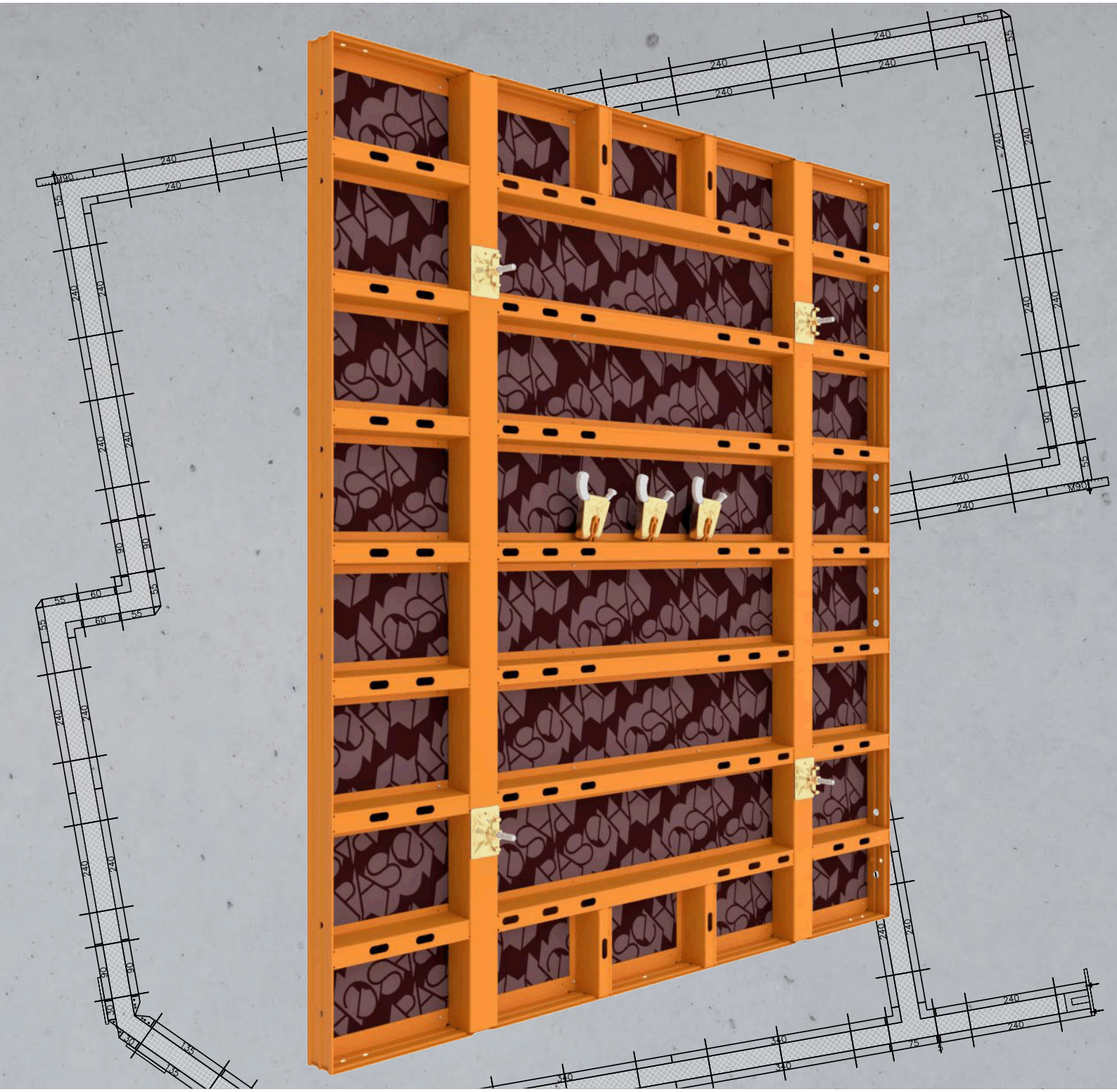
LOGO.3 + alu

TECHNICAL INFORMATION



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Edition

Last updated: 17/06/2021
Product number: N953.002.0049
Subject to technical changes

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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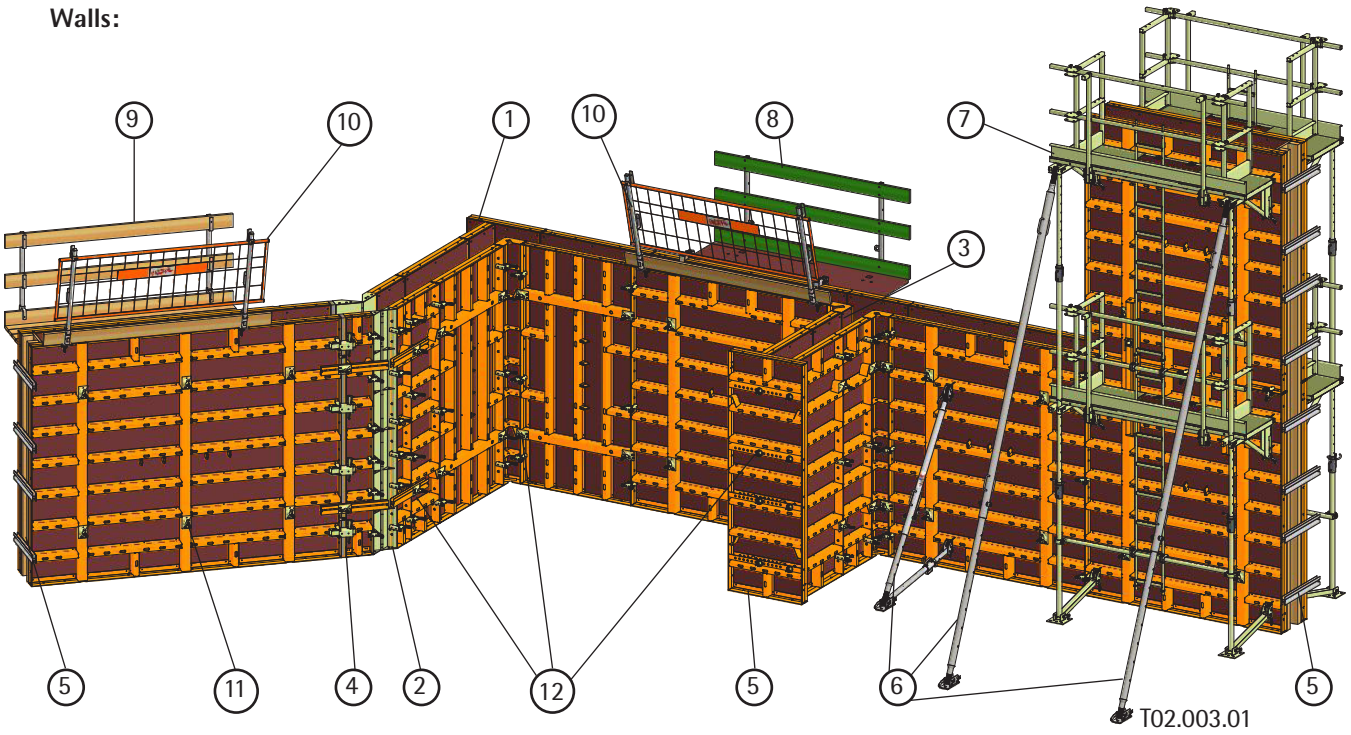
System description, technical data

- Thanks to a balanced sorting of panels, LOGO.3 panel formwork is versatile in use.
- Areas of application:
  - in residential, industrial and civil engineering through the use of large-size panels
  - for small-size components, e.g. foundations, columns and beams, by using narrow panel widths

  and a panel height of 90 cm
- Available panel heights: 340 cm; 305 cm (not for rental); 270 cm; 240 cm; 135 cm, 90 cm.
- The maximum permissible fresh concrete pressure is 70 kN/m². The flatness tolerances of DIN 18202, Table 3, line 6 are observed.
- DW15 tie rods are used as formwork anchors.
- The powder-coated panel frame has an overall height of 12 cm and consists of 5 mm thick, profiled, high-strength flat steel. This steel is resistant to mechanical stresses and can be repaired if damaged.
- Finnish birch plywood panels (16 mm thick, 12-ply) are installed as a standard formwork facing.
- LOGO formwork is also available as handset formwork in a lightweight aluminium version (60 kN/m²).

Walls:

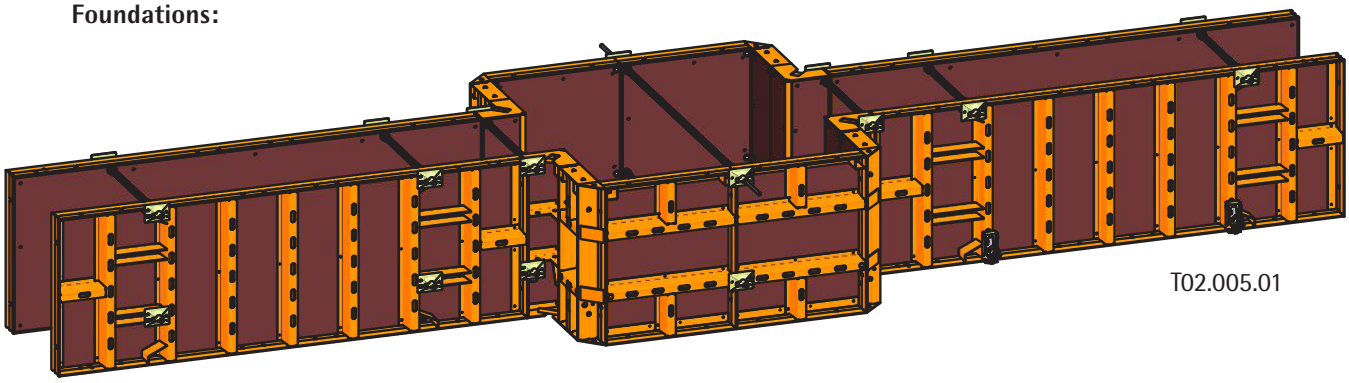


① Corner / right angle
② Hinged corner / any angle
③ T-walls
④ Residual compensation
⑤ Stop end
⑥ Adjustable props
⑦ Multip
⑧ Concreting platform
⑨ Platform bracket with facing
⑩ Opposite fall protection
⑪ Tie points
⑫ Connecting pieces

System description, technical data

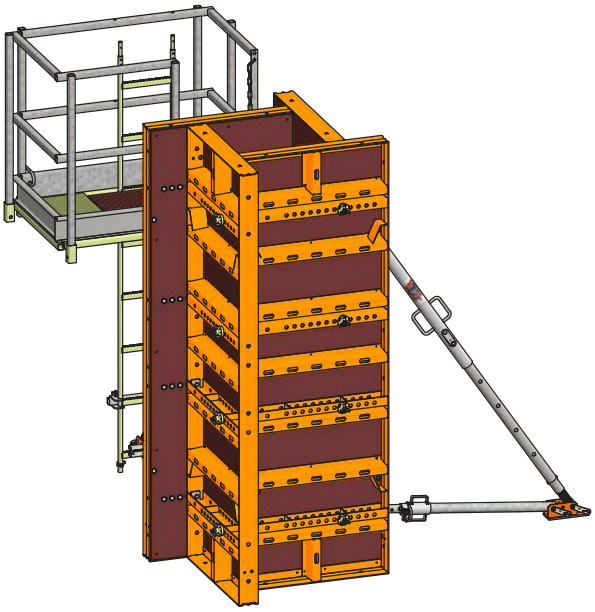
- The LOGO.3 + alu technical Information contains all the necessary information on the standard designs. Any use that goes beyond these applications requires consultation with the manufacturer's application engineering department and, if applicable, a separate structural design.
- For the safety-related application and use of PASCHAL products, the laws, standards and regulations for occupational health and safety and other safety regulations in force at the respective site must be observed in their currently valid version.

Foundations:



T02.005.01

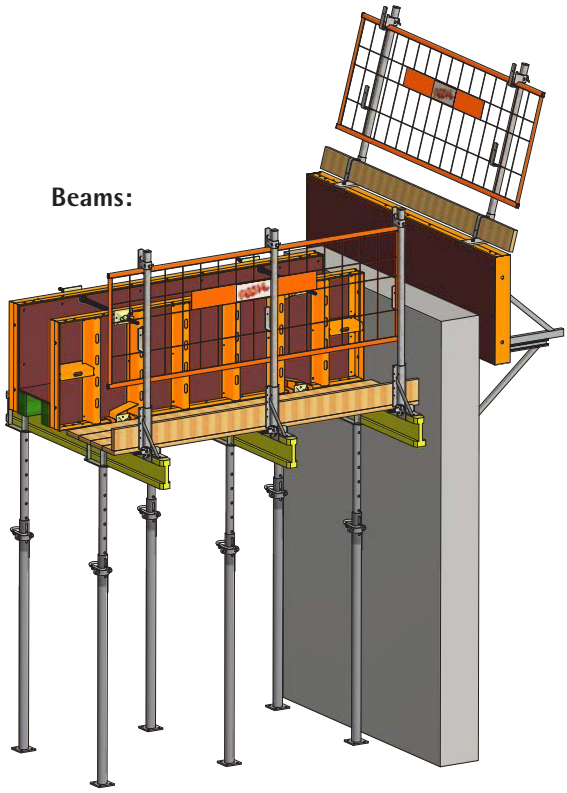
Columns:



T02.004.01

Slab edge:

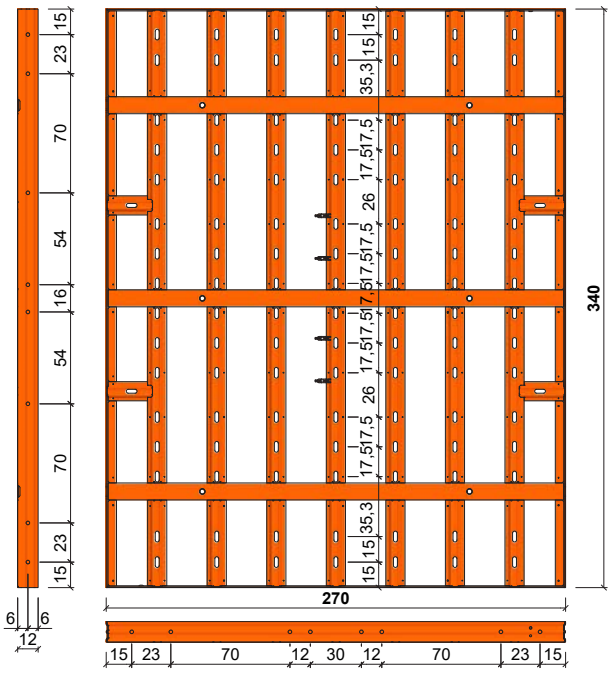
Beams:

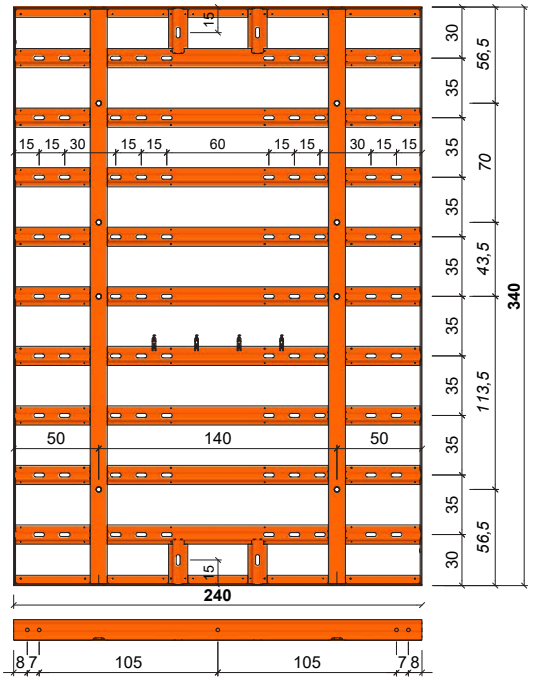


T02.006.01

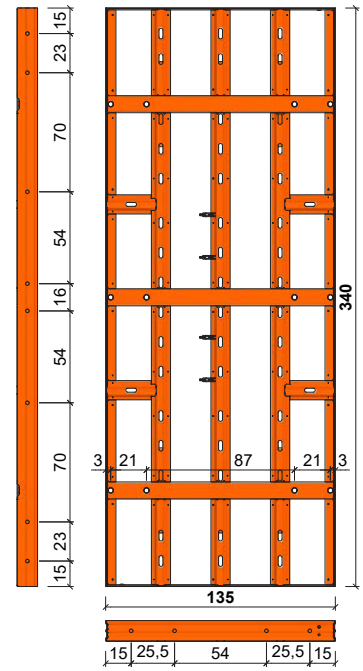
Panel overview - Height 340 cm

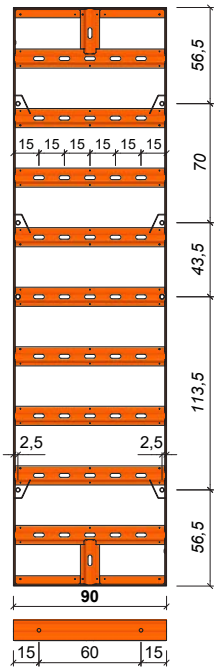
LOGO.3 Panel	340 x 270 cm (page 10)	240 x 340 cm
Art. no.	176.001.3400	179.001.2400
Weight	460.00 kg	398.00 kg

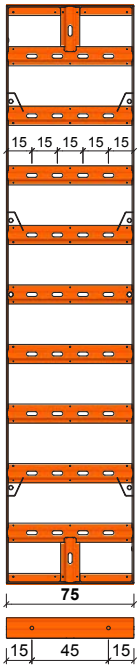


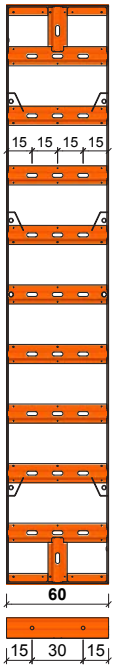


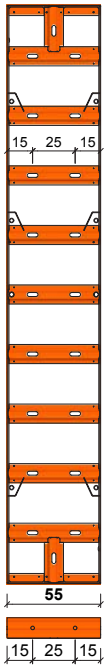
LOGO.3 Panel	Midi-panel 340 x 135 cm (page 14)	90 x 340 cm	75 x 340 cm	60 x 340 cm	55 x 340 cm
Art. no.	175.001.3400	179.001.0900	179.001.0750	179.001.0600	179.001.0550
Weight	258.00 kg	122.00 kg	107.50 kg	94.00 kg	88.50 kg





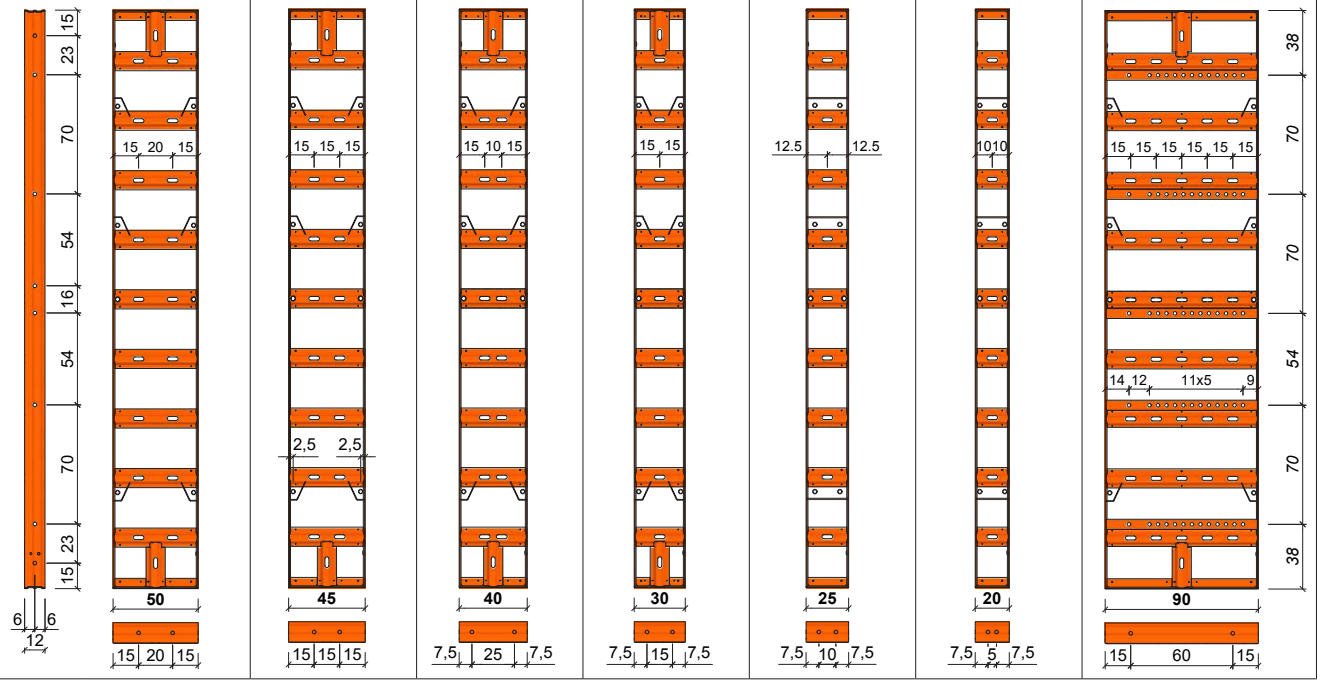




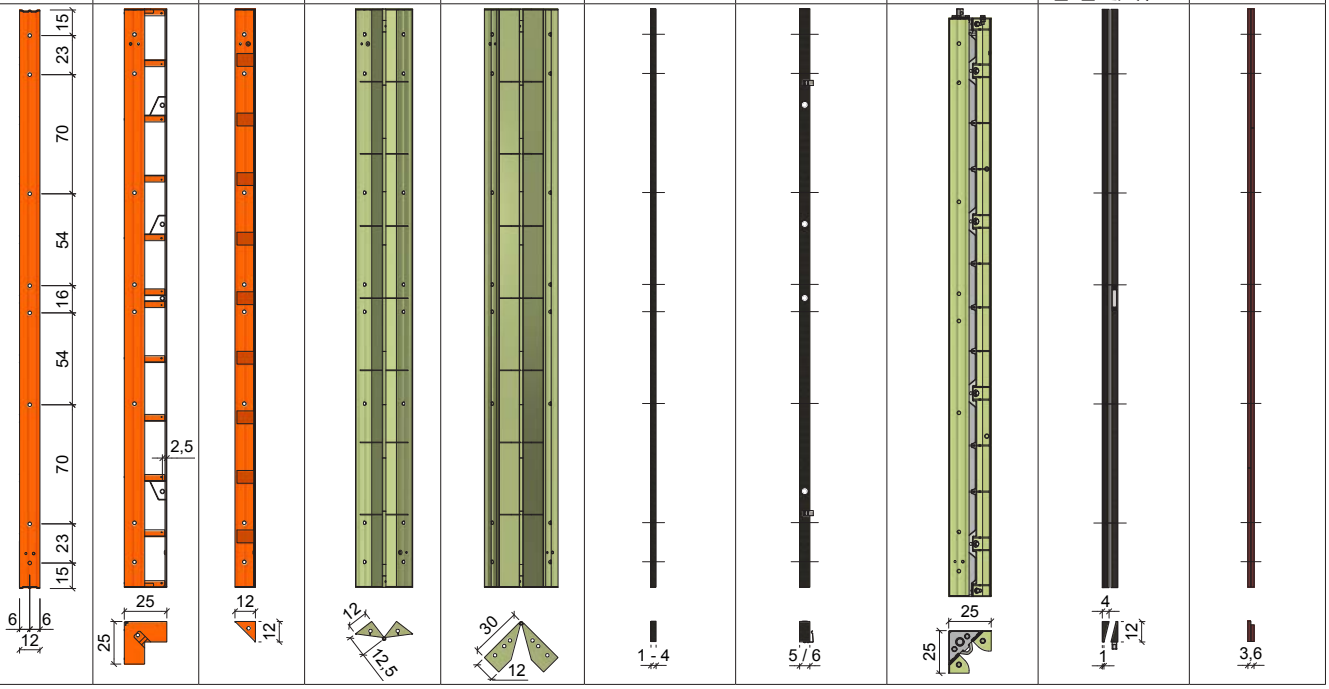


Panel overview - Height 340 cm

LOGO.3 Panel	50 x 340 cm	45 x 340 cm	40 x 340 cm	30 x 340 cm	25 x 340 cm	20 x 340 cm	Multi-panel 90 x 340 cm
Art. no:	179.001.0500	179.001.0450	179.001.0400	179.001.0300	179.001.0250	179.001.0200	179.004.0900
Weight	85.00 kg	81.00 kg	75.50 kg	65.00 kg	58.00 kg	53.50 kg	162.00 kg

