points.

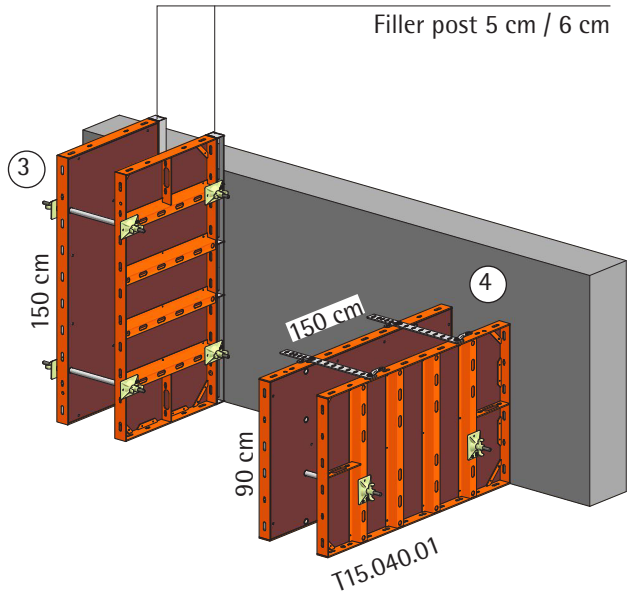
1. **180 x 300 cm large-size panel**
Here the tie points on the inside are used and the panel is placed flush with the existing wall, either horizontally or vertically.

2. **90 x 150 cm panel**
The inside tie points are used on the connection side and the outside ones on the next panel joint.

3. **Panel widths <= 75 cm**
The panel widths <= 75 cm have tie points on the outside. Between the panel and the existing wall, there must therefore be a filler post to create the necessary space for the plate with ball-and-socket joint.

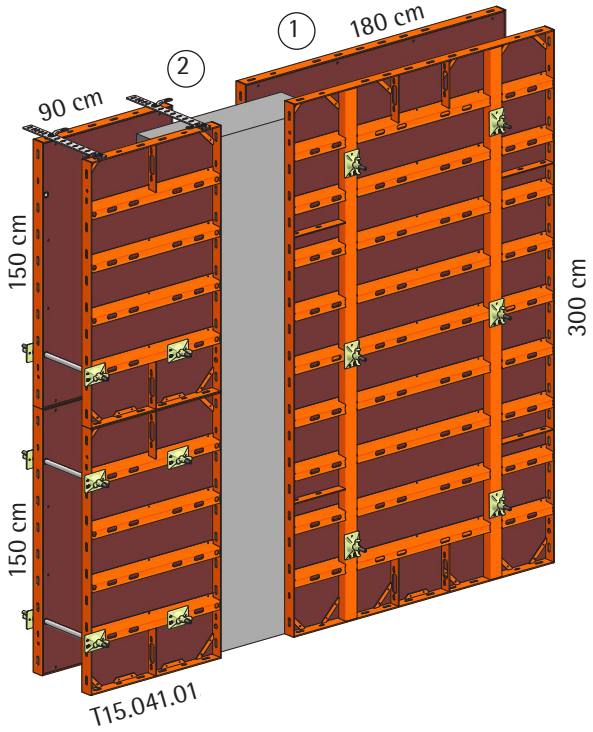
4. **90 x 150 cm panel, horizontal**
Here, the inside tie points are used and the panel is placed flush against the existing wall.





Caution:
In the case of short, right-angled, or longitudinal connections, the formwork must be fixed to the existing wall in order to prevent shifting during concreting (pressure on the stop end formwork).

Connection to existing walls



In the case of an extension, an overlap on the existing wall is created with the formwork panels.

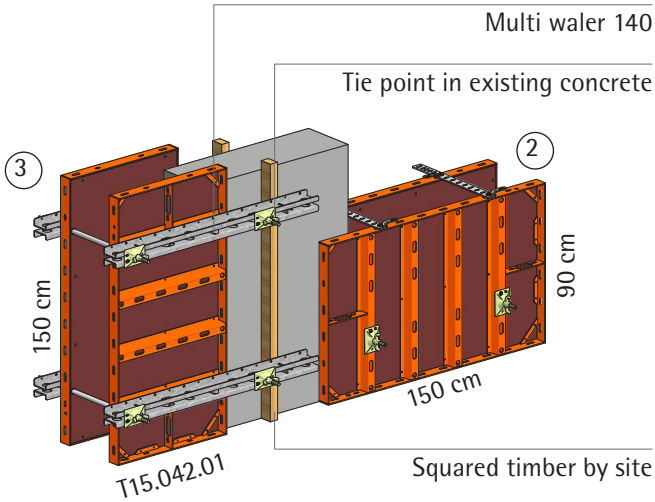
Panels with inside tie points can overlap so that the first tie rod in the panel still passes the existing wall:

1. **180 x 300 cm large-size panel (vertical and horizontal)**

2. **90 x 150 cm panel (vertical and horizontal)**

3. **Panel widths <= 75 cm**

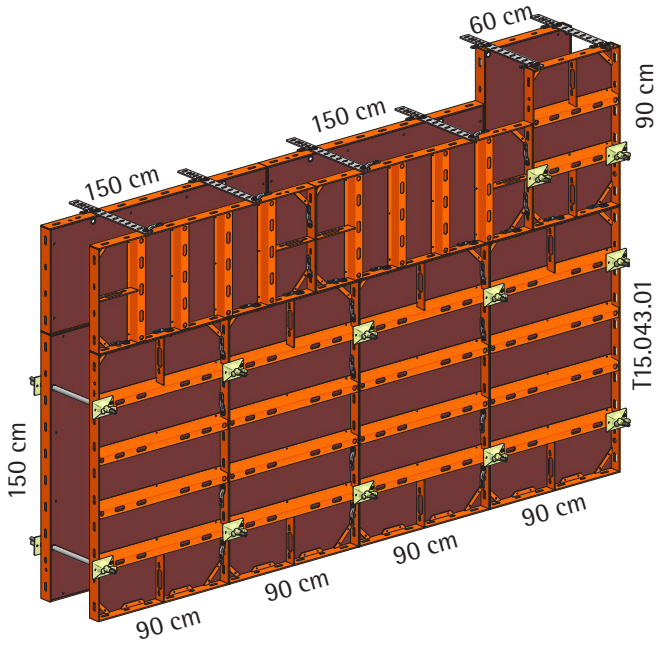
The panel widths <= 75 cm have outside tie points. Because these are covered from the overlap at the existing wall, use the next possible tie point in the existing wall. In addition, attach the multi waler at every tie point level.



Caution:
In the case of short, right-angled, or longitudinal connections, the formwork must be fixed to the existing wall in order to prevent shifting during concreting (pressure on the stop end formwork).

Vertical / horizontal use, stepped walls

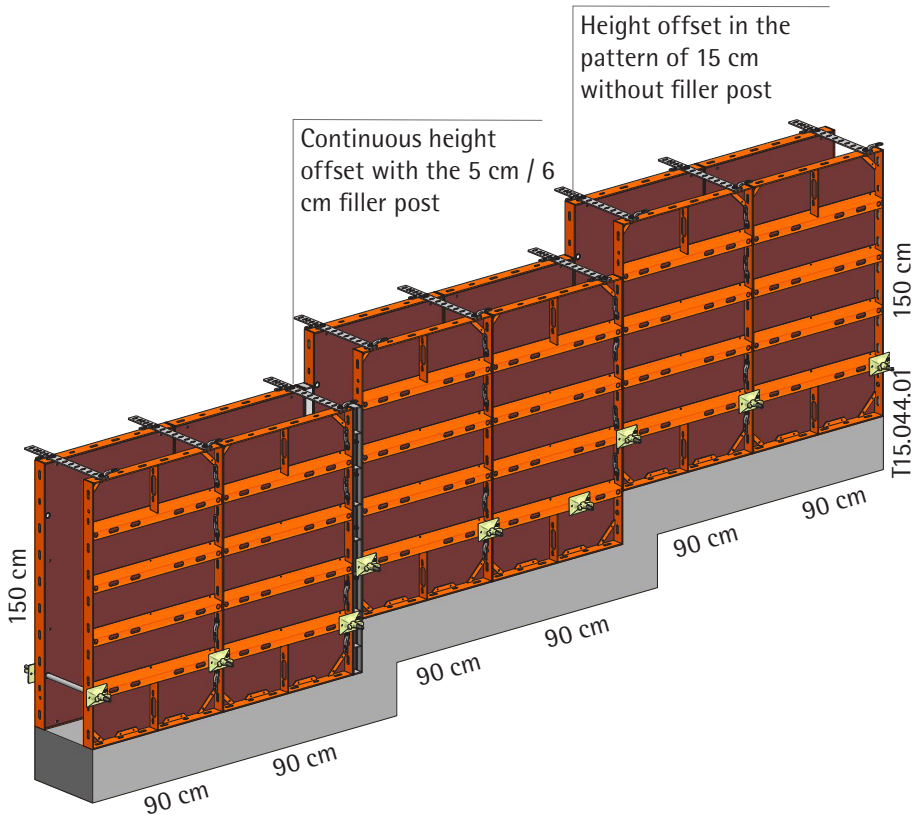
The oblong holes in the frame of the NeoR panels have a constant spacing of 15 cm in the specified panel pattern. This distance also applies across a vertical or horizontal panel joint. Therefore, the panels in a concreting section can be changed horizontally/ vertically, if required. The required number of keybolts for the panel connection can always be mounted.