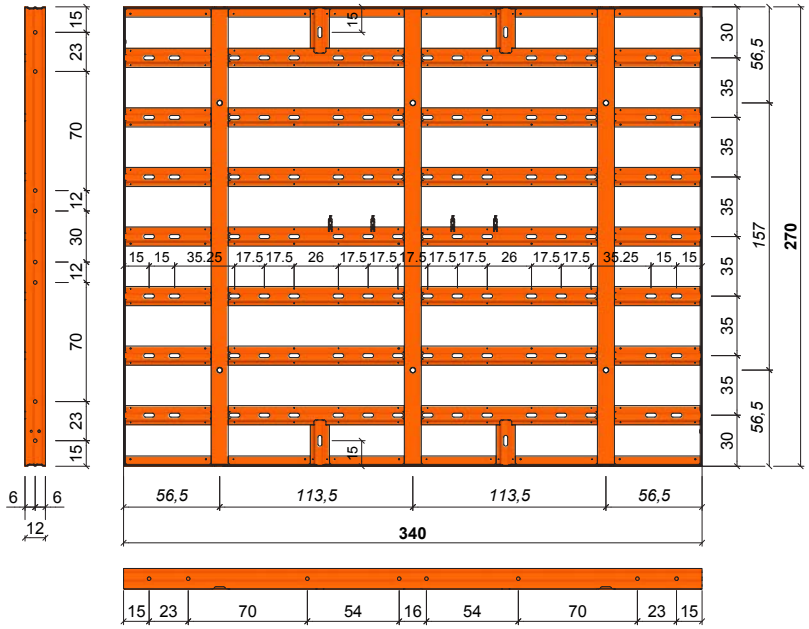


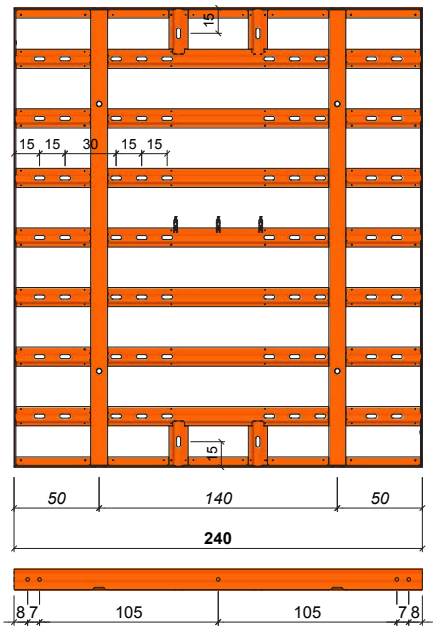
Art. no. Weight	LOGO inside corner 25 x 25 x 340 cm 179.005.0250 78.00 kg	LOGO outside corner 340 cm 179.006.0001 39.50 kg	LOGO Hinged corner, outside 12.5 x 12.5 x 340 cm 179.007.0001 66.00 kg	LOGO Hinged corner, inside 30 x 30 x 340 cm 179.007.0002 116.50 kg	LOGO Plastic filler piece 1 - 4 x 340 cm 176.011.1010 / 1020 / 1030 / 1040	LOGO Plastic filler piece 5 / 6 x 340 cm 179.011.1050 / 1060 19.40 / 23.20 kg	LOGO Dismantling inside corner post 25 x 25 x 340 cm 179.005.0251 170.00 kg	LOGO Plastic dismantling wedgee 5 x 340 cm 275.001.0124 19.50 kg	LOGO Fixing post 340 cm 179.013.0001 9.80 kg



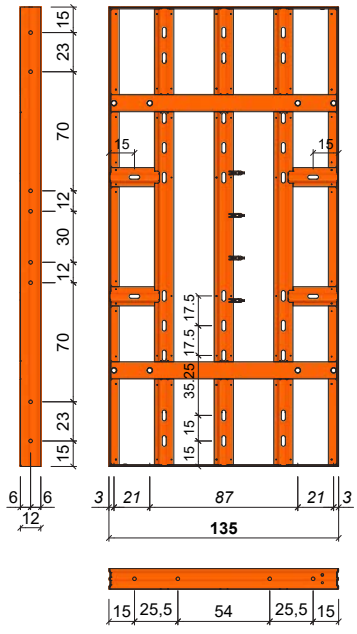
Panel overview - Height 270 cm

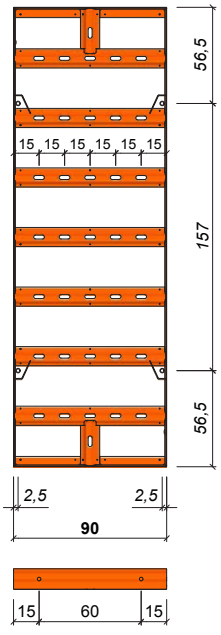
LOGO.3 Panel	340 x 270cm	240 x 270cm
Art. no.	176.001.3400	176.001.2400
Weight	460.00 kg	311.00 kg

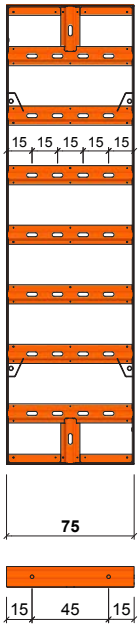


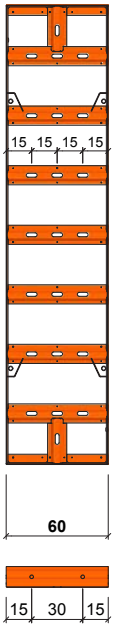


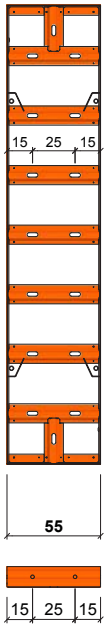
LOGO.3 Panel	Midi-panel 135 x 270cm	90 x 270cm	75 x 270cm	60 x 270cm	55 x 270cm
Art. no.	176.001.1350	176.001.0900	176.001.0750	176.001.0600	176.001.0550
Weight	199.00 kg	95.60 kg	84.20 kg	73.80 kg	69.40 kg





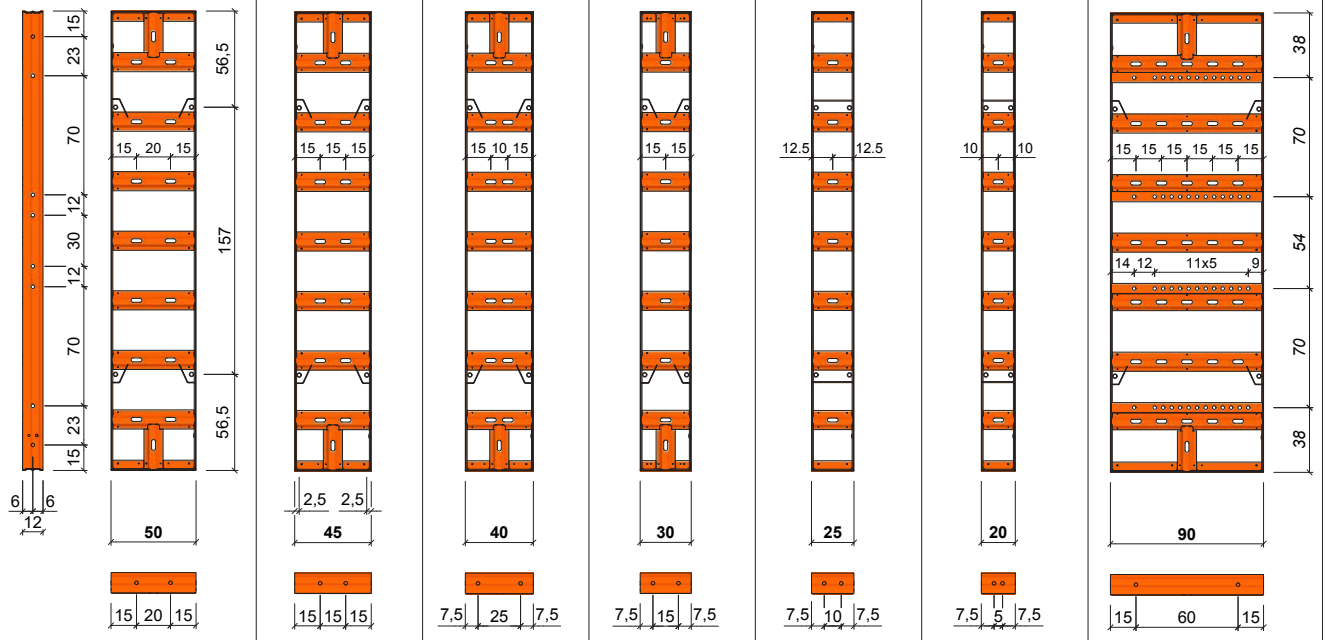




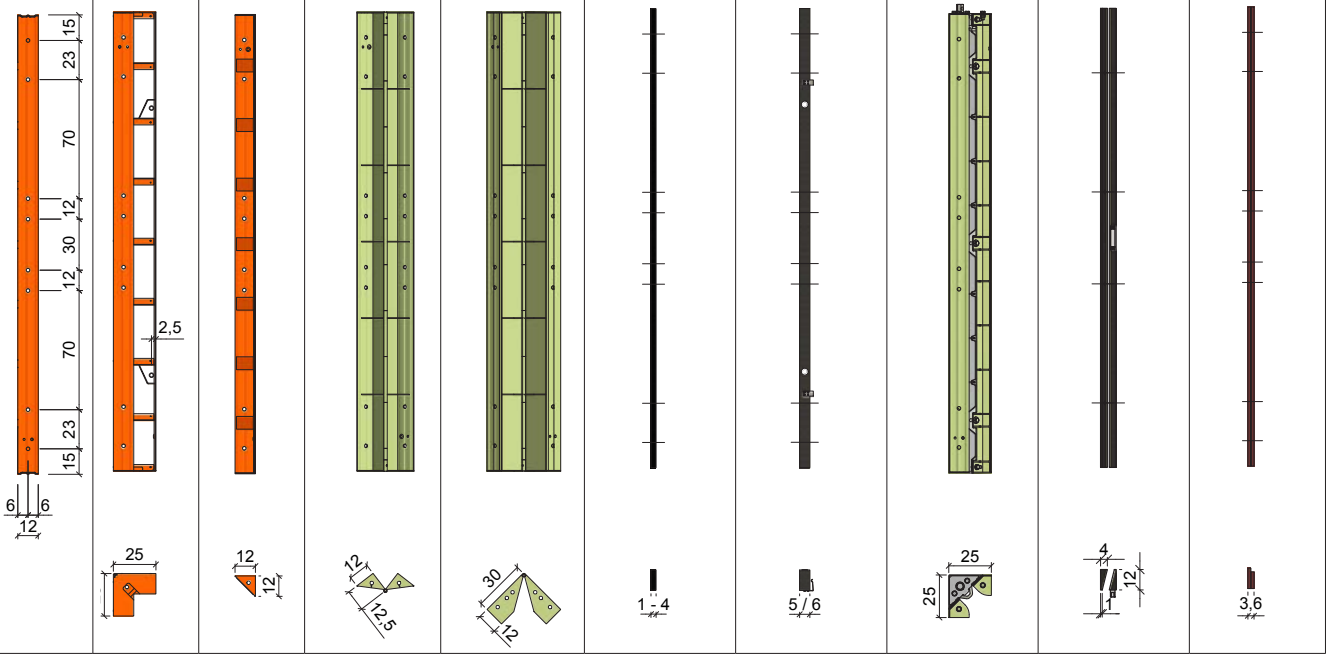


Panel overview - Height 270 cm

LOGO.3 Panel	50 x 270cm	45 x 270cm	40 x 270cm	30 x 270cm	25 x 270cm	20 x 270cm	Multi-panel 90 x 270cm
Art. no.:	176.001.0500	176.001.0450	176.001.0400	176.001.0300	176.001.0250	176.001.0200	176.004.0900
Weight	67.00 kg	62.60 kg	59.20 kg	51.00 kg	45.40 kg	42.00 kg	126.80 kg

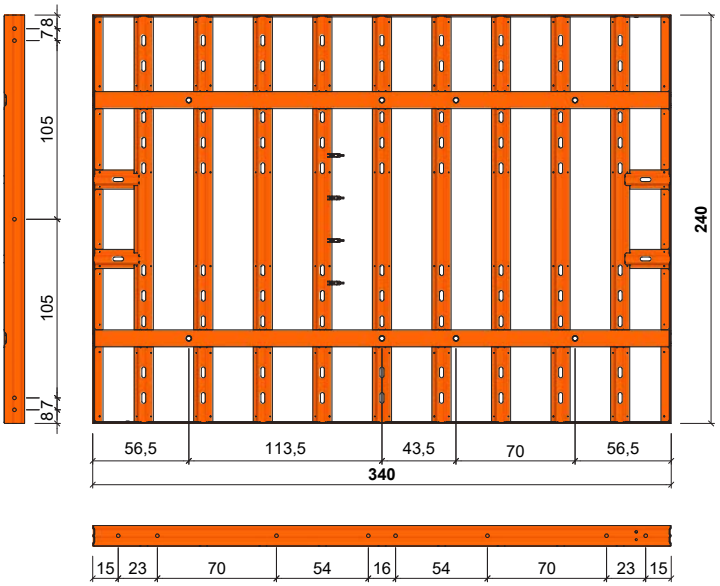


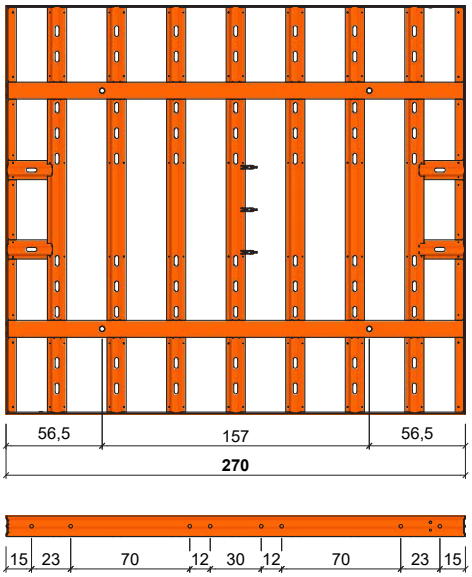
Art. no. Weight	LOGO inside corner 25 x 25 x 270 cm 176.005.0250 61.40 kg	LOGO outside corner 270 cm 176.006.0001 31.50 kg	LOGO Hinged corner, outside 12.5 x 12.5 x 270cm 176.007.0001 52.40 kg	LOGO Hinged corner, inside 30 x 30 x 270 cm 176.007.0002 92.00 kg	LOGO Plastic filler piece 1- 4 x 270 cm 176.011.1010 / 1020 / 1030 / 1040	LOGO Plastic filler piece 5 / 6 x 270 cm 176.011.1050 / 1060 15.40 / 18.50 kg	LOGO Dismantling inside corner post 25 x 25 x 270 cm 176.005.0251 129.00 kg	LOGO Plastic dismantling wedge 5 x 270cm 275.001.0125 15.40 kg	LOGO Fixing post 270 cm 176.013.0001 7.80 kg



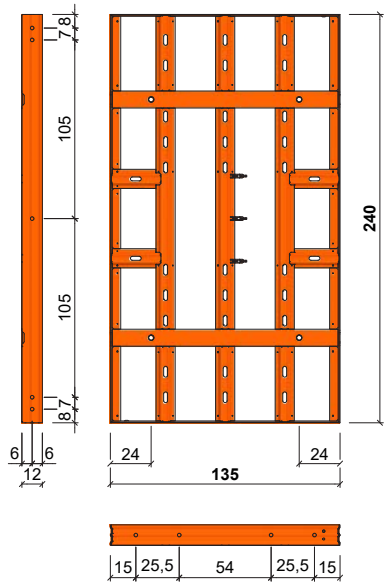
Panel overview - Height 240 cm

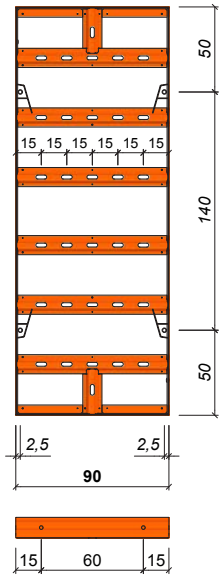
LOGO.3 Panel	240 x 340 cm (page 8)	240 x 270 cm (page 10)
Art. no.	179.001.2400	176.001.2400
Weight	398.00 kg	311.00 kg

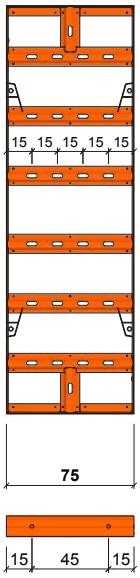


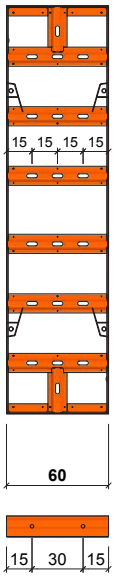


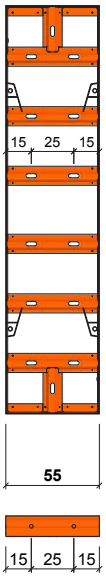
LOGO.3 Panel	240 x 135cm	90 x 240cm	75 x 240cm	60 x 240cm	55 x 240cm
Art. no.	175.001.2400	177.001.0900	177.001.0750	177.001.0600	177.001.0550
Weight	165.00 kg	88.60 kg	78.20 kg	68.40 kg	65.60 kg



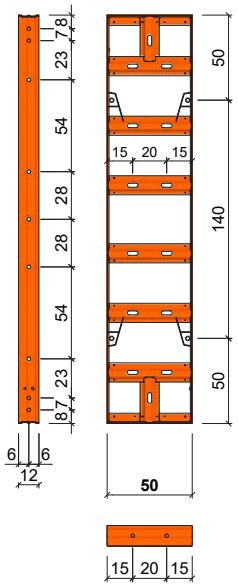
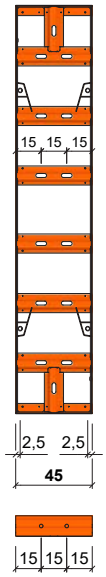
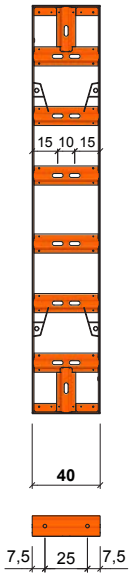
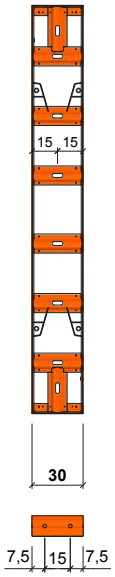
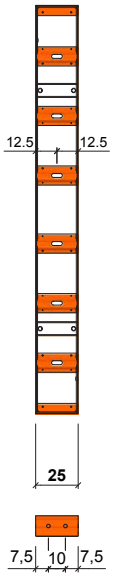
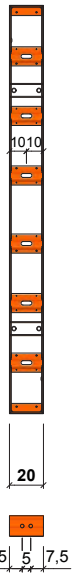
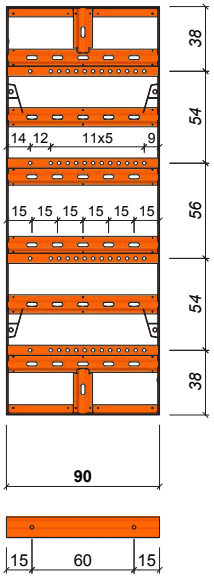


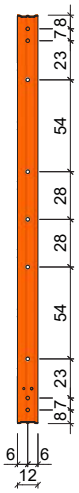
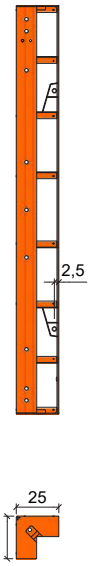
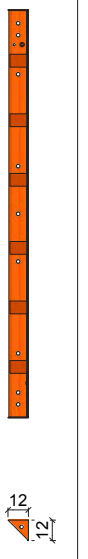
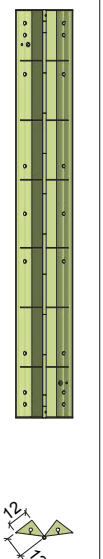






Panel overview - Height 240 cm

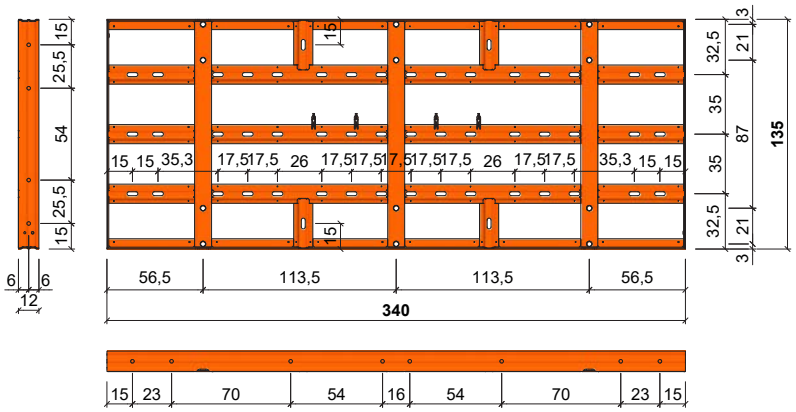
LOGO.3 Panel Art. no.: Weight	**50 x 240cm** 177.001.0500 60.60 kg	**45 x 240cm** 177.001.0450 57.80 kg	**40 x 240cm** 177.001.0400 55.20 kg	**30 x 240cm** 177.001.0300 47.60 kg	**25 x 240cm** 177.001.0250 42.30 kg	**20 x 240cm** 177.001.0200 39.80 kg	**Multi-purpose panel** **90 x 240cm** 177.004.0900 119.80 kg
							

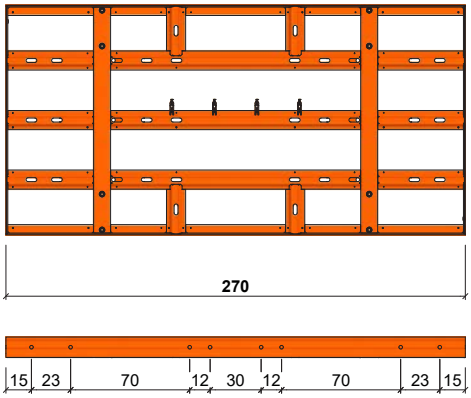
Art. no. Weight	**LOGO inside corner 25 x 25 x 240 cm** 177.005.0250 57.00 kg	**LOGO outside corner 240 cm** 177.006.0001 25.50 kg	**LOGO Hinged corner, outside 12.5 x 12.5 x 240cm** 177.007.0001 48.00 kg	**LOGO Hinged corner, inside 30 x 30 x 240 cm** 177.007.0002 83.00 kg	**LOGO Plastic filler piece 1- 4 x 240 cm** 177.011.1010 / 1020 / 1030 / 1040	**LOGO Plastic filler piece 5 / 6 x 240 cm** 177.011.1050 / 1060 13.70 / 16.40 kg	**LOGO Dismantling inside corner post 25 x 25 x 240 cm** 177.005.0251 115.00 kg	**LOGO Plastic dismantling wedge 5 x 240cm** 275.001.0126 13.80 kg	**LOGO Fixing post 240 cm** 177.013.0001 6.90 kg
									

Panel overview - Height 135 cm

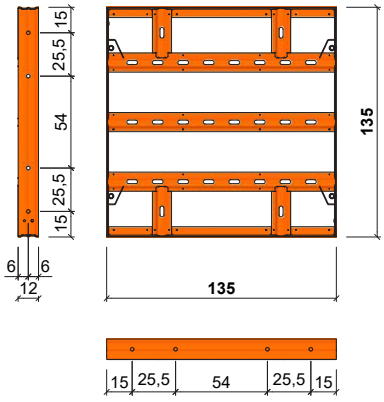
LOGO.3 Panel	Midi-panel 340 x 135cm	Midi-panel 135 x 270 cm (page 10)
Art. no.	175.001.3400	176.001.1350
Weight	258.00 kg	199.00 kg

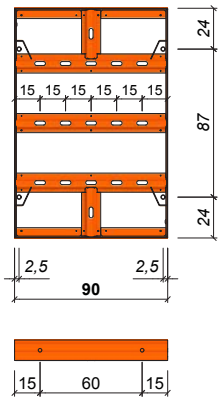
See also Panel 240 x 135 cm (page 12)

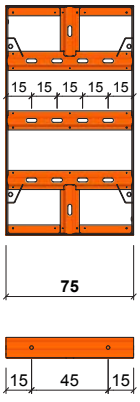


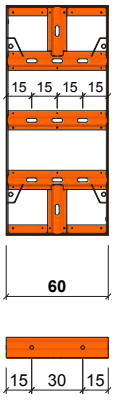


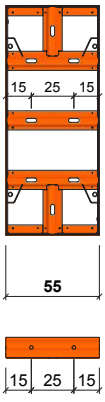
LOGO.3 Panel	On top panel 135 x 135cm	90 x 135cm	75 x 135cm	60 x 135cm	55 x 135 cm
Art. no.	175.001.1350	175.001.0900	175.001.0750	175.001.0600	175.001.0550
Weight	89.00 kg	53.80 kg	48.00 kg	41.60 kg	39.80 kg







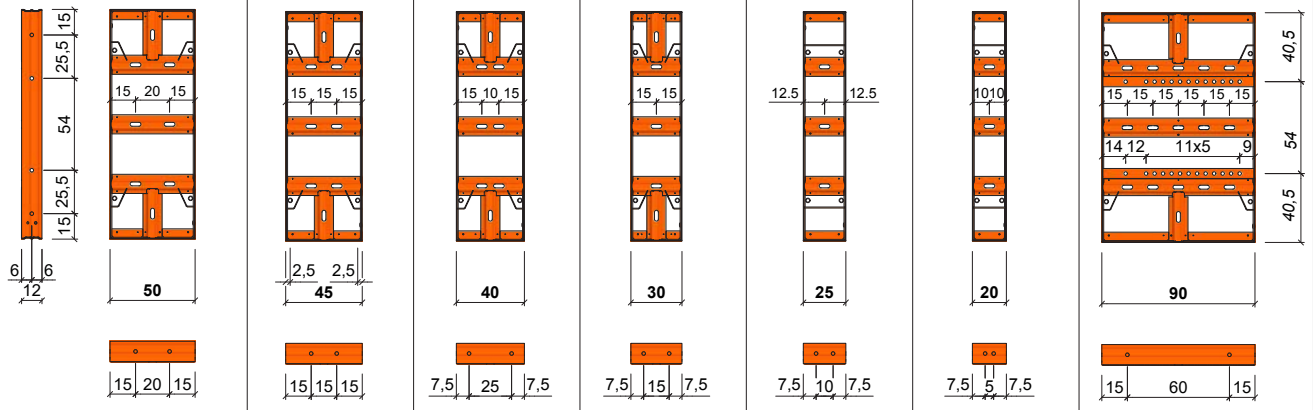




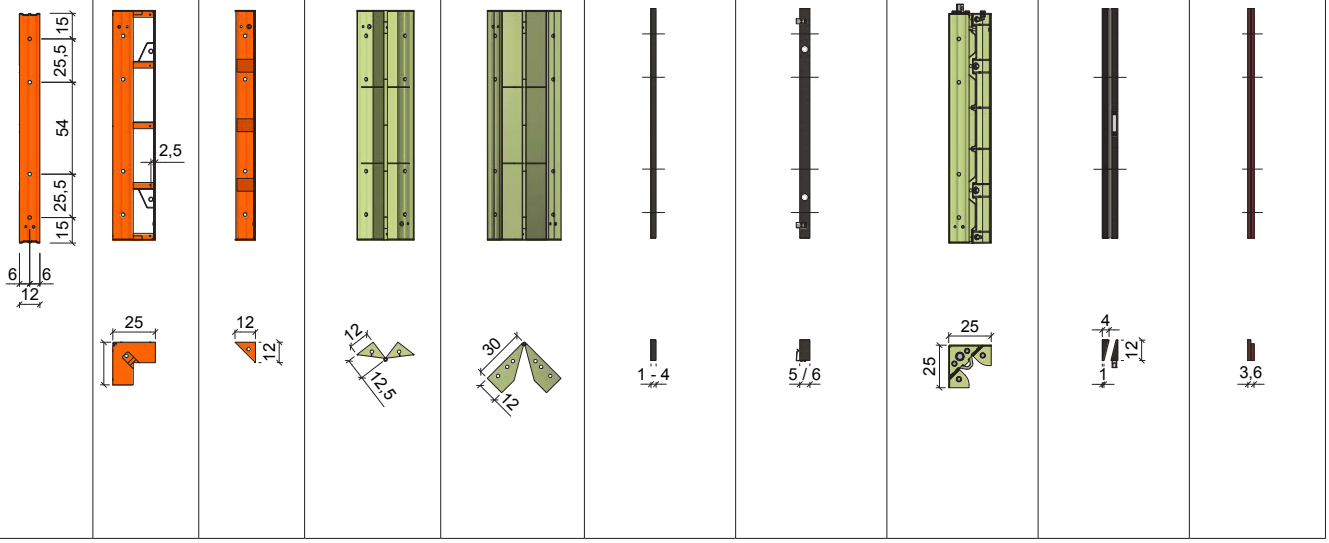
Use only up to concreting height of 135 cm or as on top panel

Panel overview - Height 135 cm

LOGO.3 Panel	50 x 135cm	45 x 135cm	40 x 135cm	30 x 135cm	25 x 135cm	20 x 135cm	Multi-panel 90 x 135 cm
Art. no.:	175.001.0500	175.001.0450	175.001.0400	175.001.0300	175.001.0250	175.001.0200	175.004.0900
Weight	38.00 kg	35.80 kg	34.60 kg	29.00 kg	24.70 kg	22.90 kg	68.40 kg

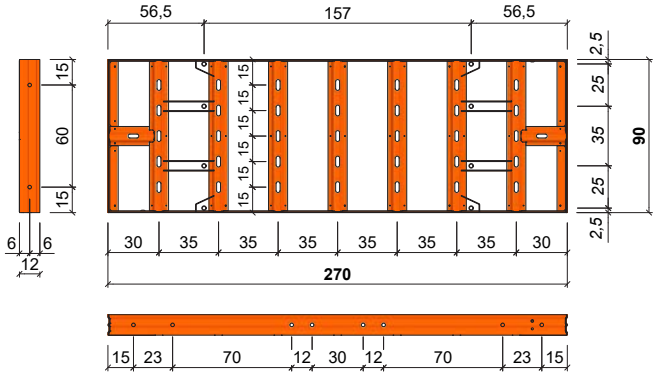


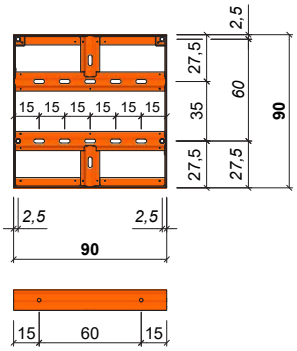
Art. no. Weight	LOGO inside corner 25 x 25 x 135 cm 175.005.0250 33.00 kg	LOGO outside corner 135 cm 175.006.0001 15.50 kg	LOGO Hinged corner, outside 12.5 x 12.5 x 135cm 175.007.0001 28.00 kg	LOGO Hinged corner, inside 30 x 30 x 135 cm 175.007.0002 46.20 kg	LOGO Plastic filler piece 1 - 4 x 135 cm 175.011.1010 / 1020 / 1030 / 1040	LOGO Plastic filler piece 5 / 6 x 135 cm 175.011.1050 / 1060 7.70 / 9.30 kg	LOGO Dismantling inside corner post 25 x 25 x 135 cm 175.005.0251 69.00 kg	LOGO Plastic dismantling wedge 5 x 135cm 275.001.0127 7.80 kg	LOGO Fixing post 270 cm 175.013.0001 3.90 kg



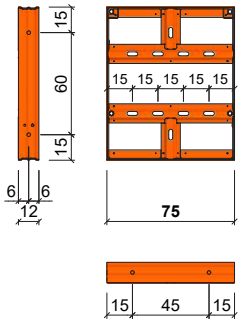
Panel overview - Height 90 cm

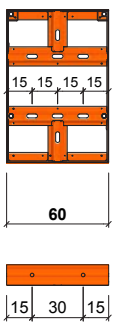
LOGO.3 Panel	270 x 90 cm with 8 ties	90 x 90cm
Art. no.:	173.001.2700	173.001.0900
Weight	101.50 kg	41.50 kg

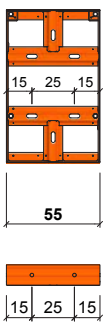


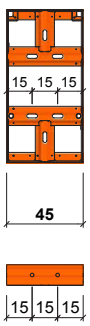


LOGO.3 Panel	75 x 90cm	60 x 90cm	55 x 90cm	50 x 90cm	45 x 90cm
Art. no.	173.001.0750	173.001.0600	173.001.0550	173.001.0500	173.001.0450
Weight	36.00 kg	31.00 kg	29.50 kg	28.00 kg	26.50 kg

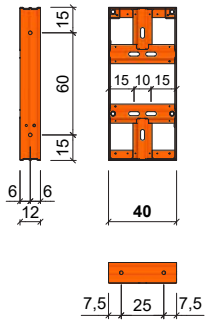
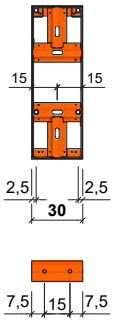
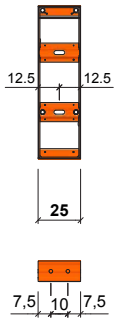
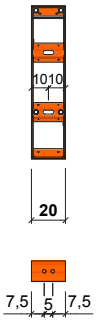
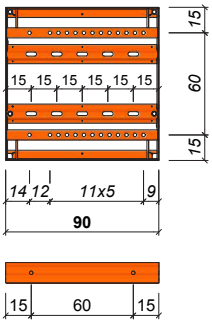


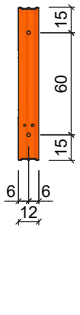
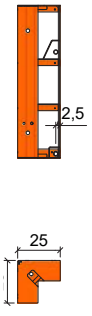
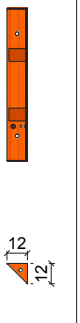






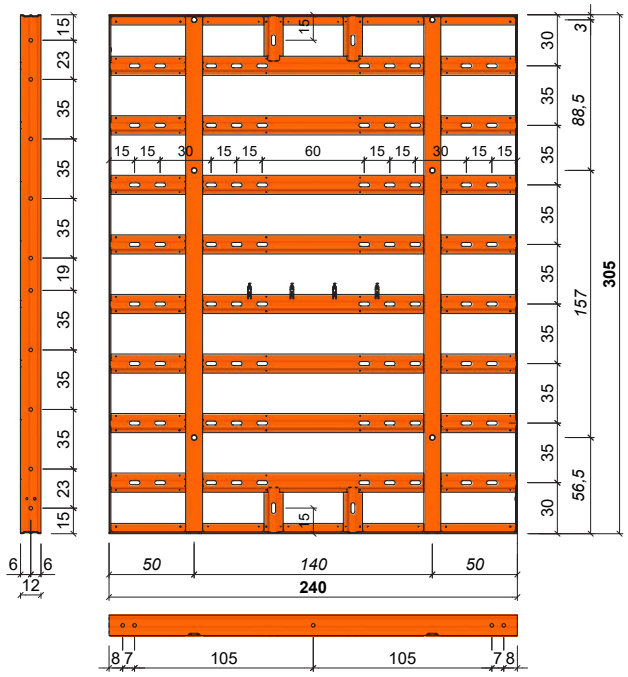
Panel overview - Height 90 cm

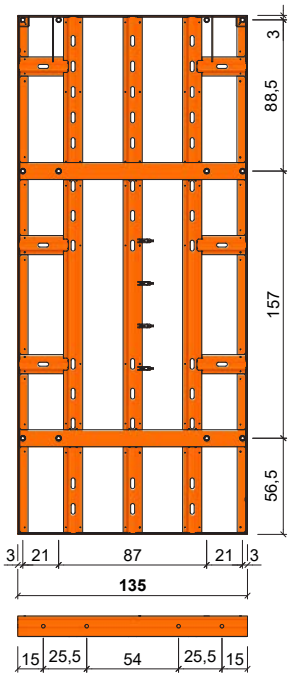
LOGO.3 Panel	40 x 90cm	30 x 90cm	25 x 90cm	20 x 90cm	Multi-panel 90 x 90cm
Art. no.:	173.001.0400	173.001.0300	173.001.0250	173.001.0200	173.004.0900
Weight	25.00 kg	21.00 kg	19.00 kg	17.50 kg	57.50 kg
					

Art. no. Weight	LOGO inside corner 25 x 25 x 90 cm 173.005.0250 25.00 kg	LOGO outside corner 90 cm 173.006.0001 9.50 kg	LOGO Hinged corner, outside 12.5 x 12.5 x 90 cm 173.007.0001 18.50 kg	LOGO Hinged corner, inside 30 x 30 x 90 cm 173.007.0002 32.50 kg	LOGO Plastic filler piece 1 - 4 x 90 cm 173.011.1010 / 1020 / 1030 / 1040	LOGO Plastic filler piece 5 / 6 x 90 cm 173.011.1050 / 1060 5.20 / 6.20 kg	LOGO Dismantling inside corner post 25 x 25 x 90 cm 173.005.0251 49.50 kg	LOGO Plastic dismantling wedge 5 x 90cm 275.001.0128 5.20 kg	LOGO Fixing post 90 cm 173.013.0001 2.60 kg
									

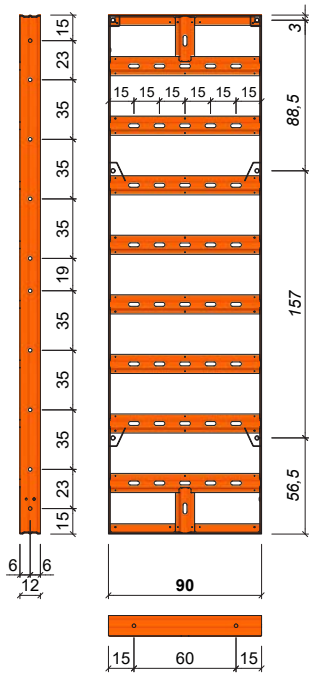
Panel overview - Height 305 cm (not for rental)

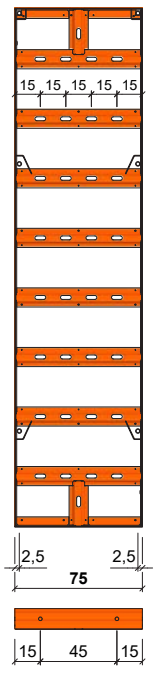
LOGO.3 Panel	240 x 305cm	Midi-panel 135 x 305cm
Art. no.:	178.001.2400	178.001.1350
Weight	360.00 kg	217.20 kg

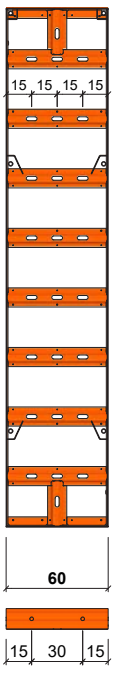


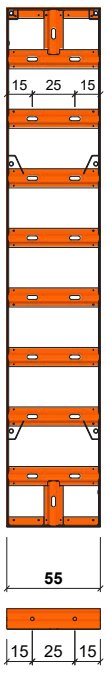


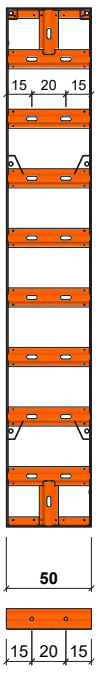
LOGO.3 Panel	90 x 305cm	75 x 305cm	60 x 305cm	55 x 305cm	50 x 305cm
Art. no.	178.001.0900	178.001.0750	178.001.0600	178.001.0550	178.001.0500
Weight	109.00 kg	96.00 kg	84.00 kg	79.00 kg	76.00 kg



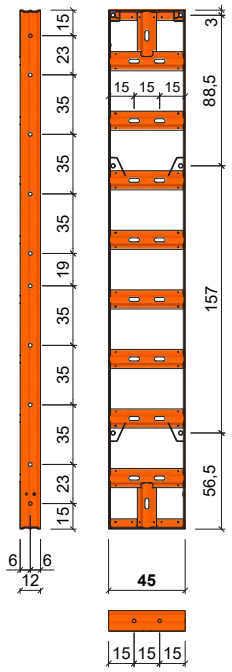
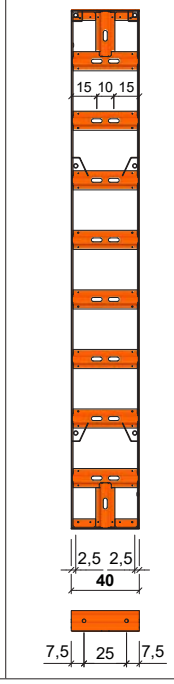
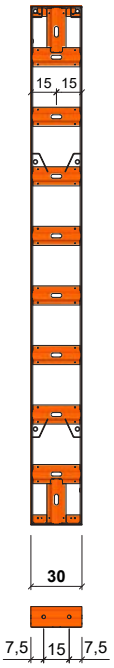
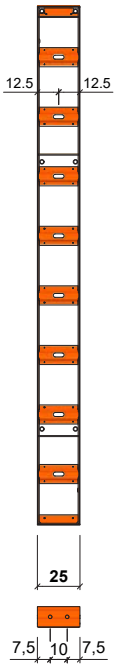
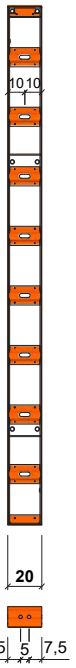
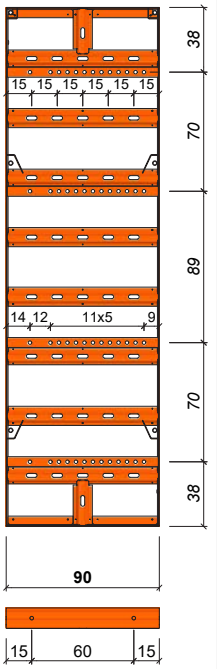


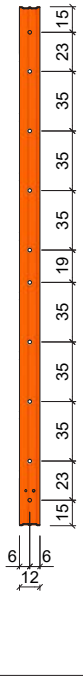
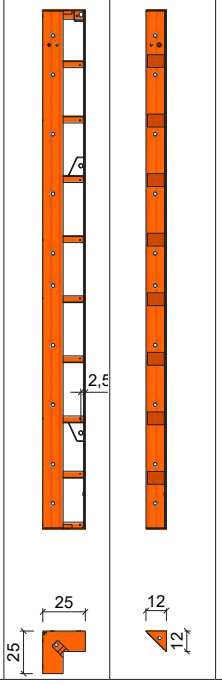
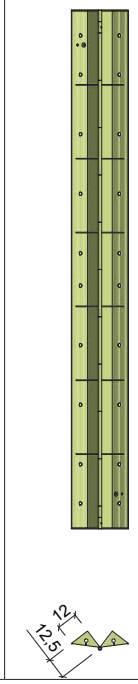
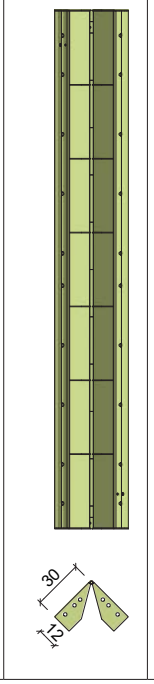
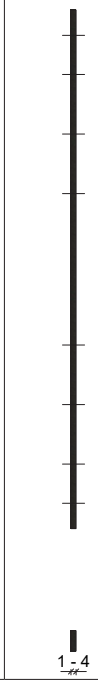
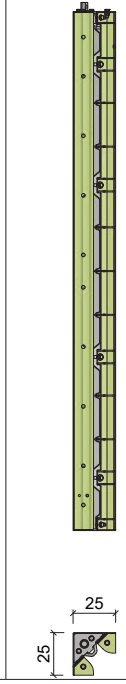
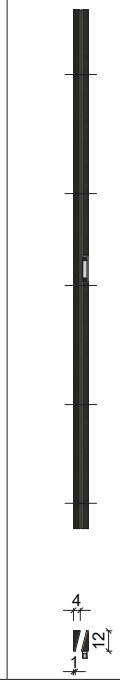
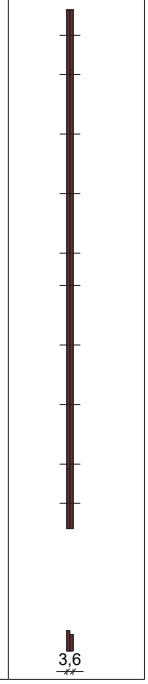




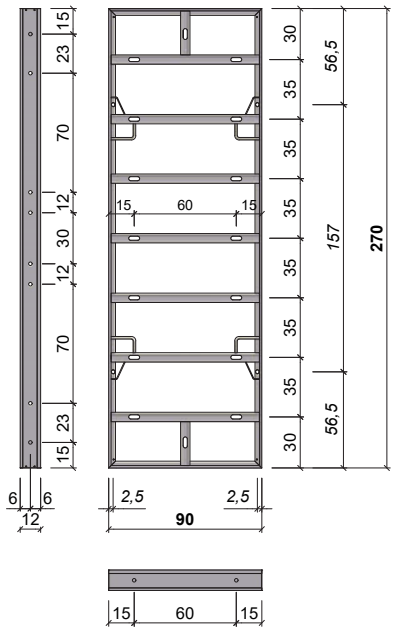
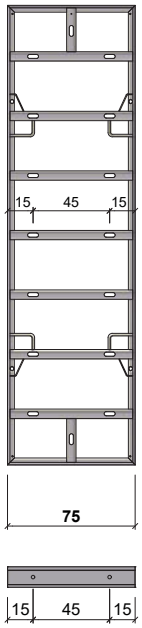
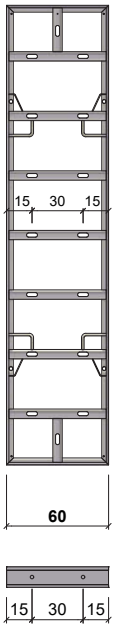
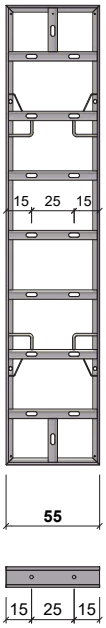
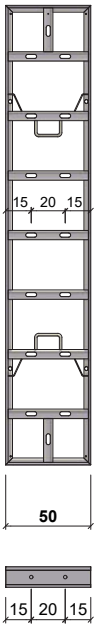