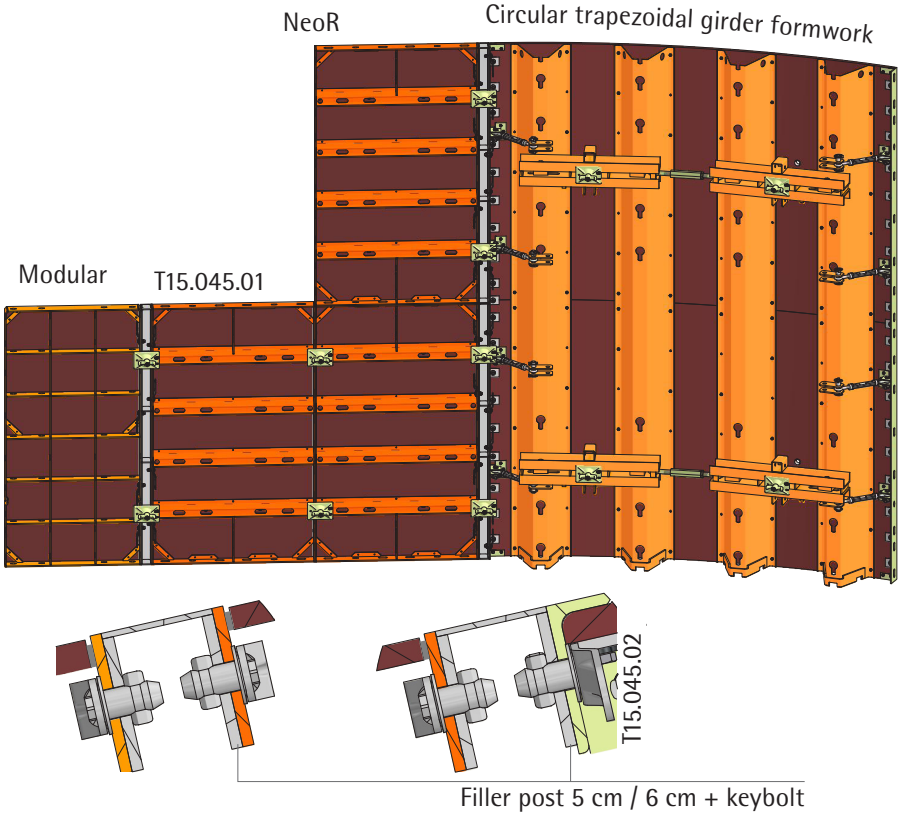
It is also possible to offset the panel height:

- Height offset
- Formwork on gradients

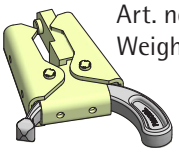
The specified hole sequence determines the pattern of 15 cm offset, +- 2.0 cm hole clearance of the keybolt in the oblong hole.
In order to offset the formwork panels continuously, a 5 cm or 6 cm wide filler post with oblong hole is provided at the panel joint.
In order to guide the tie rod, always put it on the lower level.



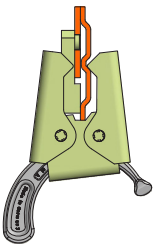
Compatibility

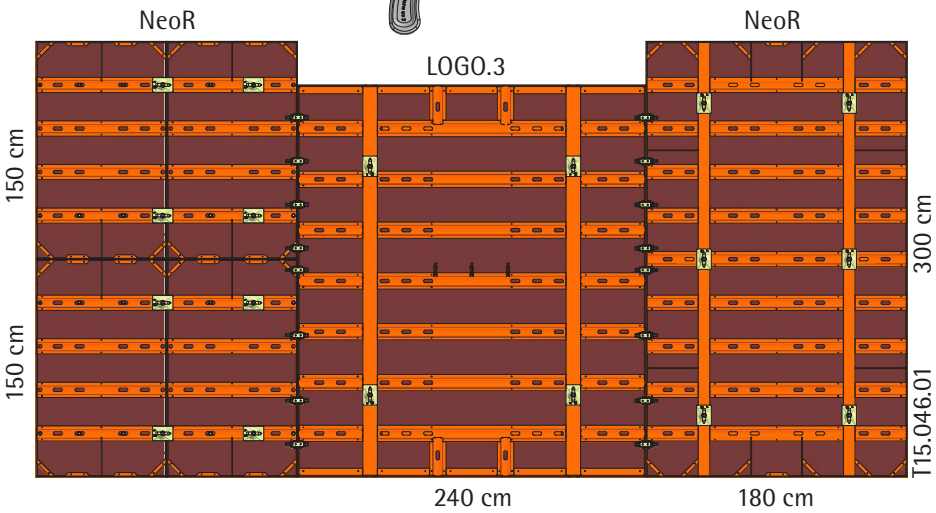


The panels of the NeoR formwork can be connected with other PASCHAL systems, if required.
The transitions to the Modular/GE universal formwork and the Circular trapezoidal girder formwork are created with keybolts. Because of the different hole distances in the individual systems, only a 5 cm or 6 cm wide filler post with oblong hole slot is provided at the joint which shall also be used for tie points.



Combi clamp LOGO-N/TR/R
Art. no.: 287.500.0026
Weight: 2,15 kg





The combi clamp enables connection to the panels of the LOGO.3 formwork.
In the case of this connecting piece, a steel block with pin is welded on one side that reaches into the oblong holes in the frame of the NeoR panels. On the other side, the clamping jaw closes in the embossing of the Logo frame.
The number and the position of the required combi clamps, dependent on the panel heights, is based on the usual number of keybolts for the NeoR formwork.