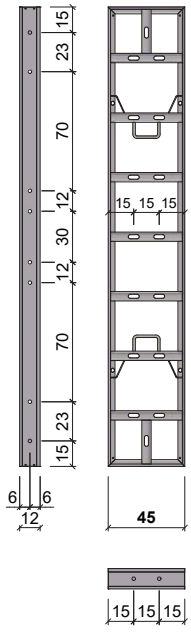
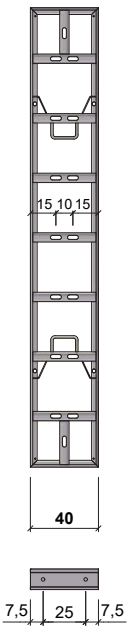
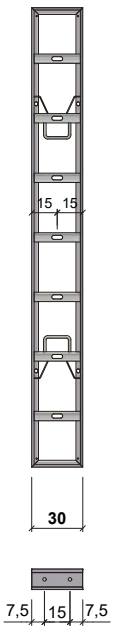
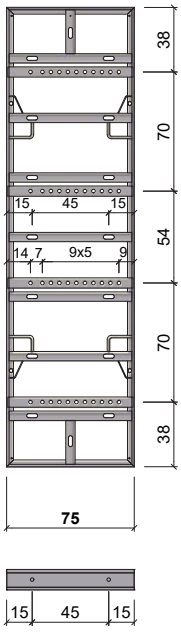
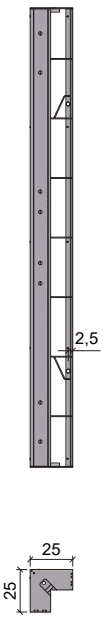
Panel overview - Height 305 cm (not for rental)

LOGO.3 Panel Art. no.: Weight	45 x 305cm 178.001.0450 71.50 kg	40 x 305cm 178.001.0400 67.50 kg	30 x 305cm 178.001.0300 58.00 kg	25 x 305cm 178.001.0250 51.50 kg	20 x 305cm 178.001.0200 48.00 kg	Multi-panel 90 x 305cm 178.004.0900 144.50 kg
						

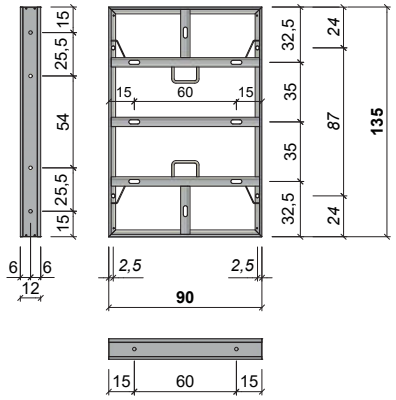
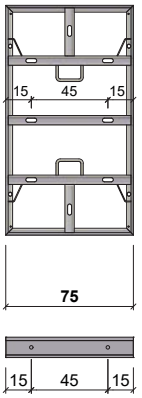
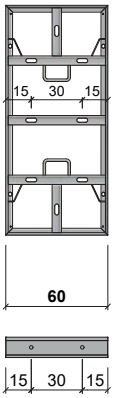
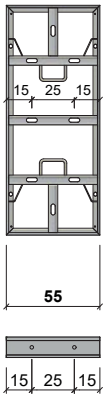
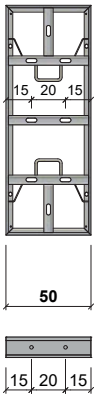
Art. no. Weight	LOGO inside corner 25 x 25 x 305 cm 178.005.0250 70.00 kg	LOGO outside corner 305 cm 178.006.0001 36.50 kg	LOGO Hinged corner, outside 12.5 x 12.5 x 305 cm 178.007.0001 58.50 kg	LOGO Hinged corner, inside 30 x 30 x 305 cm 178.007.0002 105.00 kg	LOGO Plastic filler piece 1 - 4 x 305 cm 178.011.1010 / 1020 / 1030 / 1040	LOGO Plastic filler piece 5 / 6 x 305 cm 178.011.1050 / 1060 17.20 / 20.60 kg	LOGO Dismantling inside corner post 25 x 25 x 305 cm 178.005.0251 148.00 kg	LOGO Plastic dismantling wedge 5 x 305cm 275.001.0130 17.50 kg	LOGO Fixing post 305 cm 178.013.0001 8.80 kg
									

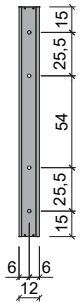
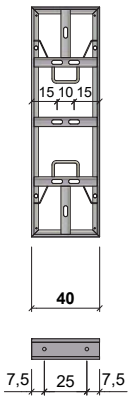
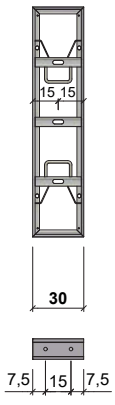
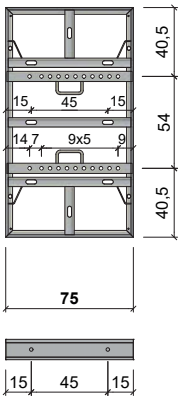
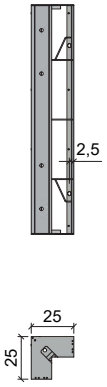
Panel overview alu - Height 270 cm

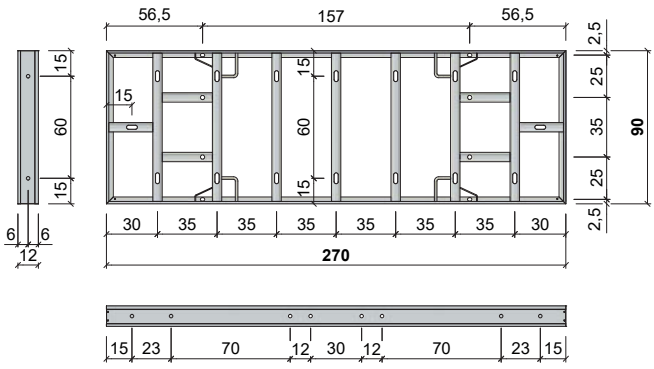
LOGO.alu Panel Art. no.: Weight	90 x 270cm 176.901.0900 59.90 kg	75 x 270cm 176.901.0750 52.70 kg	60 x 270cm 176.901.0600 45.50 kg	55 x 270cm 176.901.0550 43.10 kg	50 x 270cm 176.901.0500 41.00 kg
					

LOGO.alu Panel Art. no.: Weight	45 x 270cm 176.901.0450 38.60 kg	40 x 270cm 176.901.0400 36.20 kg	30 x 270cm 176.901.0300 30.30 kg	Multi-panel 75 x 270cm 176.904.0750 60.10 kg	Inside corner 25 x 25 x 270 cm 176.905.0250 42.00 kg
					

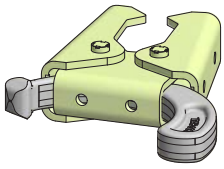
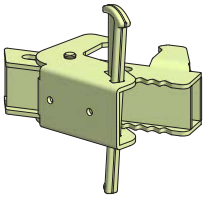
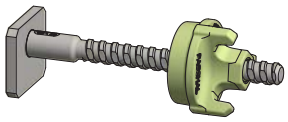
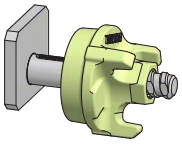
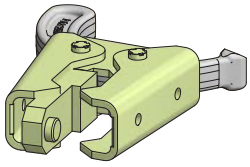
Panel overview alu - Height 135 cm and 90 cm

LOGO.alu Panel Art. no.: Weight	**90 x 135cm** 175.901.0900 36.00 kg	**75 x 135cm** 175.901.0750 29.50 kg	**60 x 135cm** 175.901.0600 25.50 kg	**55 x 135cm** 175.901.0550 24.00 kg	**50 x 135cm** 175.901.0500 22.50 kg
					

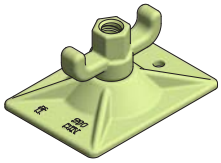
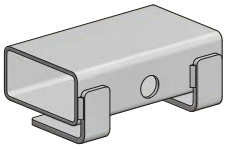
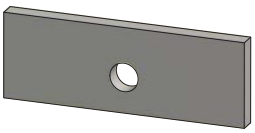
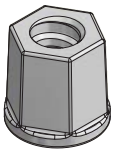
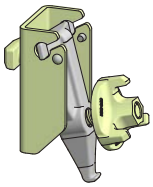
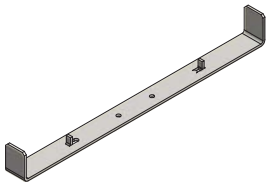
LOGO.alu Panel Art. no. Weight	**45 x 135cm** 175.901.0450 21.00 kg	**40 x 135cm** 175.901.0400 19.50 kg	**30 x 135cm** 175.901.0300 16.50 kg	**Multi-panel 75 x 135cm** 175.904.0750 36.00 kg	**Inside corner 25 x 25 x 135 cm** 175.905.0250 22.00 kg
					

alu panel 270 x 90cm with 8 ties 173.901.2700 66.00 kg	
	

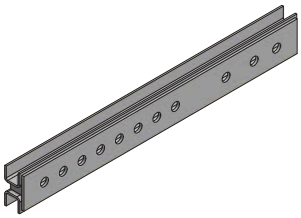
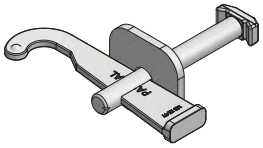
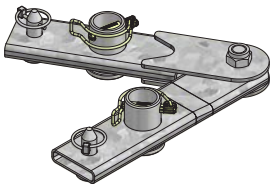
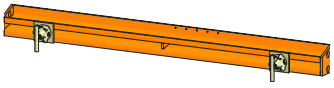
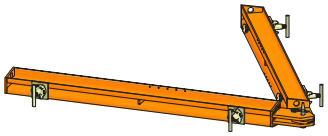
Parts list (connecting pieces)

	Art. no.	Product description	Weight [kg]
	187.500.0100	LOGO wedge clamp with curved wedge	1.80
	187.500.0004	LOGO multi-clamp adjustable 0-10 cm	5.30
	187.500.0175	LOGO multi-clamp adjustable 0-20 cm	6.50
	187.500.0002	LOGO locking screw DW15 x 215 cpl.	1.10
	187.500.0106	LOGO locking screw DW15 x 100 cpl.	1.00
	287.500.0026	LOGO combi clamp N/TR/R	2.20

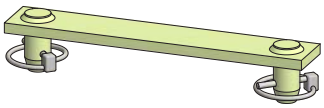
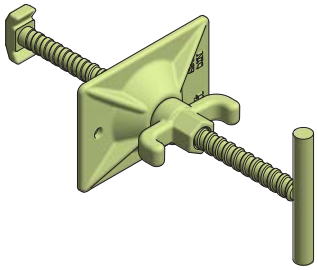
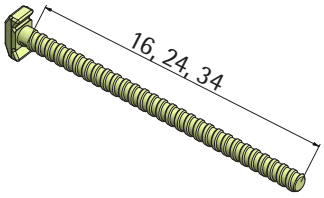
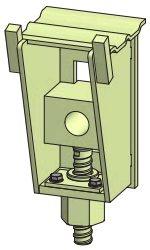
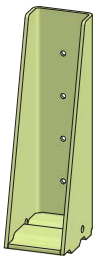
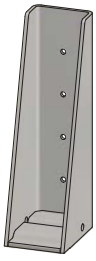
Parts list (tensioning material)

	Art. no.	Product description	Weight [kg]
	189.006.0850	Tie rod DW15 x 85 cm	1.19
	189.006.1000	Tie rod DW15 x 100 cm	1.40
	189.006.1350	Tie rod DW15 x 135 cm	1.85
	189.001.0059	Plate with ball-and-socket joint DW15 10 x 14 cm inclination max. 12°	1.29
	187.500.0008	LOGO tie rod guide	2.35
	187.500.0166	LOGO plate 60 x 170 x 12	0.85
	189.001.0002	Hexagon nut DW15, malleable cast iron	0.20
	187.500.0125	Foundation tie clamp for L/N	2.15
	940.100.0000	Perforated foundation tie 50 x 2 (roll 25 m)	15.70
	187.501.XXXX	LOGO Foundation strap (variable lengths) XXXX = foundation width in mm	0.87 / RM

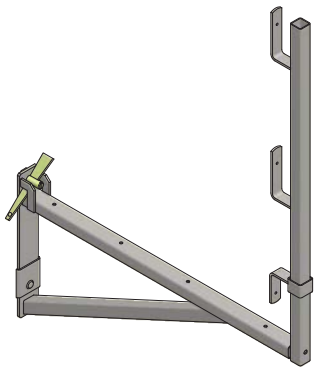
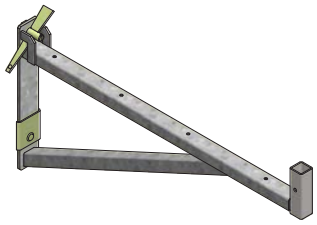
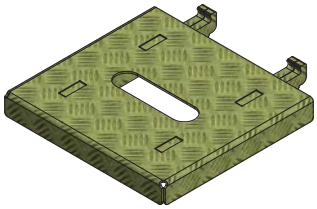
Parts list (walers)

	Art. no.	Product description	Weight [kg]
	187.500.0006	LOGO Spacer channel 15-50 cm	7.10
	187.500.0164	Multi-waler 140 cm	16.80
	187.500.0165	Clamping piece 10 cm L/N/A	1.30
	187.500.0168	Hinged part multi-waler 60°-180° cpl.	5.00
	183.500.0033	Combination rail L/N/A	30.00
	183.500.0040	Hinged bracing 60°-180° cpl.	67.18

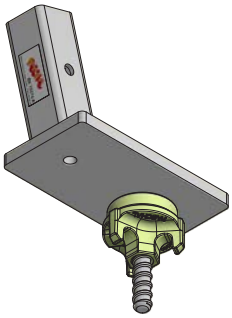
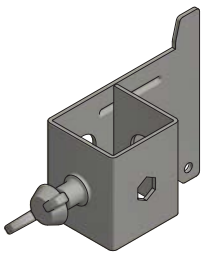
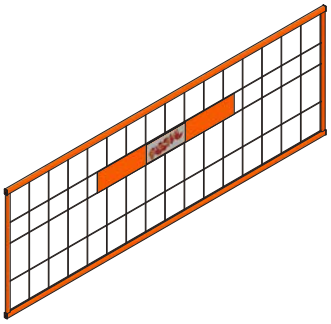
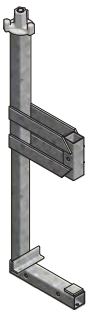
Parts list (fasteners)

	Art. no.	Product description	Weight [kg]
	187.500.0013	LOGO locking bow for hinged corner, inside, cpl.	0.81
	187.500.0021	Support for walers DW15 clamping length 6-20 cm L/N/A	1.95
	183.500.0034	Hook-headed bolt DW15 x 220/160 L/N/A	0.40
	187.500.0022	Hook-headed bolt DW15 x 300/240 L/N/A	0.53
	187.500.0024	Hook-headed bolt DW15 x 400/340 L/N/A	0.70
	186.000.0068	LOGO support bracket adjustable	7.60
	187.500.0132	LOGO.3 extension bracket for 21 mm plywood	1.70
	187.500.0136	LOGO.alu extension bracket for 21 mm plywood	1.70

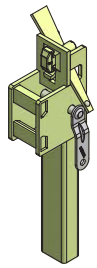
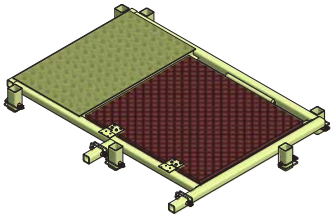
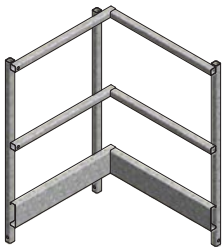
Parts list (safety at work)

	Art. no.	Product description	Weight [kg]
	187.500.0005	LOGO platform bracket	13.00
	189.000.0003	LOGO bracket Secuset	9.40
	189.000.1001	Railing post lateral protection 120 cm Secuset	3.20
	187.500.0162	Step L/N	4.70

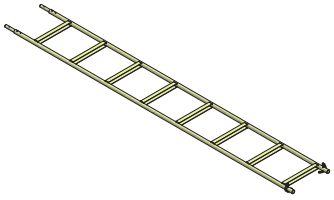
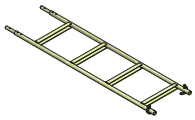
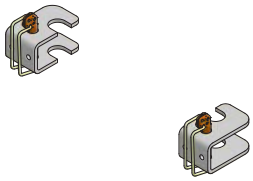
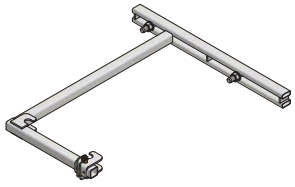
Parts list (safety at work)

	Art. no.	Product description	Weight [kg]
	189.000.0001	Support LOGO cpl. lateral protection Secuset	3.10
	189.000.1010	Support for toe board lateral protection Secuset	0.46
	189.000.1011	Support for protection fence Secuset	0.21
	189.000.1035 189.000.1036	Lateral protection fence 230 x 80 cm Secuset Lateral protection fence 130 x 80 cm Secuset	10.10 6.60
	189.000.1021	Clamping piece lateral protection (up to 60 cm) Secuset	5.10

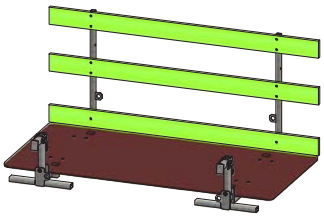
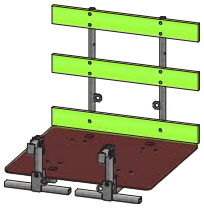
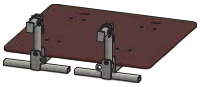
Parts list (safety at work)

	Art. no.	Product description	Weight [kg]
	170.006.0241	Fixation Grip working platform to multi column	4.80
	170.006.0226	Grip working platform 125 x 80 cm cpl.	44.80
	170.006.0222	Grip guard rail 75 x 79 cm cpl.	30.10
	170.006.0227	Grip guard rail 120 x 79 cm for working platform top cpl.	36.60

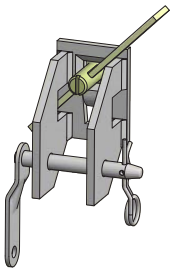
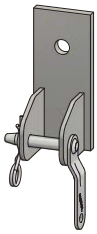
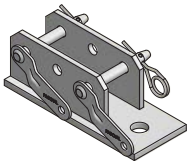
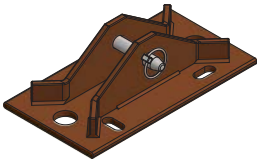
Parts list (safety at work)

	Art. no.	Product description	Weight [kg]
	187.500.0063	Ladder 260 cm cpl. for Multip	12.30
	187.500.0071	Ladder 130 cm cpl. for Multip	6.50
	187.500.0074	Ladder fastening guard rail cpl. for Multip	1.40
	182.000.0257	Ladder fastening for Multip Trapezoidal	9.00

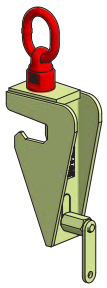
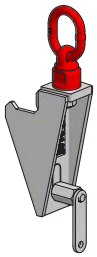
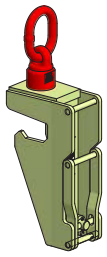
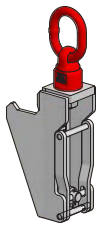
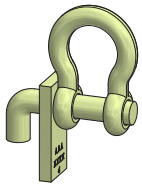
Parts list (platforms)

	Art. no.	Product description	Weight [kg]
	187.500.0097	Concreting platform 120 x 238 cm folding hot-dip galvanised	120.00
	187.500.0120	Concreting platform 120 x 124 cm folding hot-dip galvanised	91.30
	187.500.0130	Concreting platform for inside corner folding hot-dip galvanised	68.00
	187.500.0114	Lateral protection for concreting platform	16.17

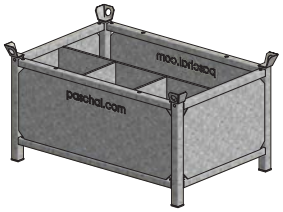
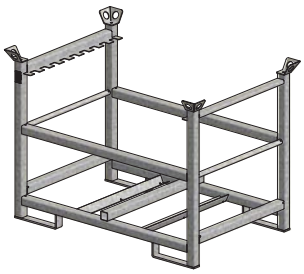
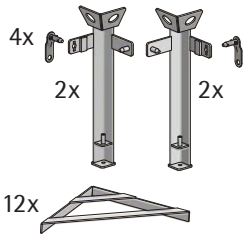
Parts list (supports)

	Art. no.	Product description	Weight [kg]
	187.500.0003	Suspending piece for adjustable props cpl. L/N/A	2.00
	187.500.0178	LOGO suspending piece for adjustable props universal cpl.	2.20
	189.005.0001	Support variable 105-150 cm	9.50
	189.005.0014	Adjustable prop 175-285 cm galvanised	18.20
	189.005.0015	Adjustable prop 255-405 cm galvanised	33.50
	189.005.0016	Adjustable prop 400-620 cm galvanised	54.50
	189.005.0017	Adjustable prop 620-1000 cm galvanised	110.00
	189.005.0023	Foot plate 3 holes cpl.	4.20
	189.005.0033	End plate articulation BKS (for BKS and RS 620-1000 cm)	7.20

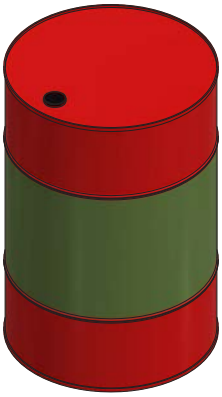
Parts list (transport)

	Art. no.	Product description	Weight [kg]
	187.500.0091	LOGO crane lifting clamp KLD 3D chromated cap. 1200 kg	6.90
	187.500.0090	LOGO crane lifting clamp KLF 3D galvanised cap. 1200 kg	5.80
	187.500.0160	LOGO crane lifting clamp KLHD chromated cap. 1200 kg	6.90
	187.500.0161	LOGO crane lifting clamp KLHF galvanised cap. 1200 kg	5.70
	187.500.0019	LOGO loading auxiliary	0.85

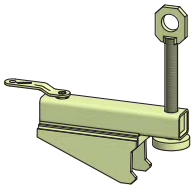
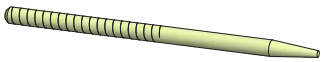
Parts list (transport and storage)

	Art. no.	Product description		Weight [kg]
	189.002.0003	Transportation box hot-dip galvanized	= ↓	86.50
	940.009.0017	Lattice box PASCHAL 1200 x 810 x 930 mm		65.00
	940.009.0018	Lattice box small PASCHAL 1200 x 810 x 460 mm	↑ =	50.00
	940.009.0019	Cover for lattice/ transportation box		6.70
	187.500.0163	Rack for LOGO platform bracket		97.50
	287.500.0045	LOGO transport and stacking angle cpl. for 4 LOGO panels (large-size)		67.60
	287.500.0032	LOGO transport angle with base for 2-12 panels		11.40

Parts list (care and consumables)

	Art. no.	Product description	Weight [kg]
	189.003.0011	PASCHAL parting compound P 300 (200 litre barrel)	0.94 kg / l
	189.003.0013	PASCHAL parting compound P 300 (30 litre canister)	0.83 kg / l
	189.003.0009	Parting compound pistol 5 litres	4.30 kg
	189.003.0008	Parting compound pistol 10 litres	5.75 kg
	187.500.0023	LOGO uni carbide scraper 100 x 850 mm	1.20
	680.000.0150	Plug D.21 sinkable PE-LD for panels L/N	0.02

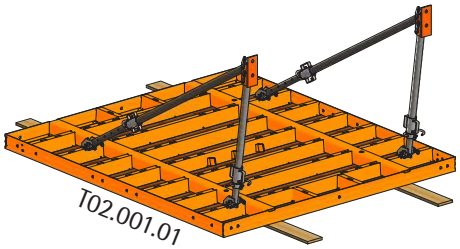
Parts list (tools)

	Art. no.	Product description	Weight [kg]
	187.500.0040	LOGO dismantling aid	6.00
	183.500.0014	Assembly and dismantling tool L/A	3.10
	187.500.0026	LOGO centering piece	0.98
	941.015.0024	Ring open-end wrench angled 24	0.35

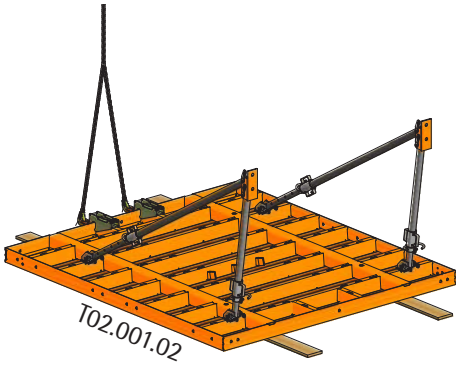
Assembly / dismantling process - Storey-high formwork

The assembly sequence is illustrated for a large-size panel.

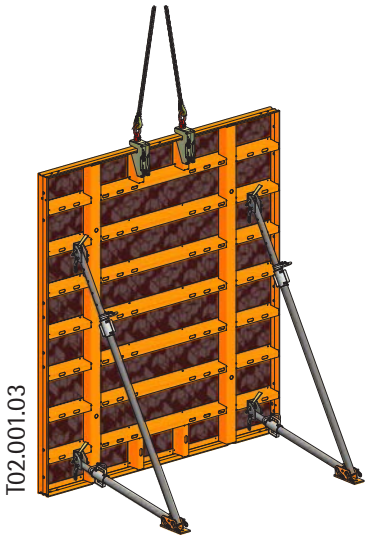
The assembly of smaller panel widths and corner parts or the horizontal pre-assembly of multiple panels adjacent to each other follows the same sequence.



Place the formwork panel on a base (square timber, planks), assemble the adjustable props and foot plates.



Attach crane lifting clamps. Erect the formwork panel and move it to the site.

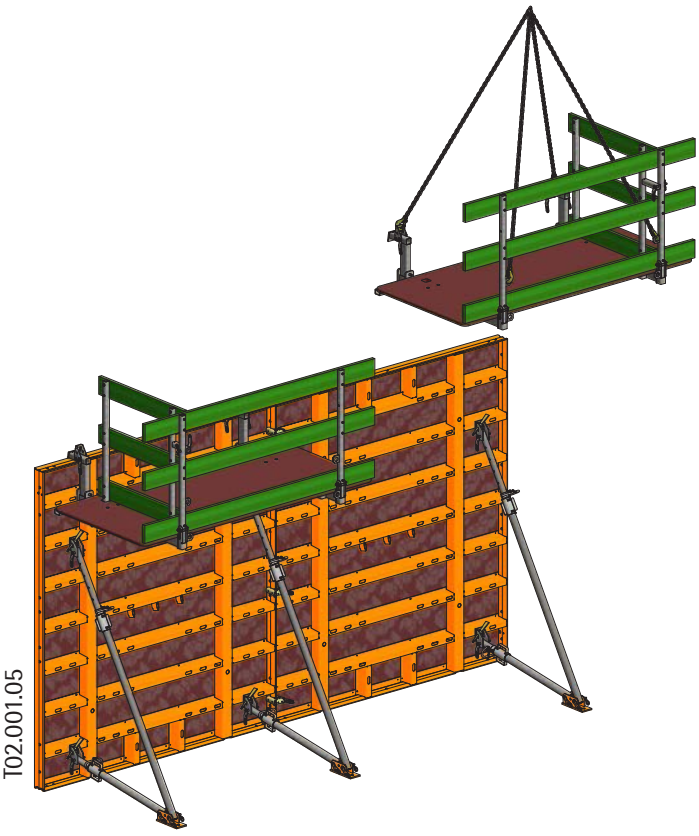


Brace the formwork panel to the assembly surface using the foot plates and align it with the adjustable props. Then release the crane.

Assembly / dismantling process - Storey-high formwork

T02.001.04

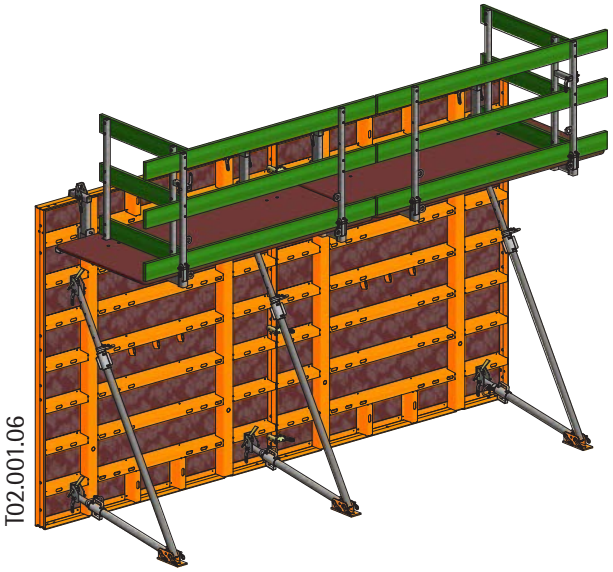
Place the pre-assembled concreting platform on the formwork panel and secure it. (See chapter Concreting platform, page 88)



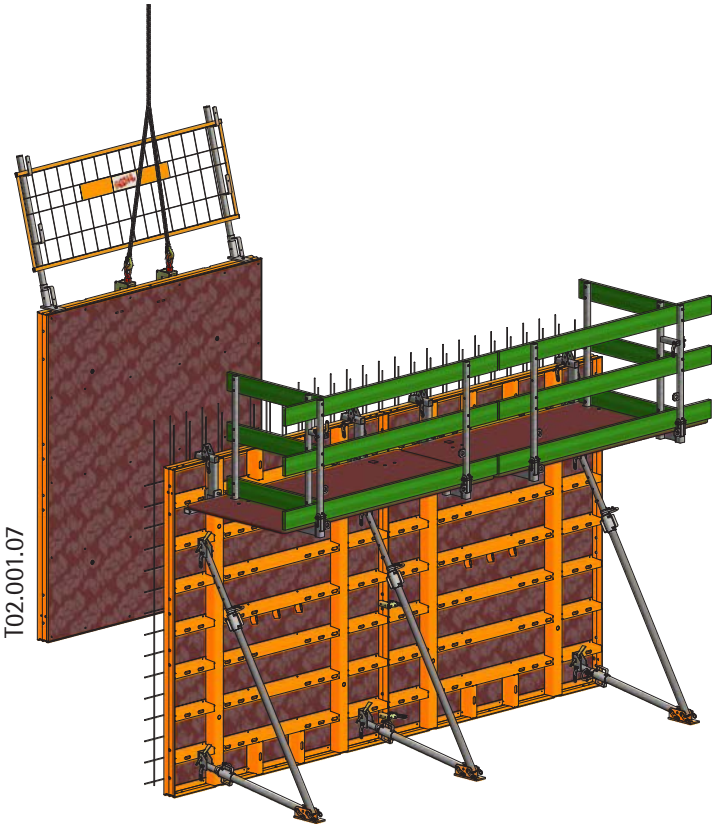
T02.001.05

Attach additional panels with adjustable prop, place the specified number of connecting pieces at the panel joint and complete the panels with the concreting platform.

Assembly / dismantling process - Storey-high formwork



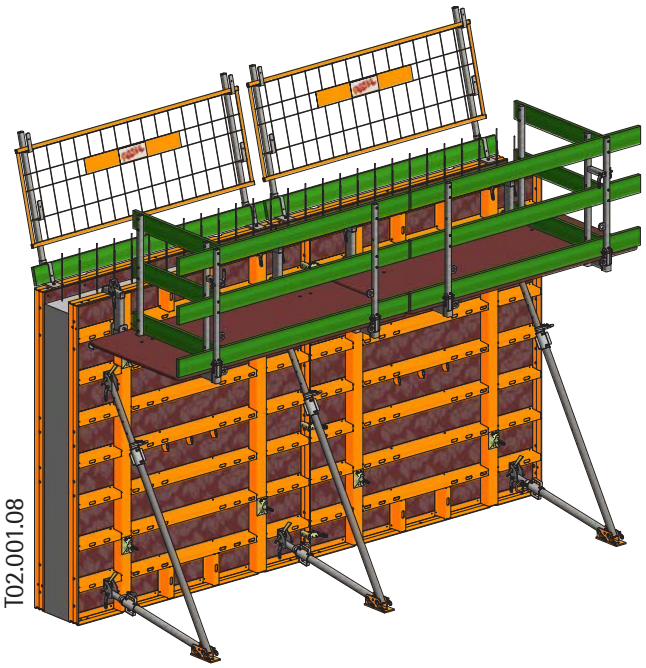
T02.001.06



T02.001.07

Set up the closing formwork with pre-assembled lateral protection on the opposing side and attach all the required tie points with tie rod, sheathing tube and plates with ball-and-socket joint.
Then release the crane.
Add the toe board.
Attach additional panels and fit the specified number of connecting pieces at the panel joints.

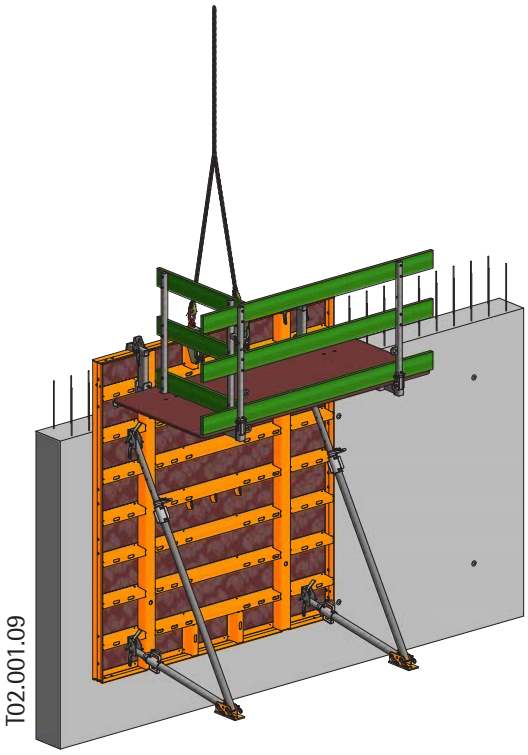
Assembly / dismantling process - Storey-high formwork



T02.001.08

Complete unit with:

- Formwork panels
- Ties
- Connecting pieces
- Adjustable props
- Concreting platforms
- Fall protection on opposing side



T02.001.09

The dismantling process is carried out in reverse order.

Attention:
To secure individual panels or panel units to the concreted wall, enough ties must be left until the crane is attached in order to prevent any panels or panel units from falling over.

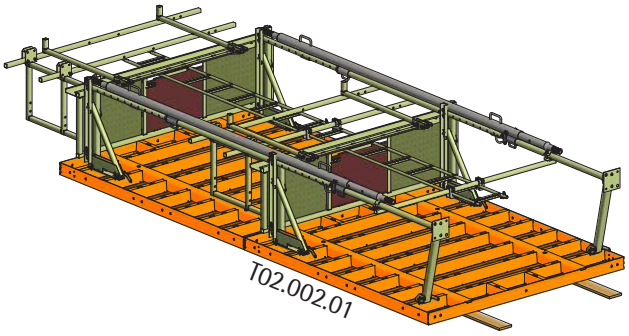
Assembly / dismantling process - Height-extended formwork

The assembly sequence is illustrated for a large-size panel.

The assembly of smaller panel widths and corner parts or the horizontal pre-assembly of several panels adjacent to each other follows the same sequence.

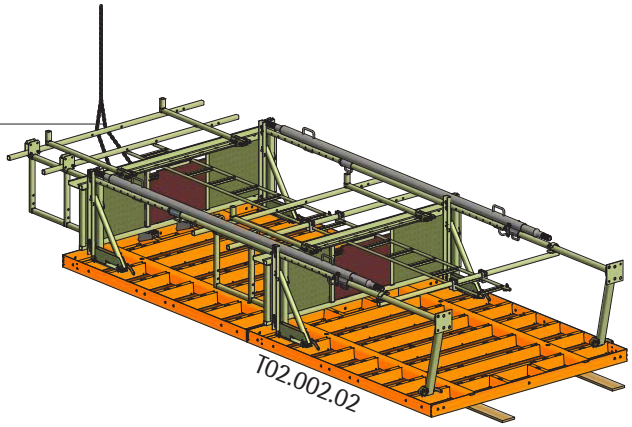
Place formwork panels on a base (square timber, planks).

Pre-assemble the formwork unit with all the necessary connecting pieces as well as multi-walers, platforms (e.g. Multip, p.92f), ladder and adjustable props.

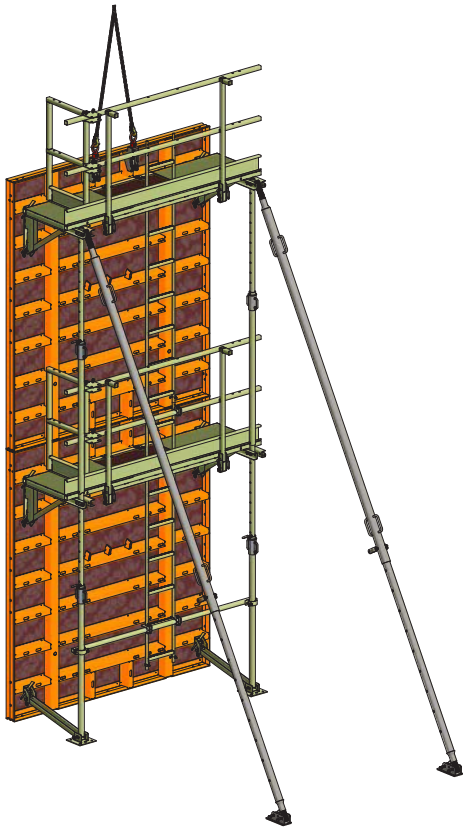


Attach crane lifting clamps, erect the formwork unit and transport it to the site.

The lateral protection absorbs the bending load.

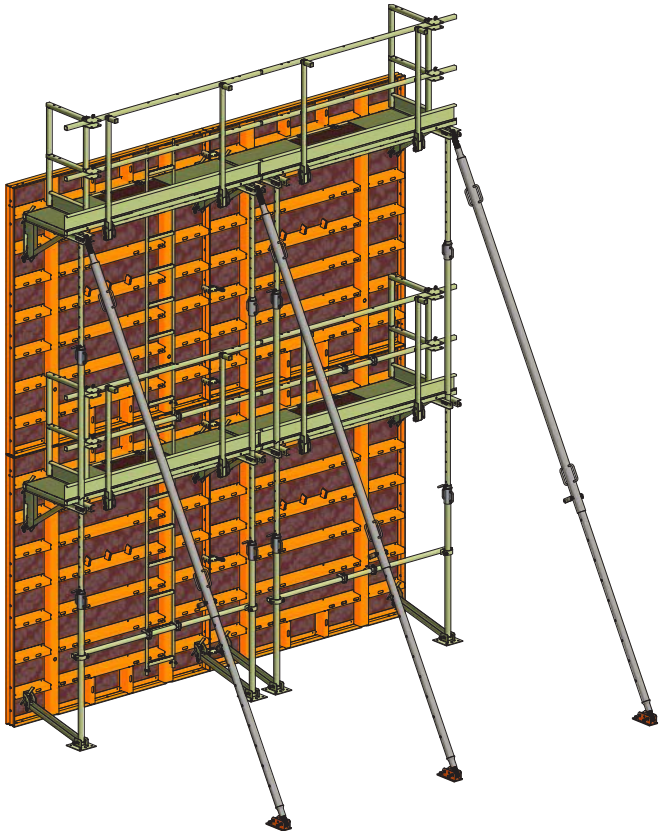


Assembly / dismantling process - Height-extended formwork



T02.002.03

Brace the formwork unit to the assembly surface using the foot plates and align the formwork with the adjustable props. Then release the crane.

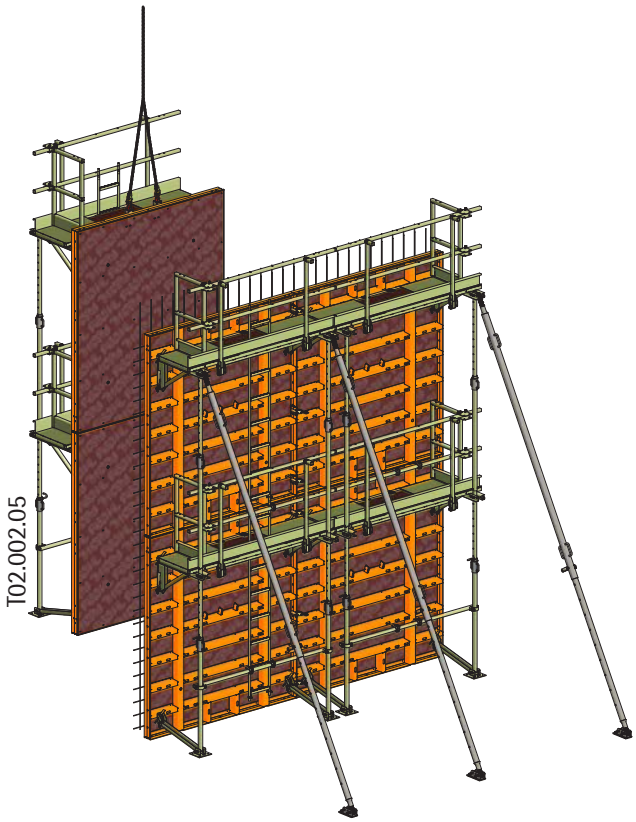


T02.002.04

Attach additional formwork units with adjustable props. Mount the specified number of connecting pieces at the panel joint.

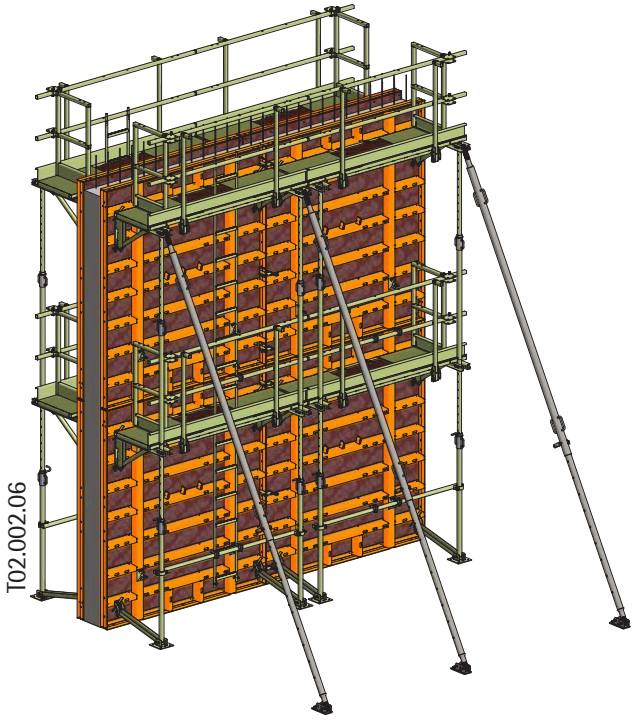
Assembly / dismantling process - Height-extended formwork

Set up the pre-assembled closing formwork with platforms and fit all the required tie points with tie rod, sheathing tube and plates with ball-and-socket joint. Then release the crane. Attach additional panels and mount the specified number of connecting pieces at the panel joints.

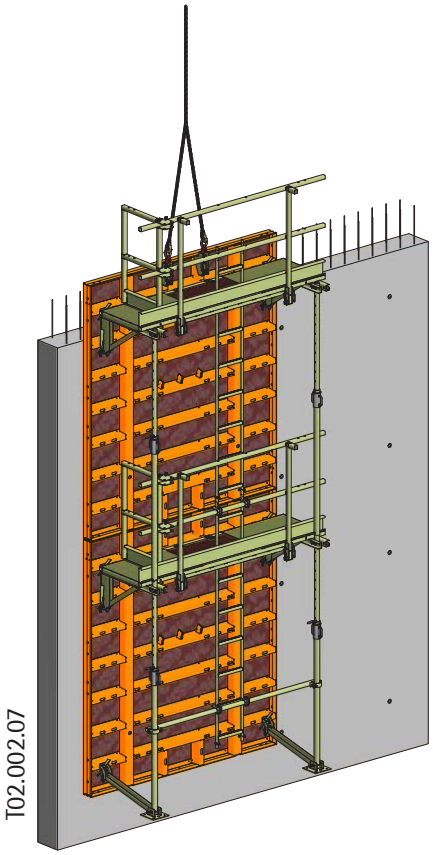


Complete unit with:

- Formwork panels
- Ties
- Connecting pieces
- Adjustable props
- Concreting platform, intermediate platforms
- Ladders



Assembly / dismantling process - Height-extended formwork



T02.002.07

The dismantling process is carried out in reverse order.

Attention:
To secure individual panels or panel units to the concreted wall, enough ties must be left until the crane is attached in order to prevent any panels or panel units from falling over.

Wedge clamp with curved wedge

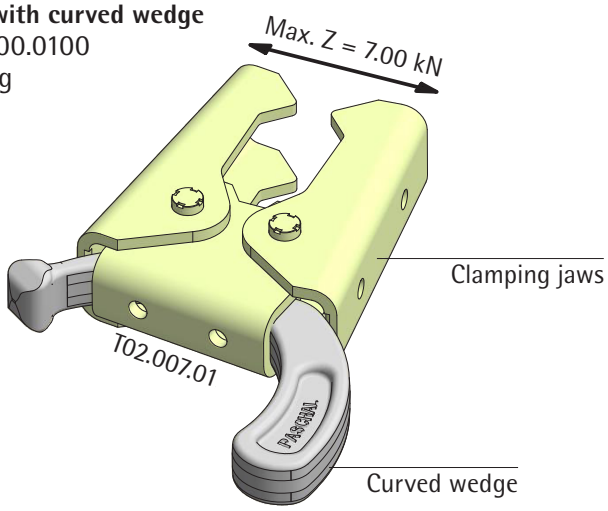
The wedge clamp with curved wedge must be used to connect the panels and corners to each other. The wedge clamp is closed and opened with a formwork hammer. For a tight and aligned joint, the clamping jaws must engage in the flange of the panel frames and the wedge must be hammered in firmly.

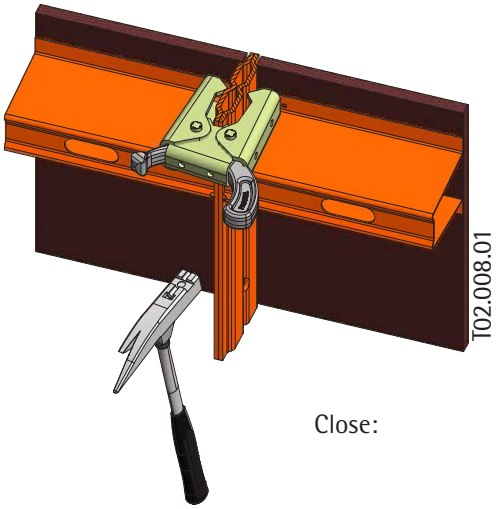
Attention:
Always place the wedge clamps directly above or below the cross profiles in the panels. The clamping jaws must not engage in the
holes in the panel frame.