Safety at work, supporting, platforms

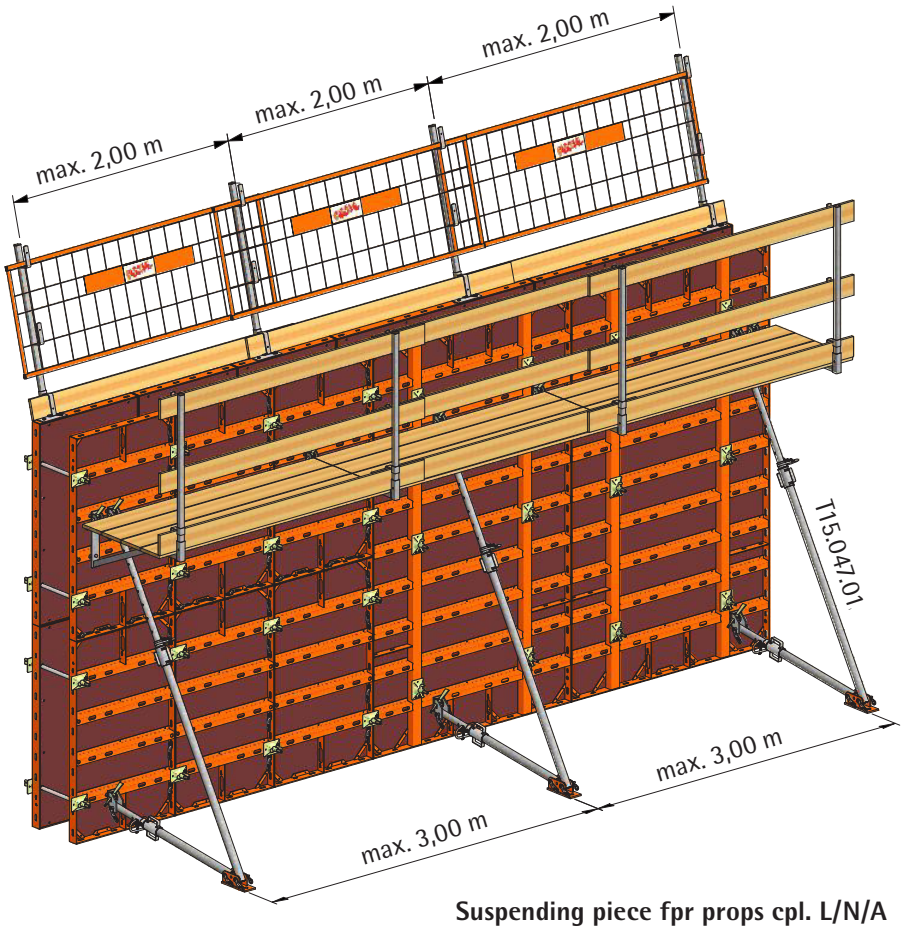
For occupational safety requirements with regard to formwork systems, there are a variety of provisions and guidelines from legislative authorities, associations and employer's liability associations.
Always observe the latest version of these guidelines.

Important points include:
- Work places at the formwork
- Fall protection
- Absorption and diversion of wind loads

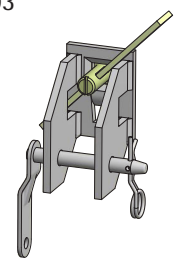
Adjustable props are set for the vertical alignment of the formwork and the diversion of wind loads into the installation area. Select these in different lengths depending on the formwork height. For rough adjustment, the inside and outside tube are pushed in a 20 cm pattern and then secured with a security bolt. After this, set precisely by turning the outer tube using the integrated handles.
Connection to the formwork is done using suspending pieces for props via an integrated hook head connection in the oblong holes of the cross profiles. Screw 3-hole foot plates onto the installation area and connect with the adjustable props.

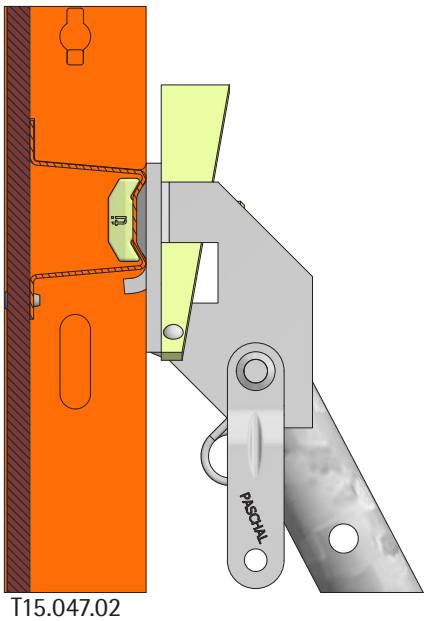
Installation of the suspending piece for props:
1. Insert hook headed bolt into the oblong hole provided for securing until the suspending piece for props stops at the profile
2. Turn hook headed bolt 90° with the wedge
3. Hit the wedge securely

Note:
Instead of the suspending piece for props L/N/A, the suspending piece for props Modular formwork can be used alternatively at the panel joint or the perforated longitudinal profile between the panel upper bar and the first cross profile.