The number and position of the required wedge clamps depending on the different panel heights or widths is shown for the standard applications on the opposite page.

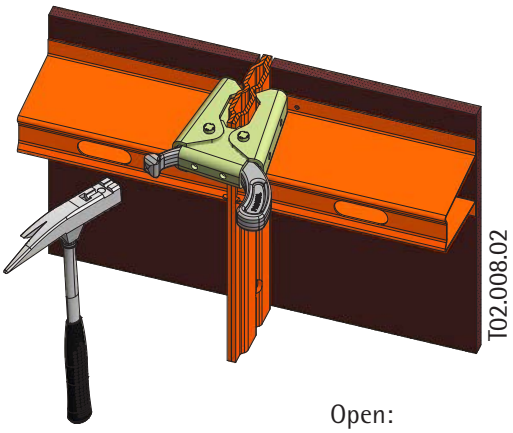
Attention:
An increased number of wedge clamps is required in the following areas:
- Corners (p. 52 ff.)
- Last joint before stop end (p. 66 f.)
- Unanchored panel joints (p. 51)

Wedge clamp with curved wedge
Art. no.: 187.500.0100
Weight: 1.80 kg





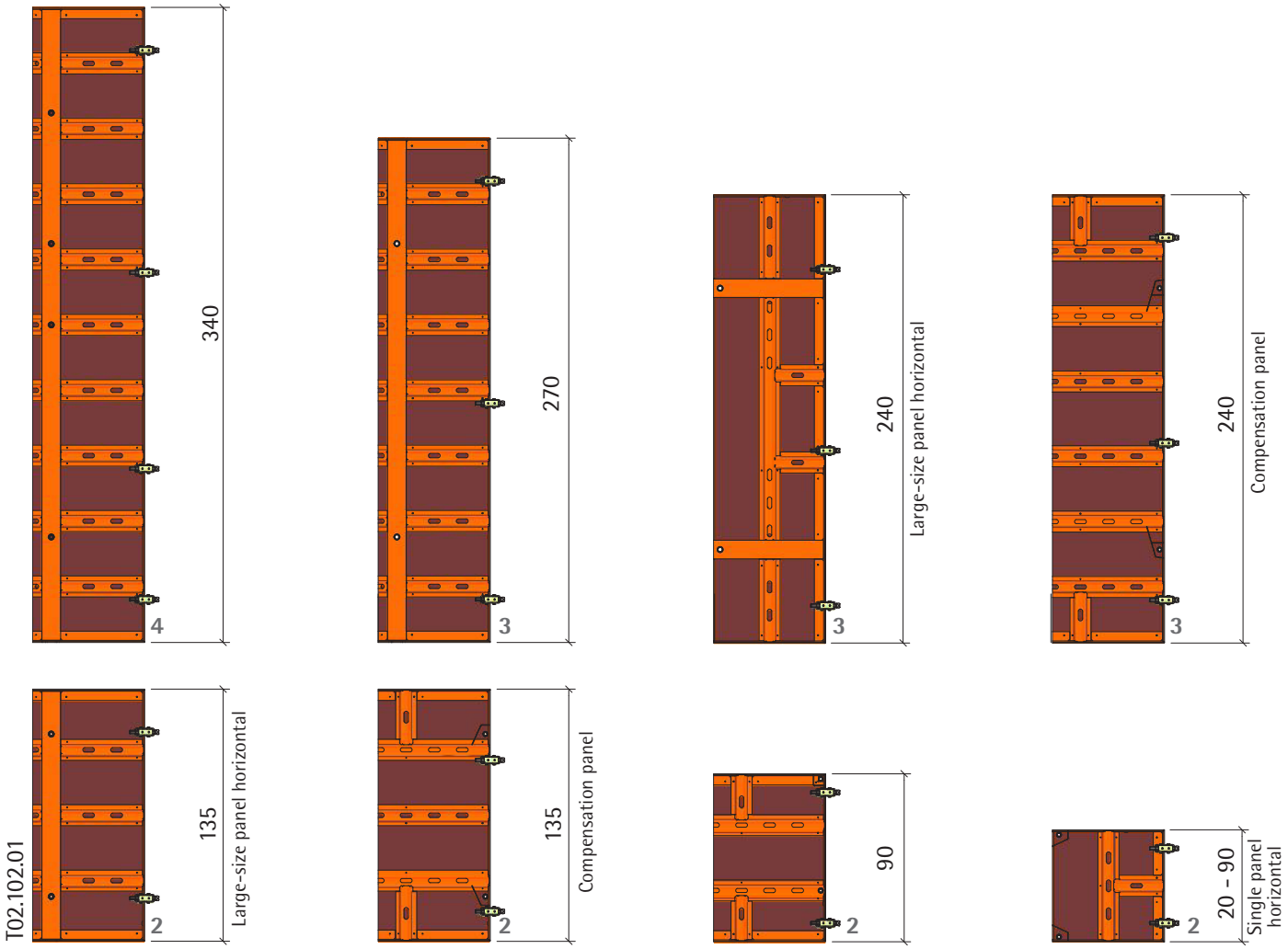
Close:



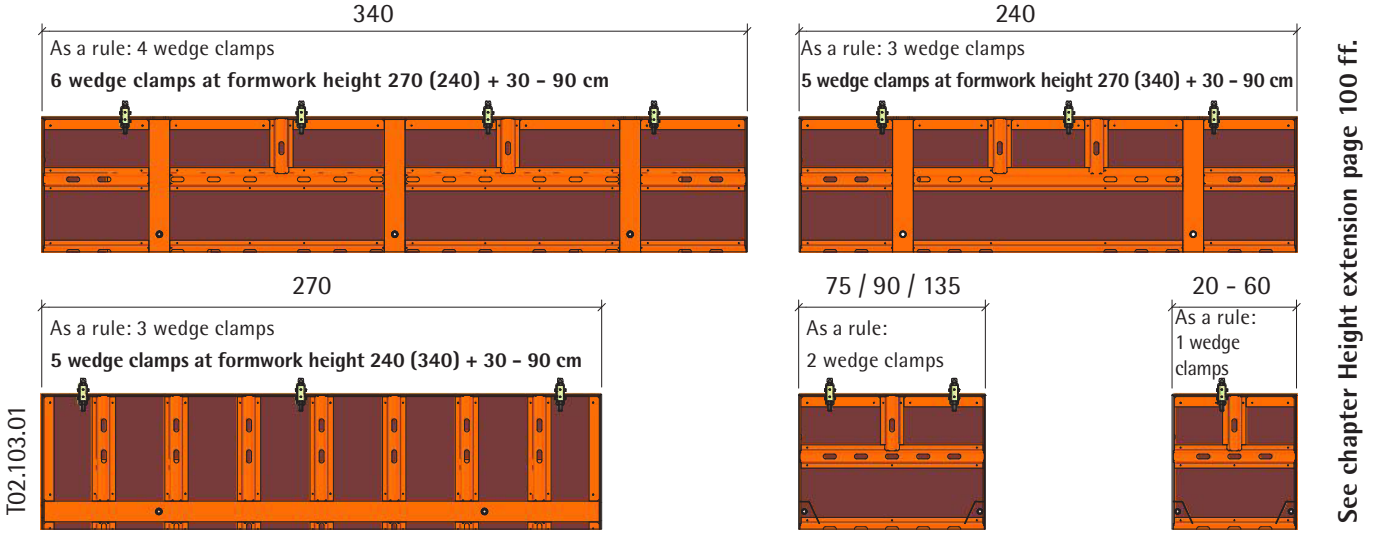
Open:

Arrangement of wedge clamps with curved wedge

Panel heights:



Panel widths:



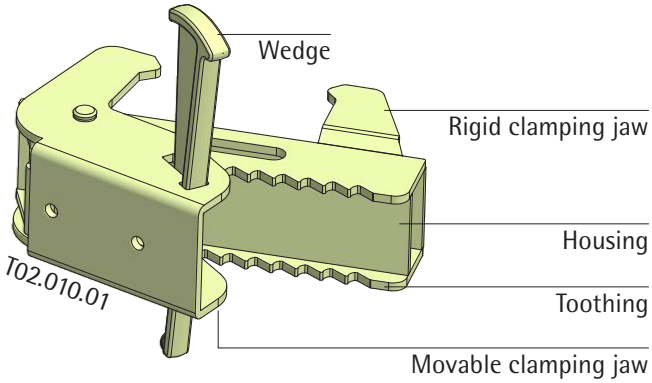
See chapter Height extension page 100 ff.

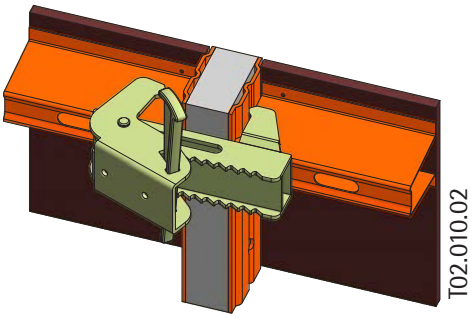
Multi-clamp

As a connecting piece, the multi-clamp allows the installation of fillers between two panels. Two clamps with adjustment ranges of 0 – 10 cm and 0 – 20 cm are available for this purpose.
In the case of vertical panels, assembly is always carried out on a cross profile so that the clamps engage in the flange of the panel frame above and below the cross profile.

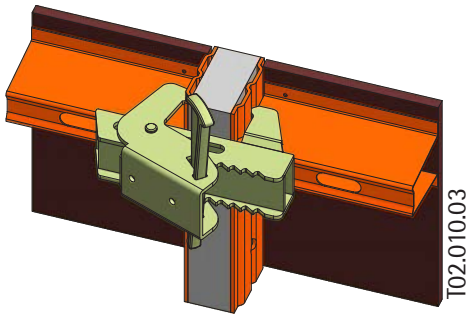
Multi-clamp 0 – 10 cm
Art. no.: 187.500.0004
Weight: 5.30 kg

Multi-clamp 0 – 20 cm
Art. no.: 187.500.0175
Weight: 6.50 kg

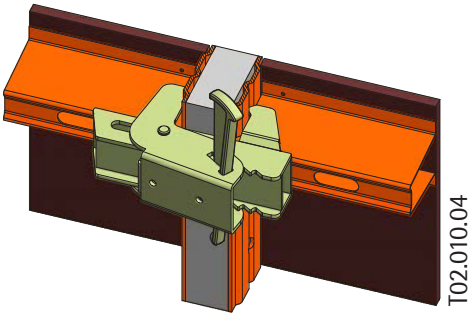




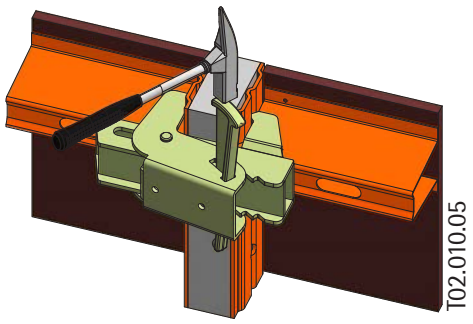
1. Open clamp with wedge upwards.



2. Place the housing on the cross profile and the rigid clamping jaw (right) in the flange of the panel frame.

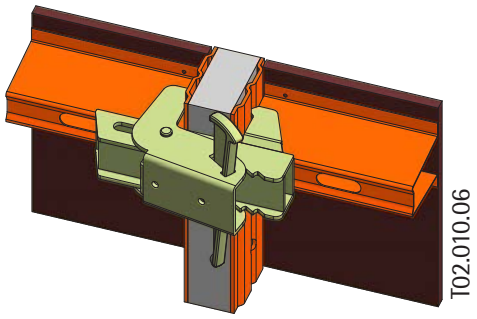


3. Push the movable clamping jaw (left) into the flange of the panel frame; the wedge turns inwards.



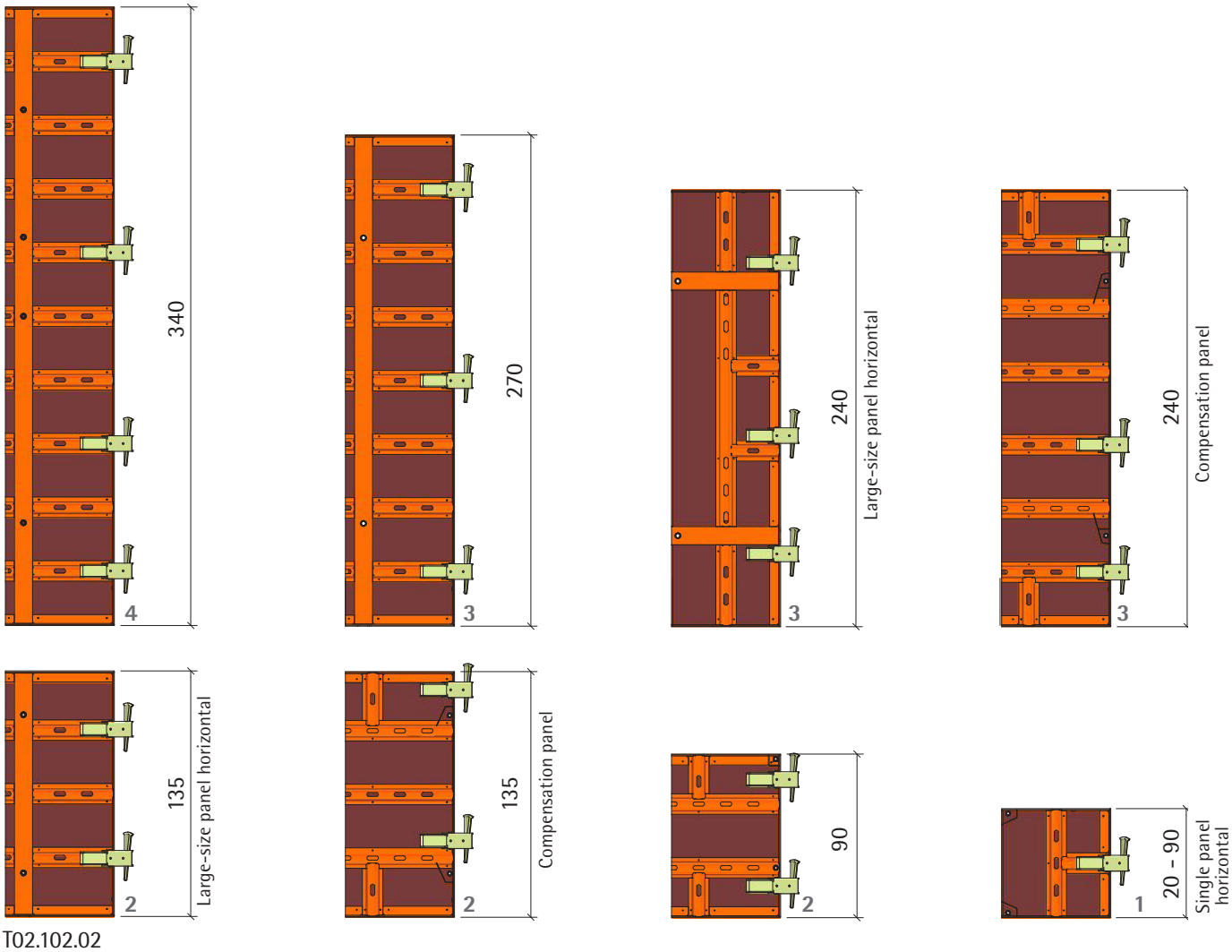
4. Hammer the wedge down firmly in the toothing of the housing.

Arrangement of multi-clamps



5. Fixed multi-clamp

Number and position of multi-clamps depending on the panel height:



T02.102.02

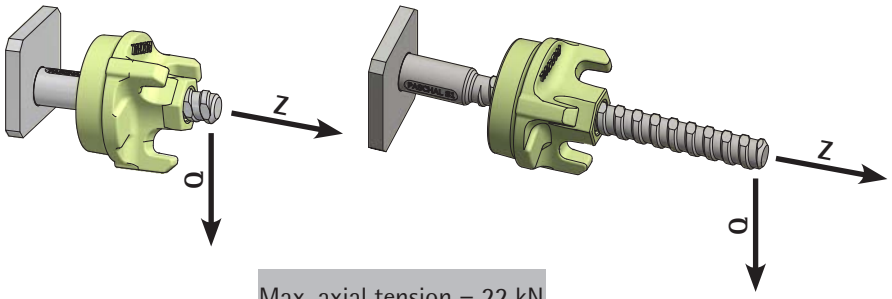
Locking screw

The DW 15 x 215 locking screw cpl. can be used for various panel connections and for mounting accessories (adjacent page).

It can replace the wedge clamp with curved wedge and the multi-clamp.

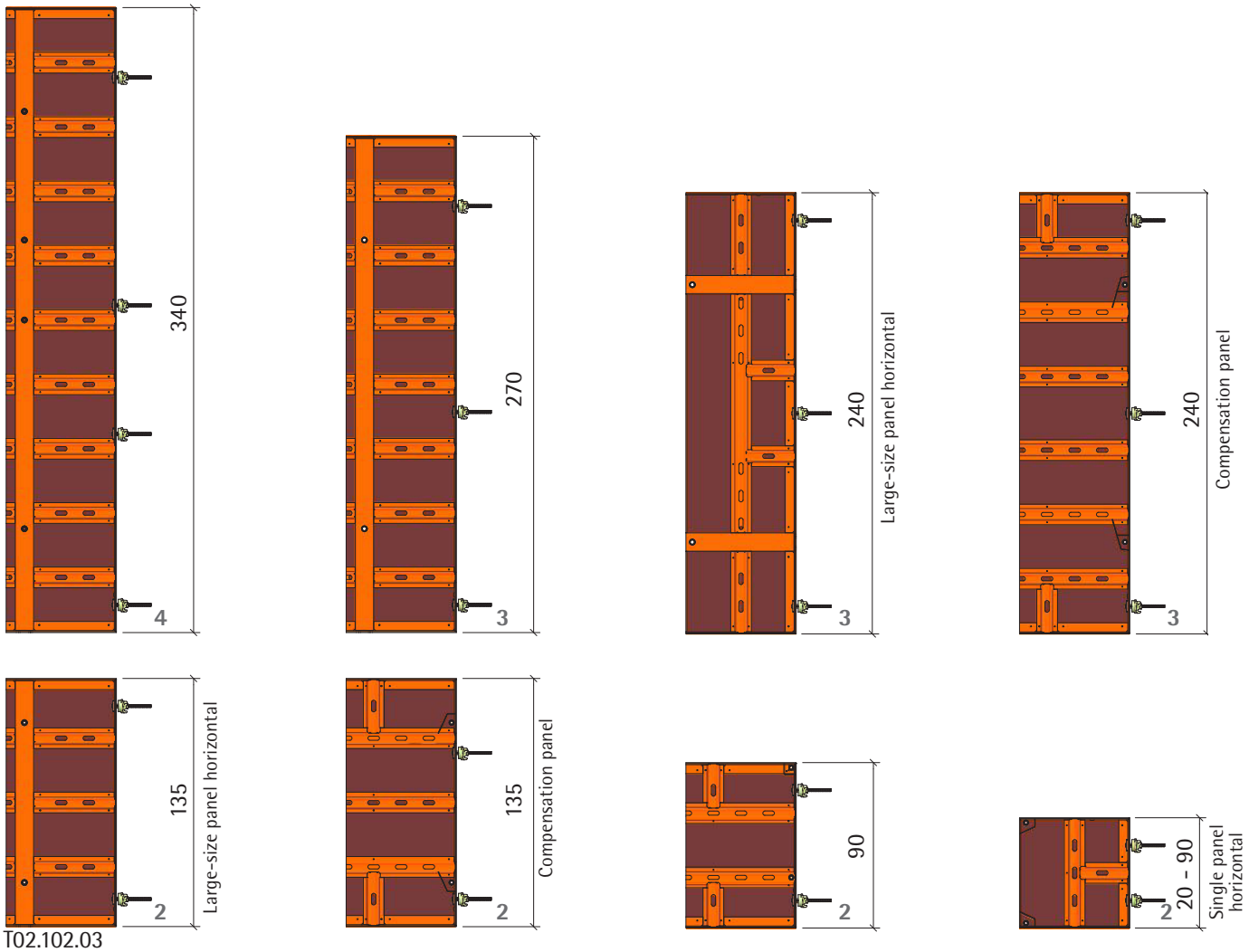
Locking screw DW 15 x 100 cpl.
Art. no.: 187.500.0106
Weight: 1.00 kg

Locking screw DW 15 x 215 cpl.
Art. no.: 187.500.0002
Weight: 1.10 kg



Max. axial tension = 22 kN
Max. shear force = 20 kN

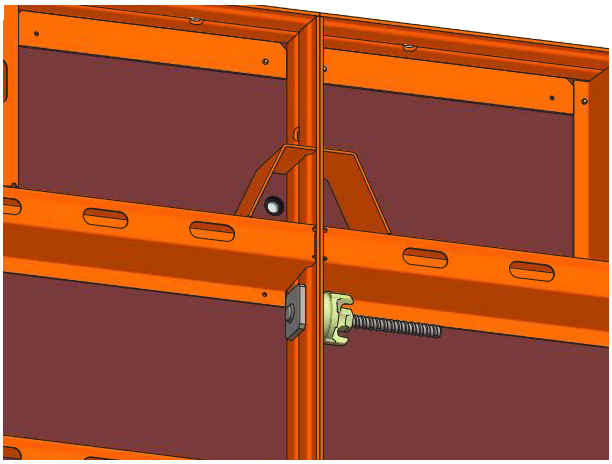
Number and position of locking screws as panel connection depending on the panel height:



T02.102.03

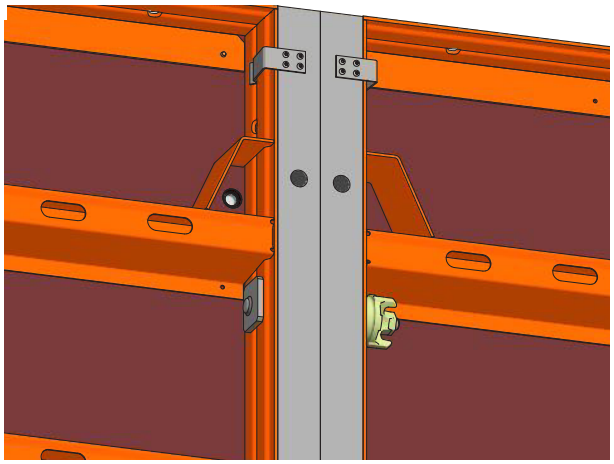
Locking screw applications

T02.012.02



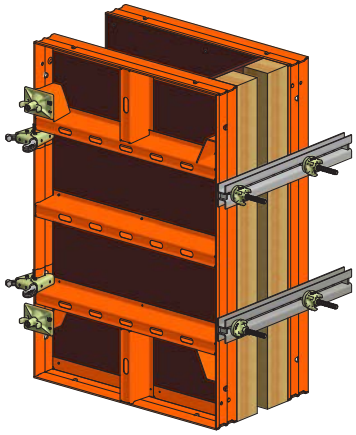
1. Connection of two panels instead of wedge clamp or multi-clamp.

T02.012.03



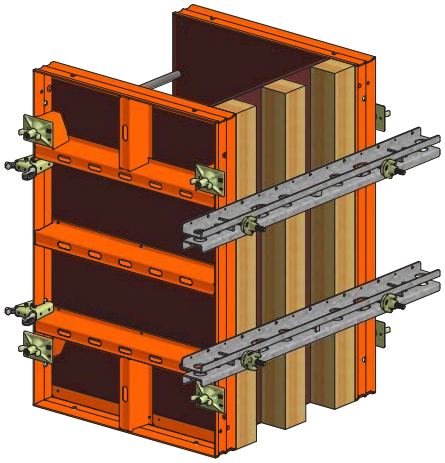
2. Connection of two panels with compensations up to 12 cm width (page 63).

T02.012.06



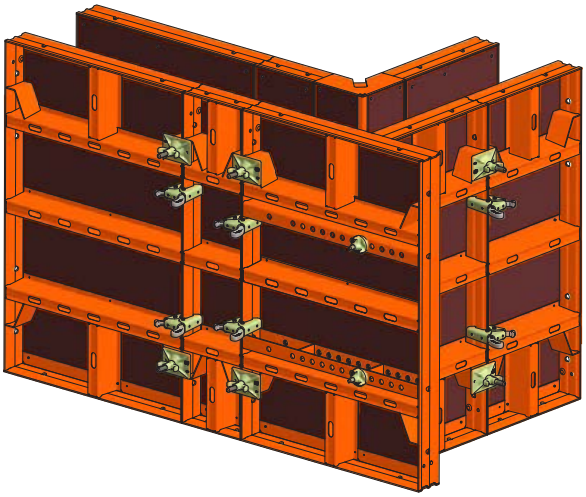
3. Screwing of the spacer channel for stop ends (page 66 f.)

T02.012.07



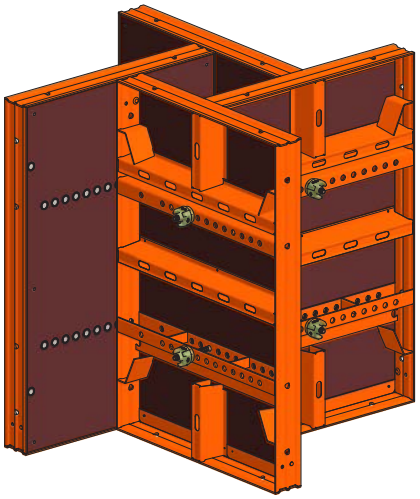
4. Screwing of the multi-waler at stop ends (page 67).

T02.020.01



5. Connection of a compensation panel - multi-panel at corners (page 52 f.)

T02.012.04

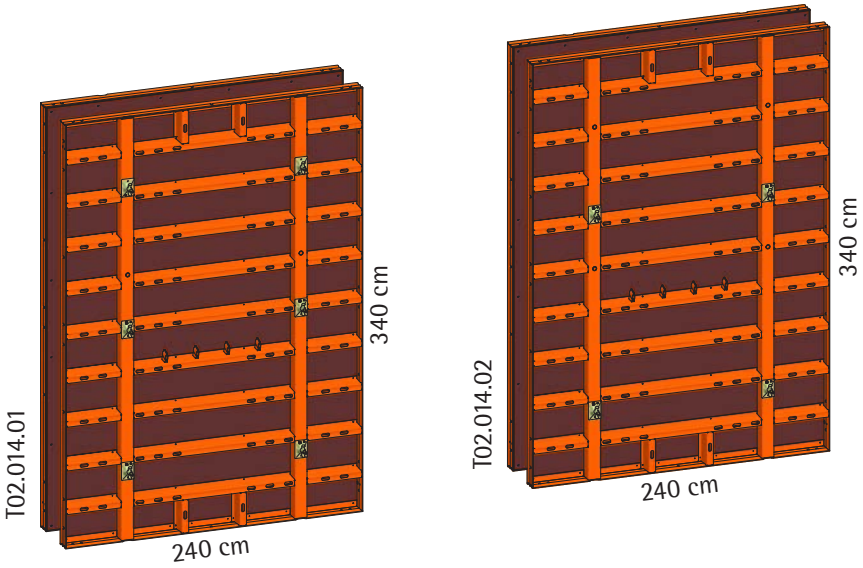


6. Multi-panel-to-multi-panel connection for columns (page 127).

Tie point arrangement

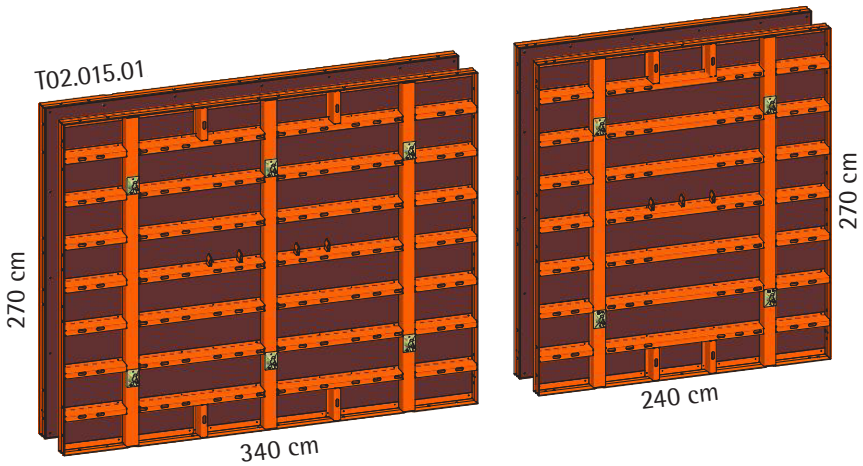
The 240 cm x 340 cm panel can be tensioned either six times or four times.

Attention:
Six ties are always required for height extensions.



The 340 cm x 270 cm panel is tensioned six times.

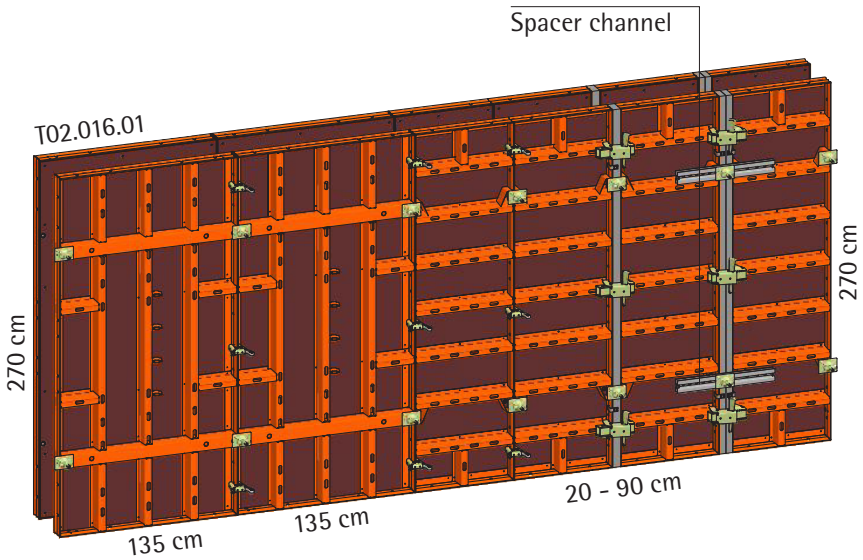
The 240 cm x 270 cm panel is tensioned four times.



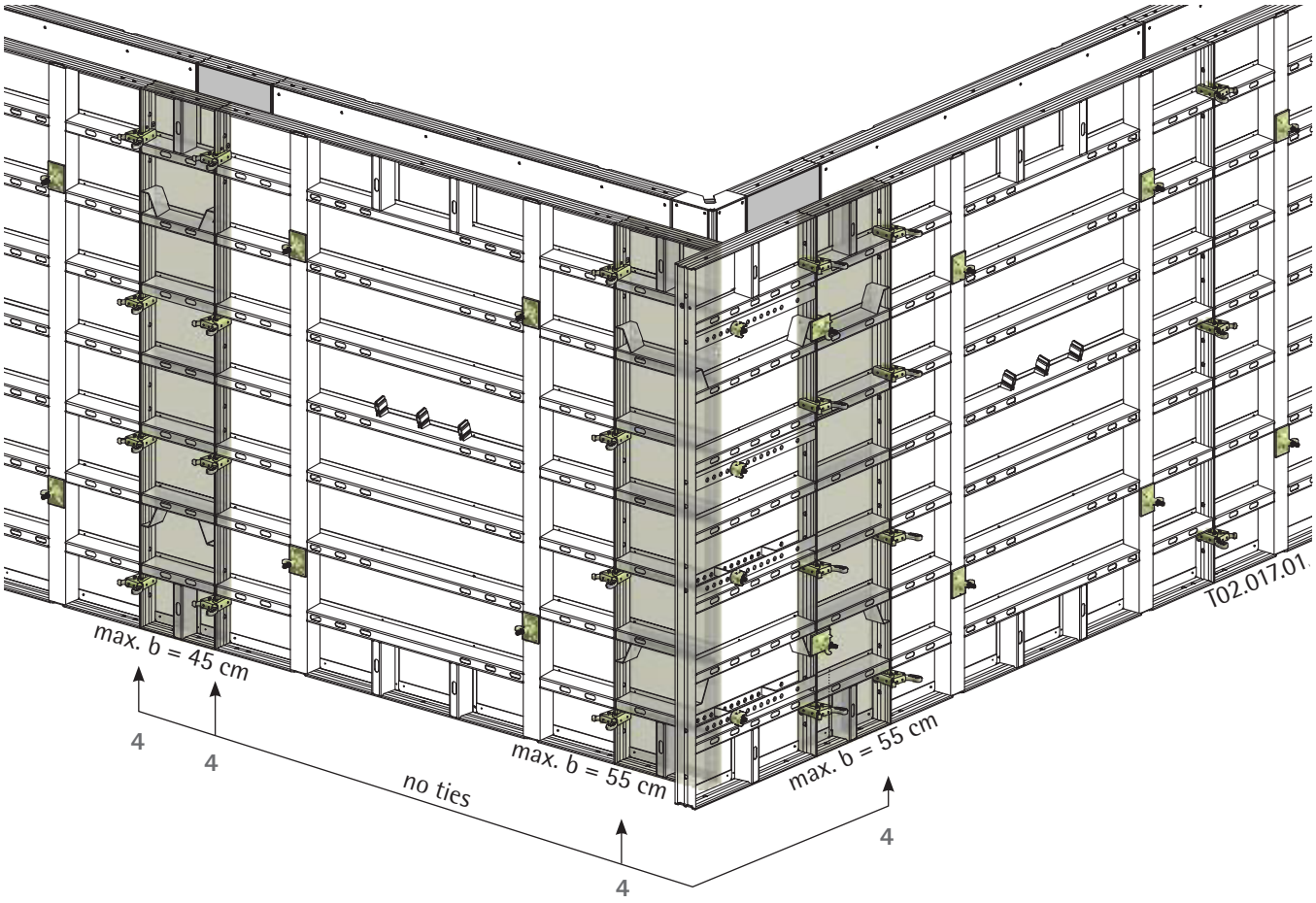
For panel widths <= 135 cm, tensioning is carried out to the left or right of the panel joint.

Attention:
The plate with ball-and-socket joint must always cover the frames of the adjacent panels. If large fillers are necessary at the panel joint, an additional spacer channel is required between the formwork panels and the plate with ball-and-socket joint.

When connecting to existing walls, see (pages 58ff).



Tie point arrangement



4 = 4 wedge clamp

Attention:
Valid only for concreting heights < 270 cm. For concreting heights > 270 cm, the joints between the large-size panel and the compensation panel must also be tensioned!

At the joint between a large-size panel (inner tie points) and a compensation panel (small panel width with outer tie points), ties can be dispensed with in the following cases:

1. **A panel with a maximum width of 55 cm can be connected to a large-size panel on one side.**

2. **A panel with a maximum width of 45 cm can be fitted between two large-size panels.**

The number of required connecting pieces in the form of wedge clamps with curved wedge shall be increased to 4. The use of plastic fillers or other fillers is not permitted at the joints as described under 1. and 2.

90° corner (multi-panel)

There are two system solutions for forming right angles (90° corners):

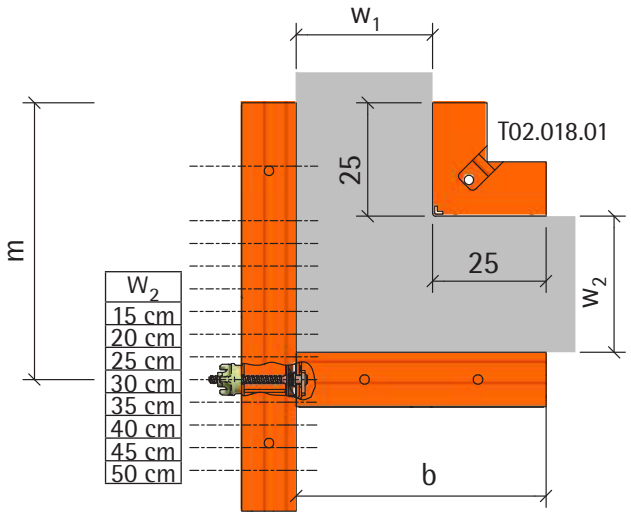
- Outside corner (page 54 f.)
- Multi-panel

The inside corner and compensation panels are used together with the multi-panel. The width b of the compensation panel depends on the wall thickness w_1.

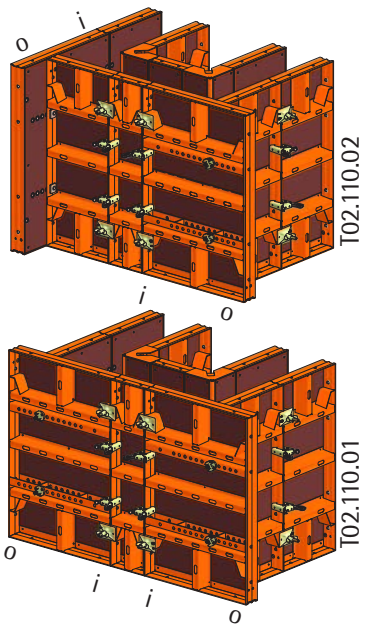
Locking screws are used to connect the multi-panel directly to the compensation panel via integrated hole profiles. The hole pattern in the multi-panel is 5 cm, allowing wall thicknesses w_2 to be set there at the same distance from 15 cm to 50 cm.

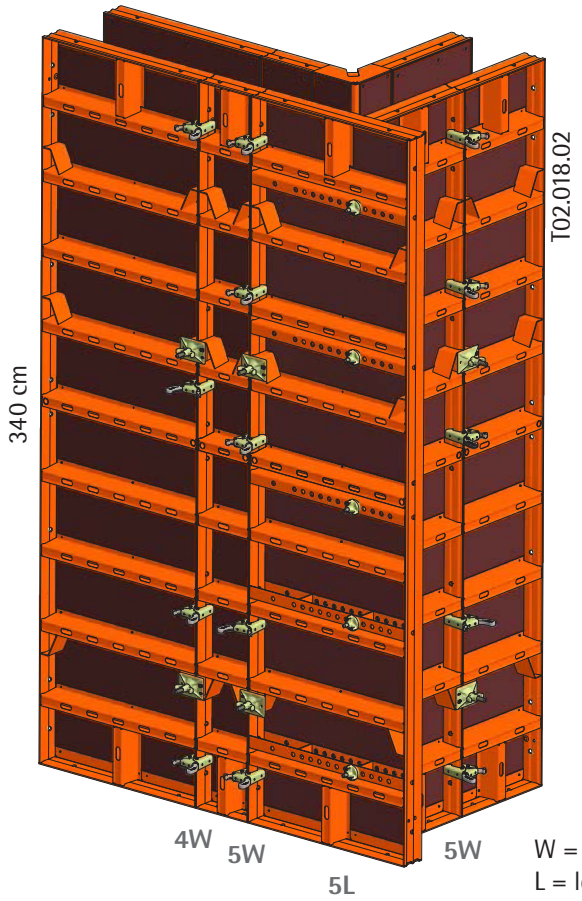
Attention:
For storey-high panels 340 cm, 270 cm and 240 cm, pay attention to the increased number of required connecting pieces at the first outside joint in each case, in order to better distribute the tensile forces in the formwork.

Note:
The multi-panel is not symmetrical. It must be arranged in such a way that the continuous 5-hole perforation is always at the outer side.



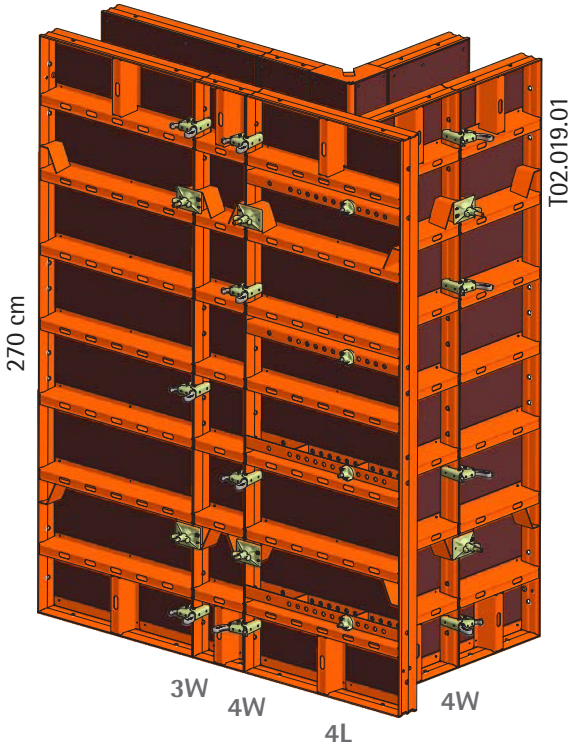
Compensation panel width	$b = w_1 + 25$ cm
Distance between frame / screw connection	$m = w_2 + 31$ cm

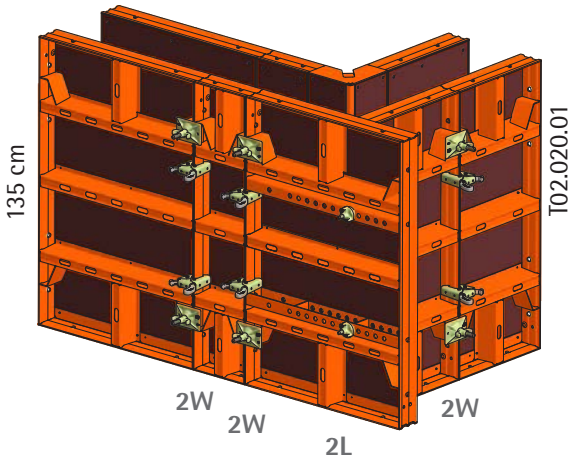


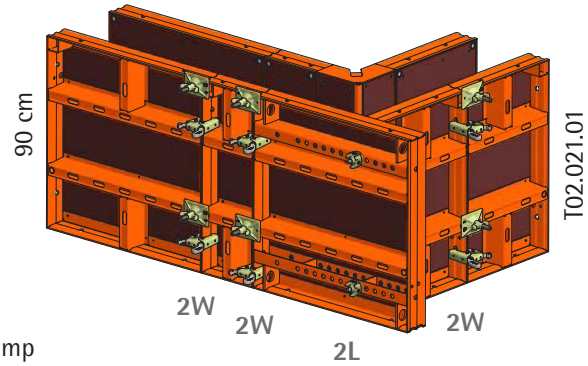


W = wedge clamp
L = locking screw

90° corner (multi-panel)



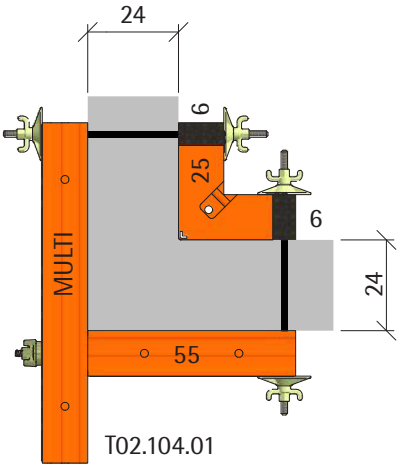




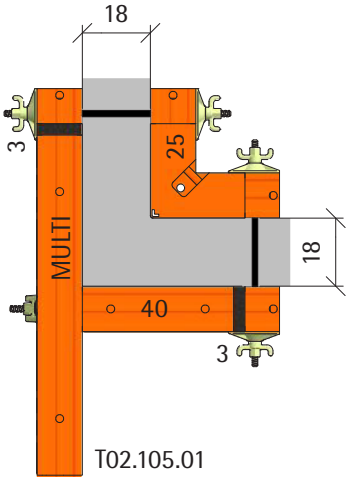
W = wedge clamp
L = locking screw

For wall thicknesses beyond the 5 cm pattern, appropriately wide plastic fillers can be used at the first inside or outside joint to bring the multi-panel into the correct position for the screw connection.

Example 1:
Wall thickness 24 cm



Example 2:
Wall thickness 18 cm



90° corner (outside corner)

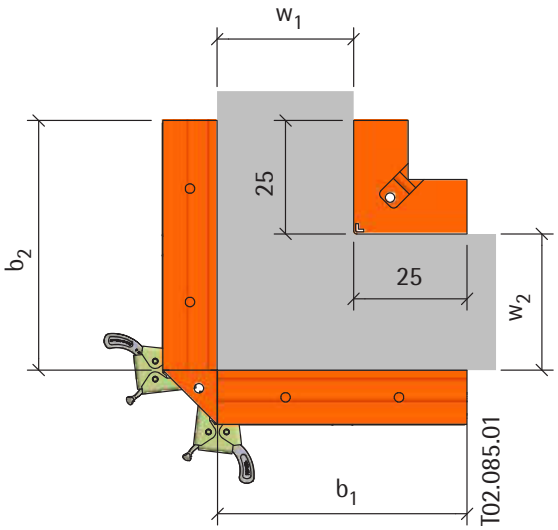
There are two system solutions for forming right angles (90° corners):

- Multi-panel (page 52 f.)
- Outside corner

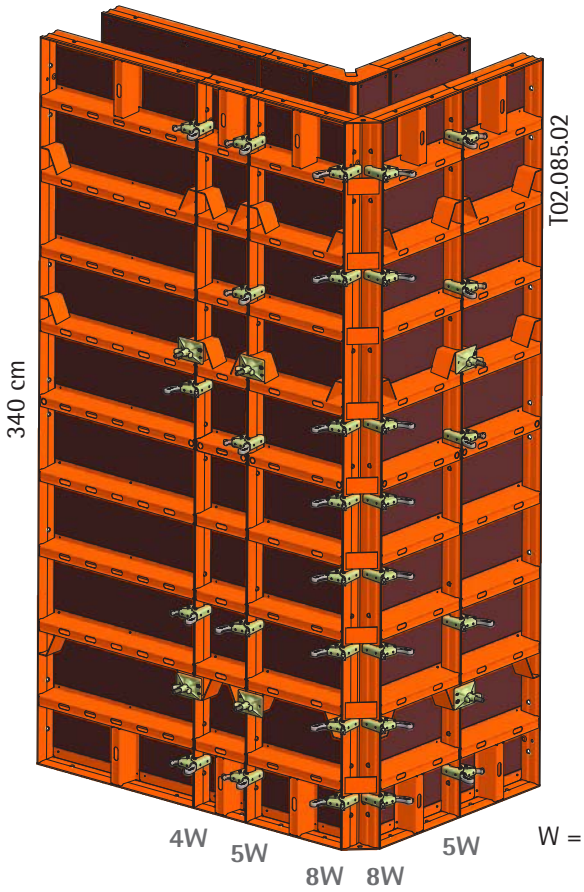
The inside corner and two compensation panels are used together with the outside corner. The compensation panels widths depend on the wall thicknesses w1 and w2 to be formed.

The compensation panels are connected to the two legs of the outside corner by means of wedge clamps.
Since there are different compensation panels in 5 cm increments, the usual wall thicknesses can therefore be formed at the same distance.