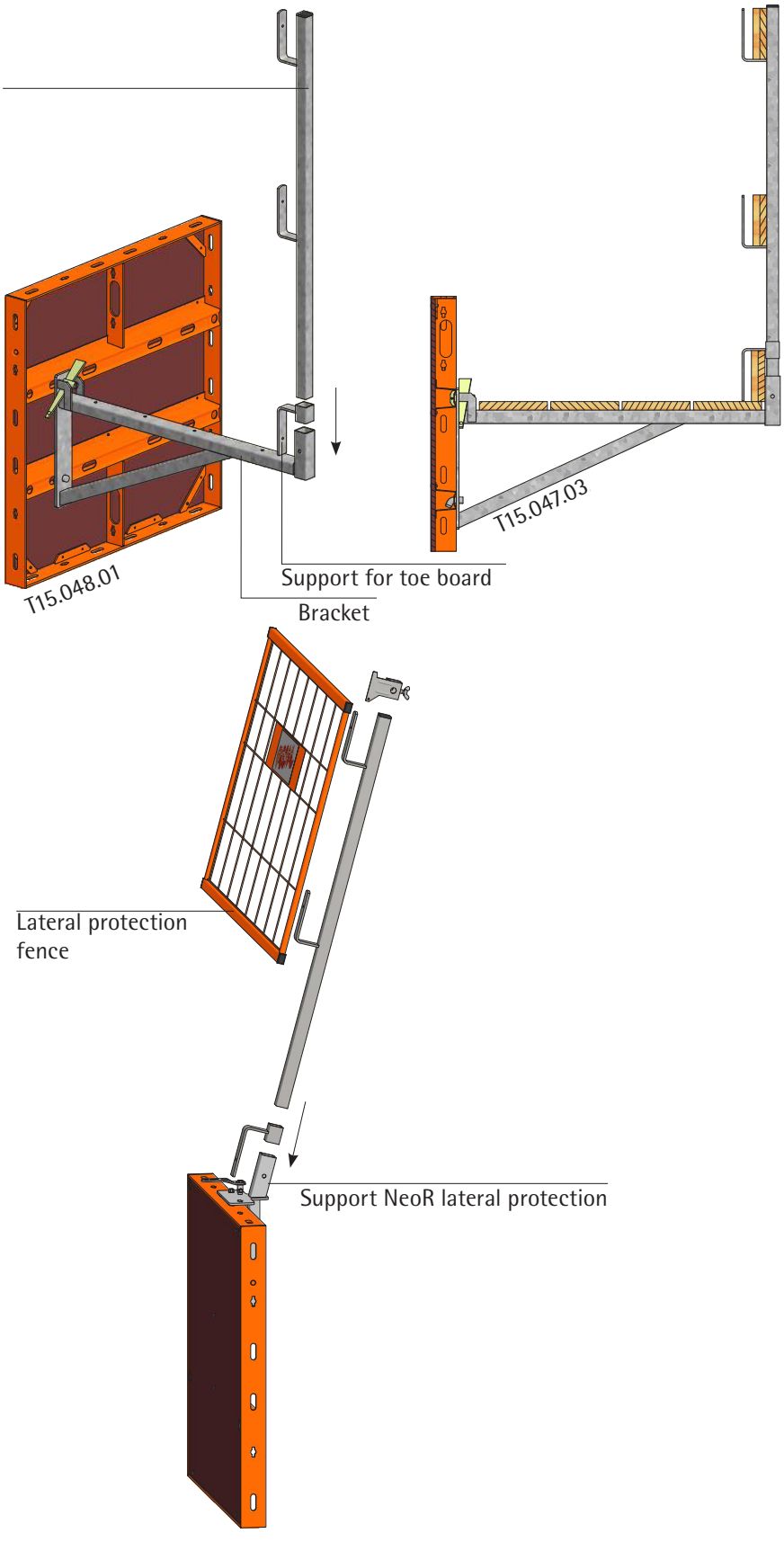
Suspending piece fpr props cpl. L/N/A
Art. no.:187.500.0003
Weight:2,00 kg



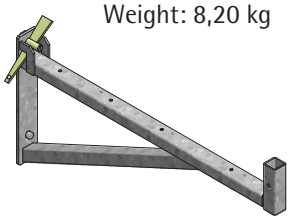


T15.047.02

Safety at work, supporting, platforms



NeoR bracket
Art. no.: 189.000.0040
Weight: 8,20 kg



In order to set up workplaces at the formwork, the bracket is attached to the panels where the railing posts lateral protection and a support for toe board are mounted. The planks and the lateral boards are to be provided by site.

- The provisions of DIN EN 12811-1 apply
- The area-related net weight is 3.0 kN/m² (scaffold group 4)
- The distance between the platform brackets must not exceed 2.00 m

Installation of the bracket:

1. Secure bracket with the pin in the oblong hole of the lower cross profile. Insert the hook headed bolt in the oblong hole of the upper cross profile.
2. Turn hook headed bolt 90° with the wedge
3. Hit the wedge securely

From a falling height of 2.00 m on the upper workplaces, fit the formwork with lateral protection on the opposite side.

Installing the lateral protection:

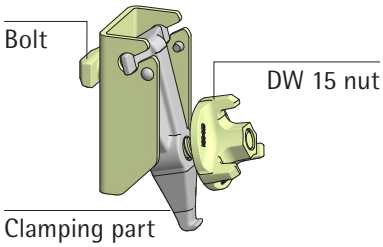
1. Attach support NeoR lateral protection on top part of panel
2. Insert railing post with toe board support
3. Clip fences or 3 x 15 cm boards to railings
4. Secure the toe board

Foundations

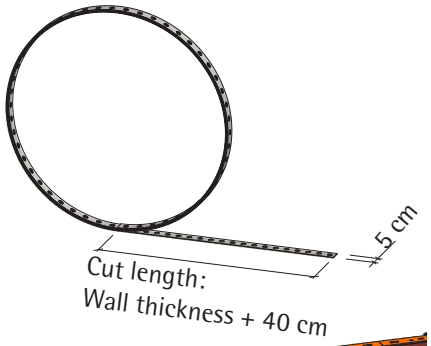
In order to use the NeoR panels as foundation formwork for normally small concreting heights, the 150 cm panel height can be used horizontally. The 90 cm panel height with its narrow panel widths can be added in the area of corners, length adjustments, or block foundations. There are various NeoR formwork options available for arranging tie points, or generally for the tensioning of opposite formwork panels.

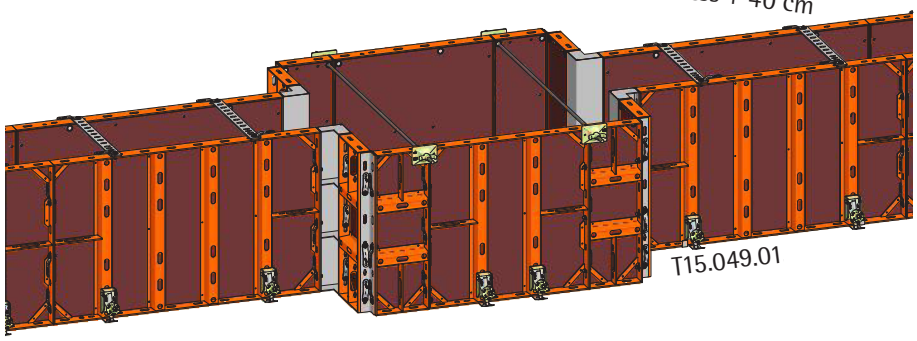
Perforated tie with foundation tie clamp:
The perforated tie is installed as a lost tie anchor under the formwork panels to a maximum concreting height of 90 cm. The required tie length can be cut off from the 25 m roll for different foundation widths. The holes are at 5 cm steps. The permitted load of the perforated tie is 10 kN.
The connection to the formwork panels is via the foundation tie clamps in the oblong holes of the functional cross profile.

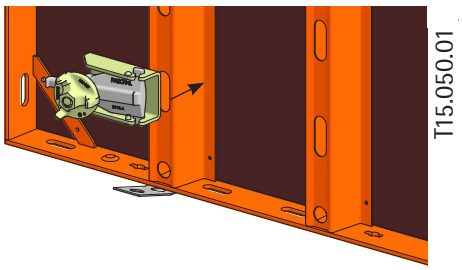
Foundation tie clamp L/N
Art. no.: 187.500.0125
Weight: 2,15 kg



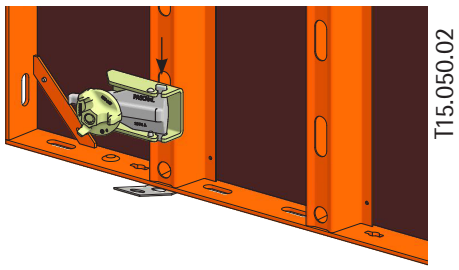
Perforated foundation tie 50 x 2 roll of 25 m
Art. Nr.: 940.100.0000
Gewicht: 16,70 kg



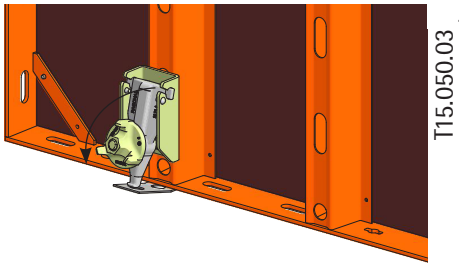




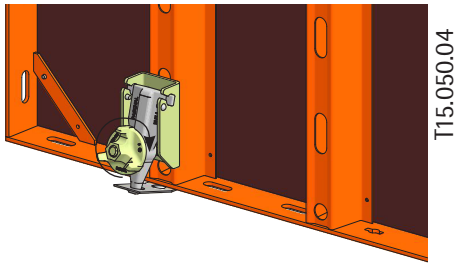
1. Hold foundation tie clamp horizontally



2. Insert bolt in the oblong hole of the NeoR profile until the foundation tie clamp stops at the profile

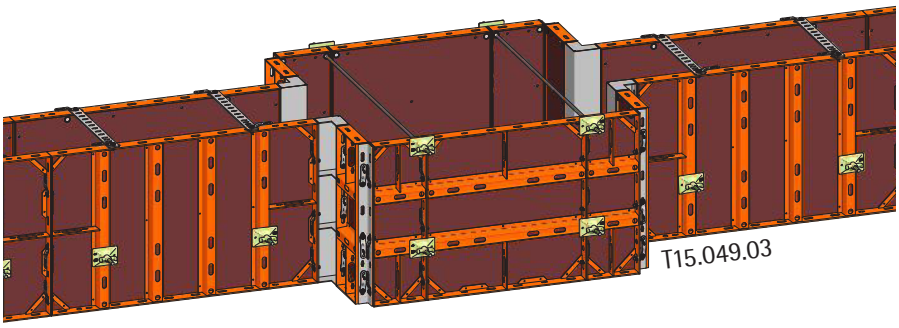


3. Turn foundation tie clamp, and guide downwards

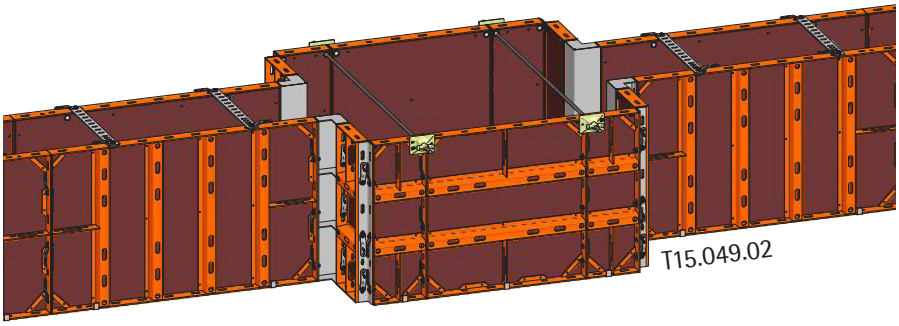


4. Bend perforated foundation tie upwards until the clamping part is in the hole. Turn nut until the clamping part is flush at the hole edge and the perforated tie is tensioned.

Foundations



90 x 150 cm panel (horizontal) with inside tie points + 90 cm panel height:
A speciality of the NeoR formwork is the 90 x 150 cm panel. There, four additional inner tensioning possibilities in the panel are available in addition to the usual holes for ties on the panel frame. For horizontal use, the lower tie can be set with a distance of 30 cm to the installation area. Tensioning is done on the top directly under the panel frame (alternatively, spacer strap). The tie points for the 90 cm panel height are required on the right or left of the panel joint, at the same height as for the 90 x 150 cm panel.



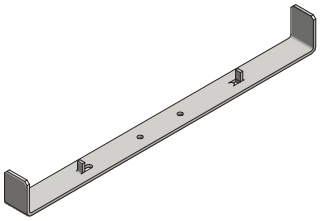
Foundation Strap:
The foundation strap is delivered as a lost tie anchor and is suitable for the foundation width. The NeoR panel fits between the smaller inner kicker and the larger outer upstand of the foundation strap.

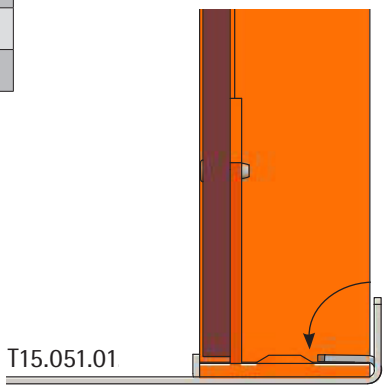
Caution:
Turn down the outer upstands inwards to the panel frame in order to absorb the forces.

Concreting height	Max. distance between straps
50 cm	100 cm
60 cm	90 cm
75 cm	75 cm
90 cm	60 cm

The distance between the two inner kickers corresponds to the foundation width.
The maximum distance between the foundation straps depending on the concreting height is visible from the table.
The usual tie point or the spacer strap is used on the upper panel frame.

Foundation strap 20 – 100 cm N/R
Art. no.: 180.001.0200 - 1000





Turn down outer upstand

Crane attachment

Crane lifting clamp KA
Art. no.: 189.002.0008
Weight: 4,00 kg

Structure:
The crane lifting clamp KA consists of a base body with lifting yoke and safety bolt. (B02.001.01)

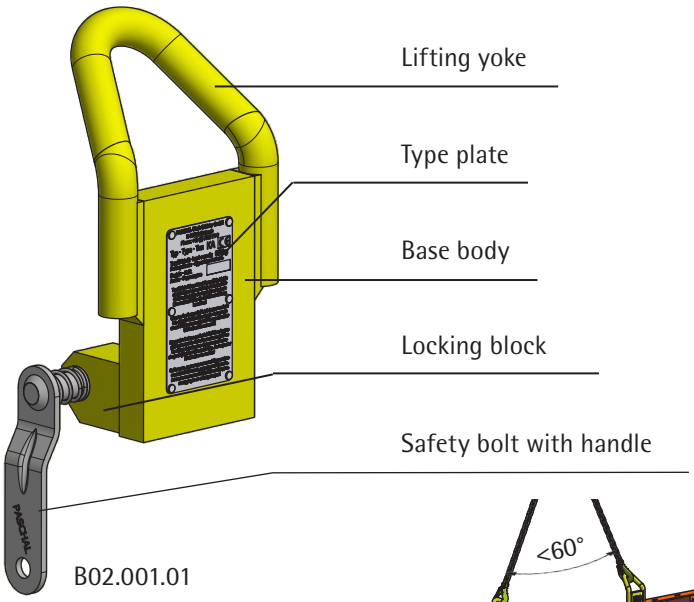
Proper use:
As a lifting device, the crane lifting clamp KA may only be used to move individual panels or pre-mounted panel units of the formwork systems Modular/ GE and NeoR. The attachment points are given on the formwork panels.

Misuse:
Usage of the crane lifting clamp KA with other formwork systems or in other construction site operations or for the transportation of panel piles is not allowed nor is any other unintended use.

Admissible capacity:
The admissible capacity of the crane lifting clamp KA is 600 kg. The hanging spread angle must not exceed 60°.

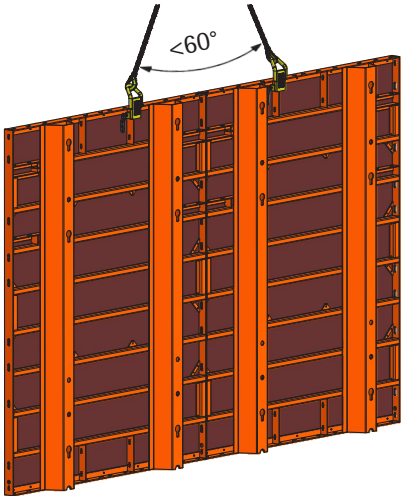
Attachment points:
Attachment points for the crane lifting clamp KA are:

- For Modular formwork panels, the frame profiles or the vertical longitudinal bar (B02.003.01)
- For large-size panels GE, the bars welded-in between frame and first cross beam (B02.002.01)
- For 90x150 NeoR panels, the frame profiles or the bars welded-in between frame and first cross profile (B02.002.01)
- For 180x300 NeoR panels, the bars welded-in between frame and first cross profile (vertical) or between frame and rectangular profile (horizontal) (B02.002.01)



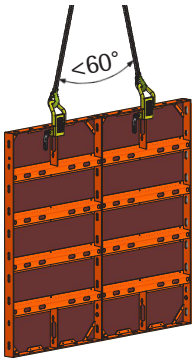
B02.001.01

B02.003.01 Crane attachment at Modular formwork panel



B02.002.01 Crane attachment at large-size panel GE

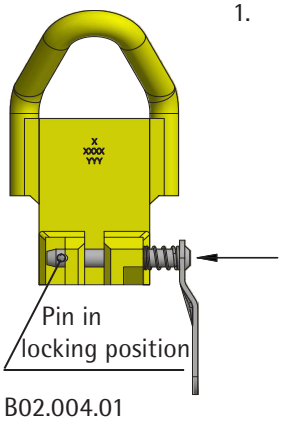
B02.006.01 Crane attachment at 180x300 NeoR panel



B02.005.01 Crane attachment at NeoR panel

Crane attachment

1.



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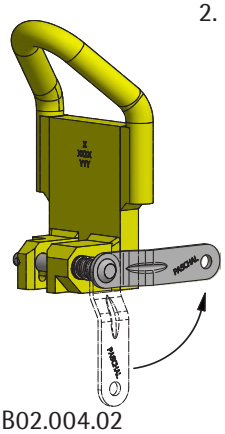
2.

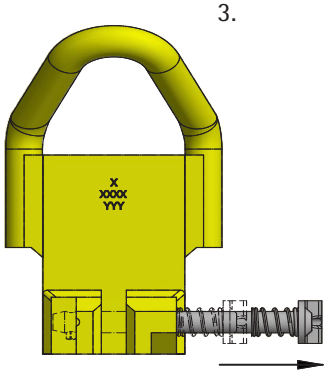


B02.004.02

Installation:

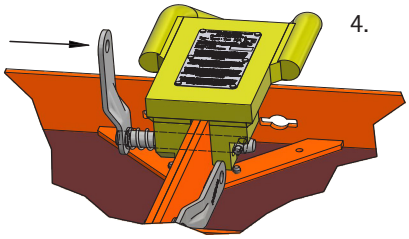
1. Press safety bolt with handle in the direction of the pin to release this from the lock.
2. Turn safety bolt with handle 90° upwards.
3. Pull out safety bolt until it stops.
4. Position crane lifting clamp KA over the bolt hole or oblong hole of the attachment points. Push the safety bolt through the bolt hole and the locking block.
5. Push safety bolt until the pin comes out of the locking block. Turn the handle 90° downwards until the pin snaps into the lock.

3.



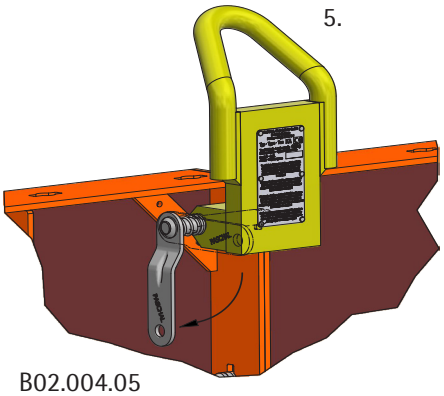
B02.004.03

4.



B02.004.04

5.



B02.004.05

Tests, safety, assignment:

Apply the guidelines and standards valid at the location of use when operating the load lifting devices in lifting gear operation (here, crane lifting clamp KA).
The manufacturer points out the following to enable safe device handling:

- Only trained, authorised personnel may use the device.
- Check for cracks, deformations, the presence of the type plate, and proper functioning of the safety bolt before initial commissioning and then at regular intervals.
- Check for visible defects.
- Do not use damaged devices.
- Protect from aggressive substances that could impact on safety.
- We recommend that only the manufacturer undertakes repairs. PASCHAL will not be held liable for external repairs or modified products.
- It is strictly prohibited to remain in the danger area during lifting, transport, or setting down of the load.
- Dismantling has to be done with suitable tools. Under no circumstances may crane attachments be used to tear away formwork panels with a crane, or similar.

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