Attention:
For storey-high panels 340 cm, 270 cm and 240 cm, pay attention to the increased number of required connecting pieces at the first outside joint in each case, in order to better distribute the tensile forces in the formwork.

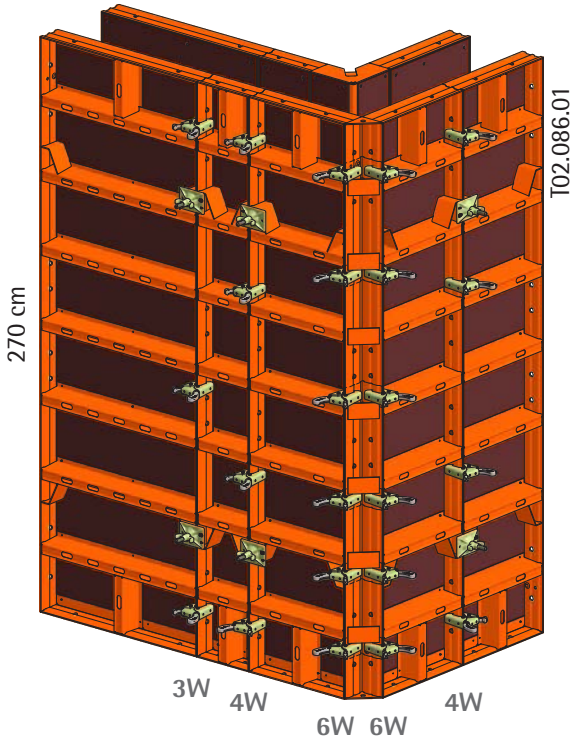


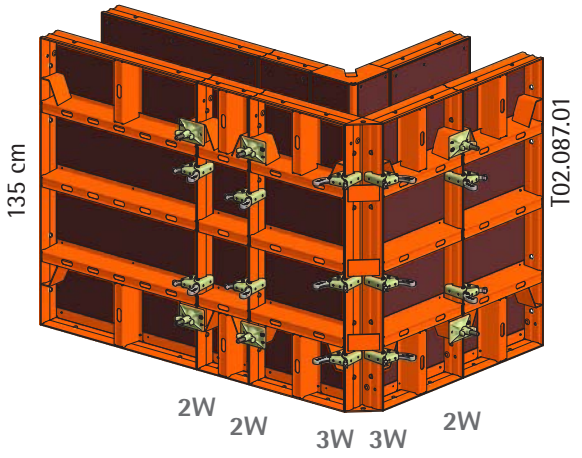
Compensation panel widths	b1 = w1 + 25 cm
	b2 = w2 + 25 cm

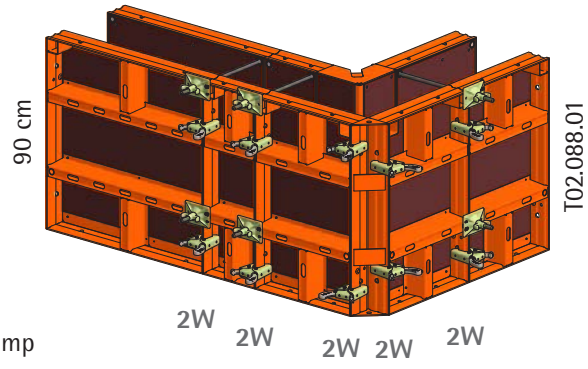


W = wedge clamp

90° corner (outside corner)



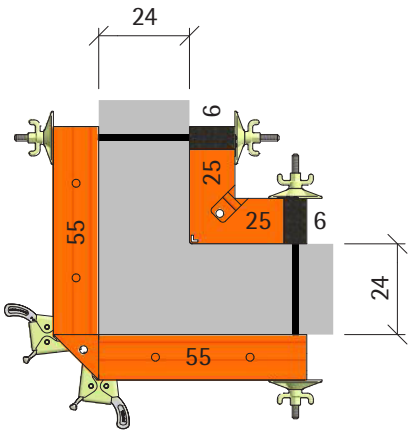




W = wedge clamp

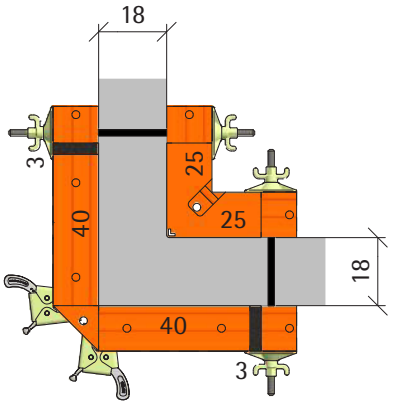
For wall thicknesses beyond the 5 cm pattern, appropriately wide plastic fillers can be used on the outside or inside of the first panel joint to make the opposite sides flush.

Example 1:
Wall thickness 24 cm



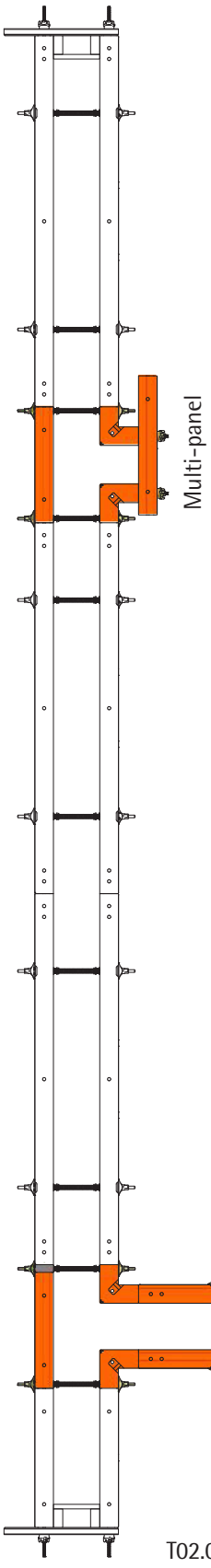
T02.106.01

Example 2:
Wall thickness 18 cm

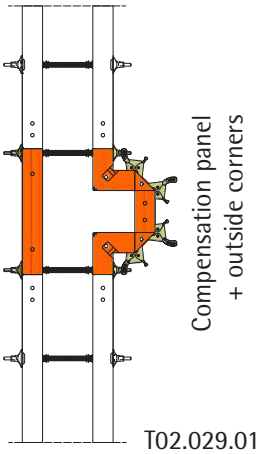


T02.107.01

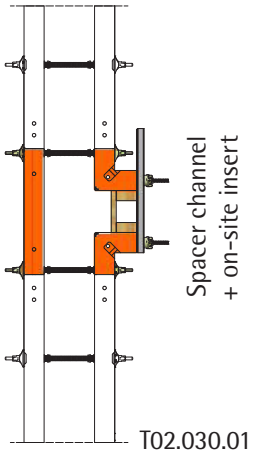
T-wall / pilaster strip



Pilaster strip
See also chapter Stop end (page 66 f.)

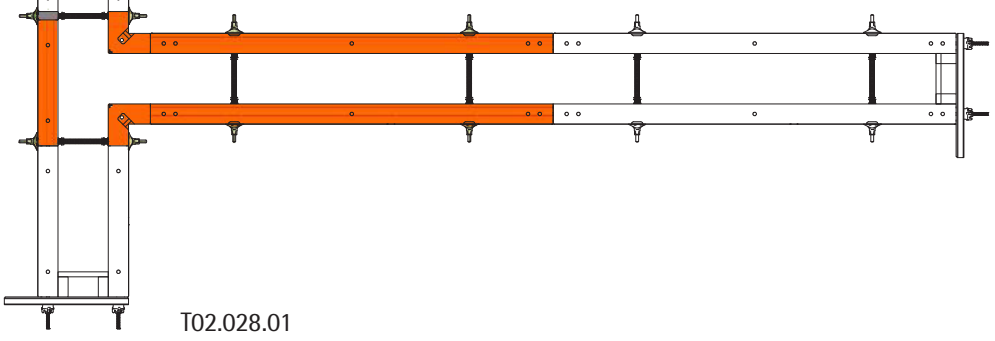


T02.029.01



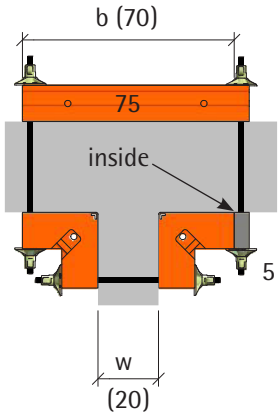
T02.030.01

T-wall:

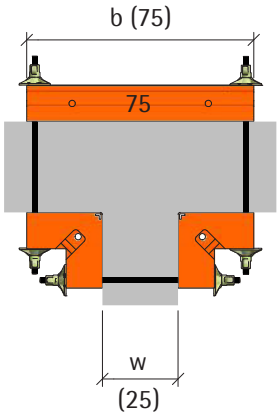


T02.028.01

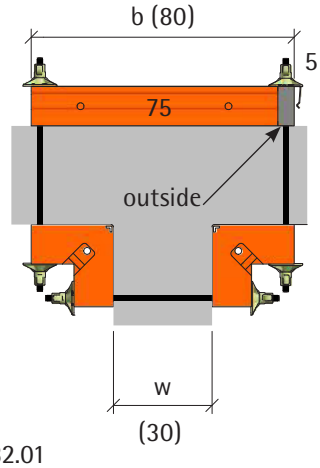
T-wall / pilaster strip



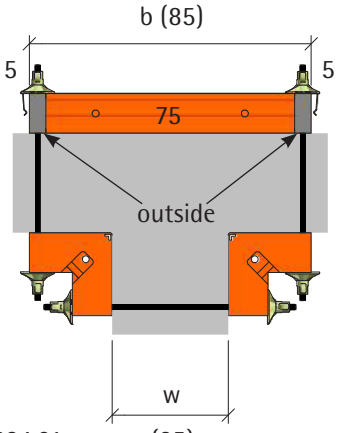
T02.033.01



T02.031.01



T02.032.01



T02.034.01

In the case of connections to existing walls and pilaster strips, inside corners must be provided on both sides of the component facing outwards at right angles.

On the opposite side, the width b of the compensation panel to be arranged depends on the leg length of the inside corners (25 cm) and the wall thickness w of the component:

b = w + 2 x 25 cm

If this calculation does not result in a available panel width, plastic fillers can be added on the inside or outside. If two fillers are required for larger differences, these should be distributed on both sides of the connecting component.

w [cm]	b [cm]	Panels [cm]
15	65	60 + (5 outside)
20	70	75 + (5 inside)
24	74	75 + (1 inside)
25	75	75
30	80	75 + (5 outside)
35	85	75 + (5 + 5 outside)
36.5	86.5	75 + (5 + 6 outside)
40	90	90
b = w + 2 x 25 cm		

Connection to existing walls

For connections at right angles to existing walls, there are various possibilities for arranging the formwork panels with the required ties.

1. **Panel 240 x 270 cm (or 340 x 270 cm):**
   Here, the inner tie holes are used and the panel is set flush against the existing structure.

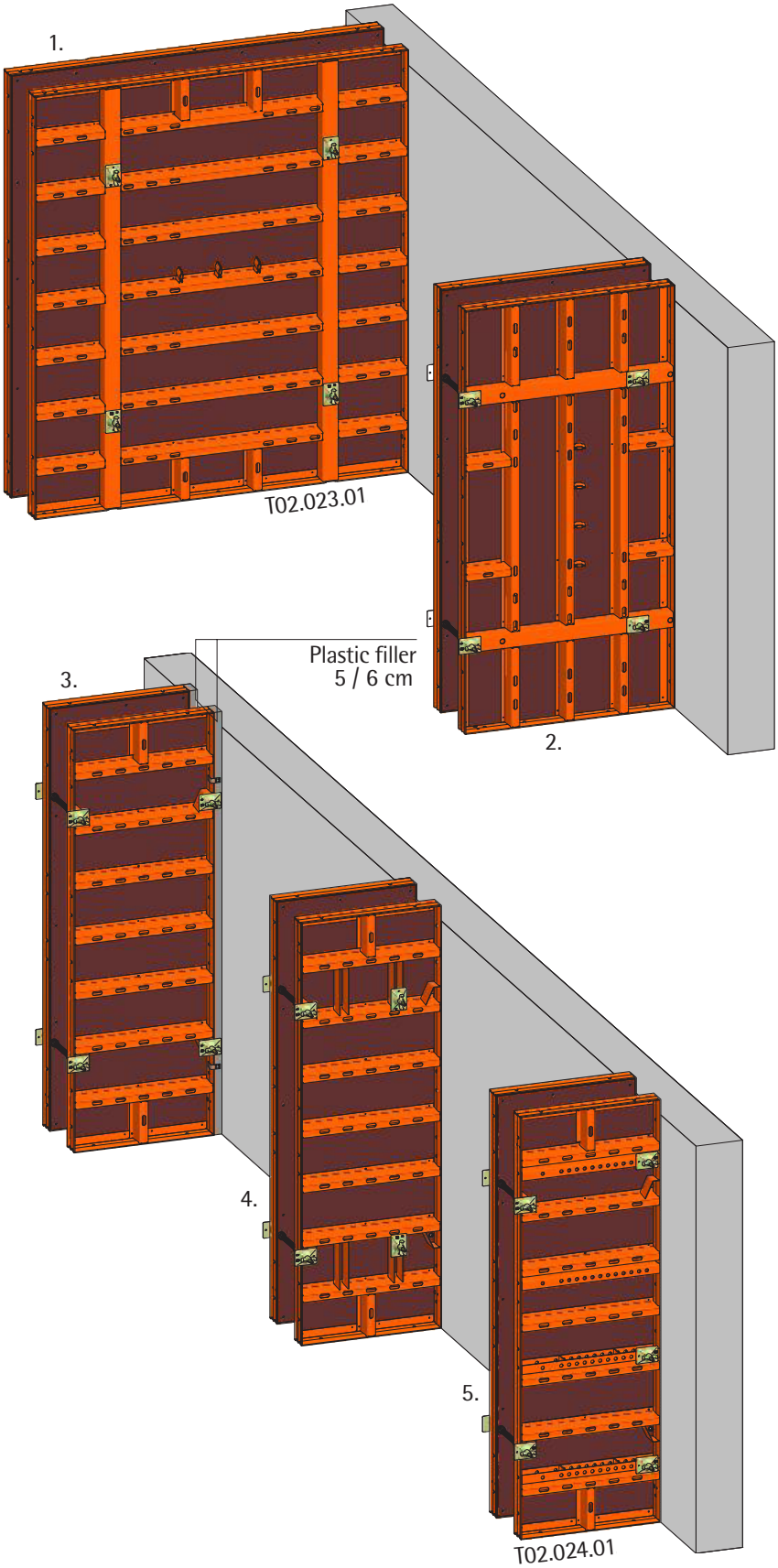
2. **Midi-panel or 135 x 270 cm:**
   On the side of the connection, the inner tie hole is used. At the next panel joint, the outer one is used.

3. **Panel widths <= 90 cm:**
   The panel widths <= 90 cm have external tie holes. A plastic filler must be fitted between the panel and the existing structure to create the necessary space for the plate with ball-and-socket joint.

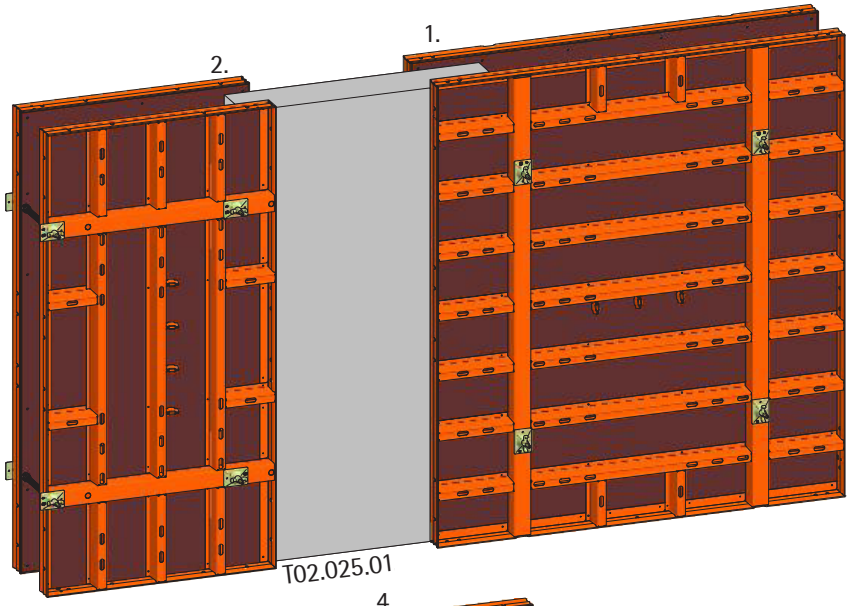
4. **Panel 270 x 90 cm with internal tie holes:**
   On the side of the connection, the inner tie hole is used. At the next panel joint, the outer one is used (see Midi-panel).

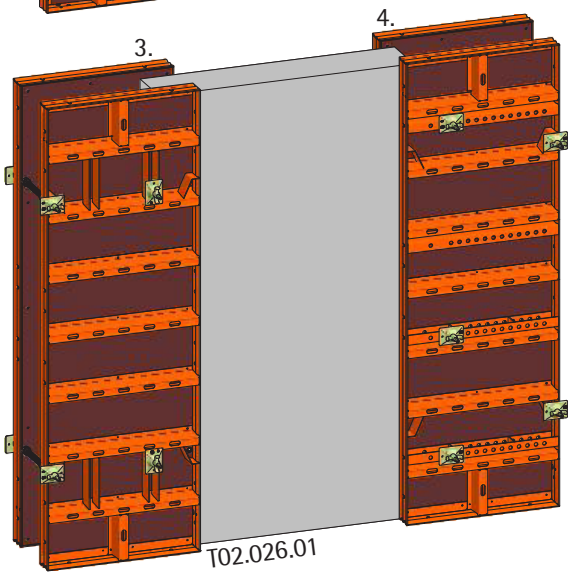
5. **Multi-panel 90 x 270 cm:**
   On the side of the connection, the additional perforated strips of the panel can be used to place tie rods (here three to the height). At the next panel joint, tensioning through the usual tie hole.

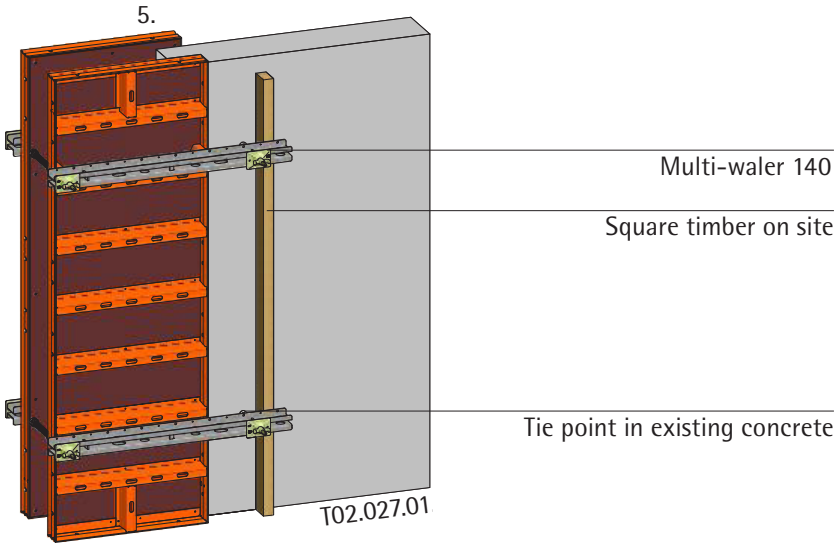
The same options apply to all other formwork heights, whereby attention must be paid to the number of ties required in each case depending on the panel height.



Connection to existing walls







In case of an extension, the formwork panels are overlapped to the existing structure.

Panels with inner tie holes can overlap far enough that the first tie rod in the panel still passes the existing structure.

1. **Panels 240 x 270 cm (or 340 x 270 cm)**

2. **Midi-panel 135 x 270 cm**

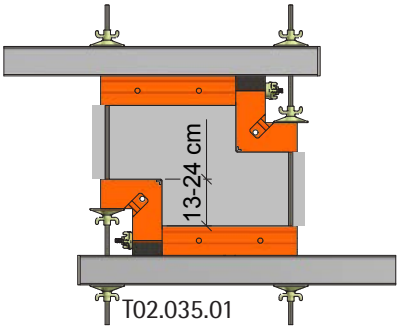
3. **Panel 270 x 90 cm with inner tie holes**

4. **Multi-panel 90 x 270 cm:**
On the side of the connection, the additional perforated strips of the panel can be used to place tie rods (here three to the height). At the next panel joint, tensioning through the usual tie hole.

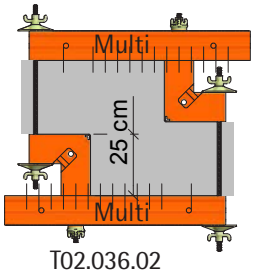
5. **Panel widths <= 90 cm:**
The panel widths <= 90 cm have outer tie holes. As these are locked by the existing structure when overlapping, the next possible tie point in the existing structure must be used. In addition, a multi-waler 140 must be attached as a waling at each tie level.

Attention:
For short connections, right-angled or longitudinal, the formwork must be tensioned back into the existing structure to prevent shifting during concreting (pressure on the stop end).

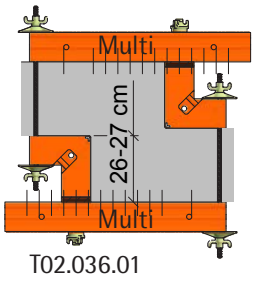
Wall offset



13 cm to 24 cm:
Create a butt joint between the inside corner and the compensation panel. Connection via locking screws through the holes in the frame of the compensation panel. For offsets of 13 cm to 19 cm, the screw connection is made outside the compensation panel. Tension the formwork with multi-walers on both sides and at each tie level.

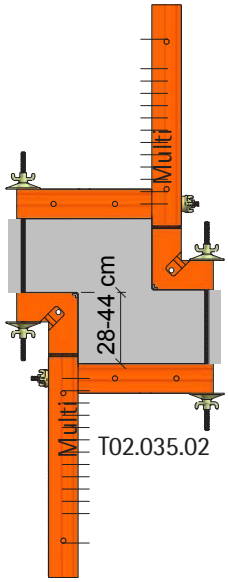


25 cm:
Connect the inside corner and the multi-panel directly with locking screws.

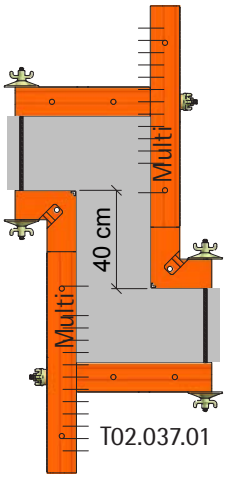


26 cm and 27 cm:
Connect inside corner and multi-panel with plastic fillers in between (1 cm or 2 cm) directly with locking screws.

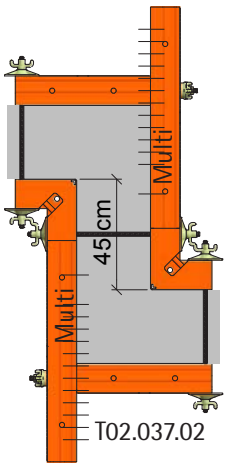
From 40 cm:
The multi-panel lies in the direction of the offset with the 5-hole perforation facing outwards.
For offsets and wall thicknesses outside the 5 cm pattern, plastic fillers of 1 cm to 4 cm must be installed on both sides between the inside corner and the multi-panel.



28 cm to 44 cm:
The multi-panel lies in the direction of the offset with the 5-hole perforation facing the inside corner. If necessary, install a plastic filler between the multi-panel and the inside corner.

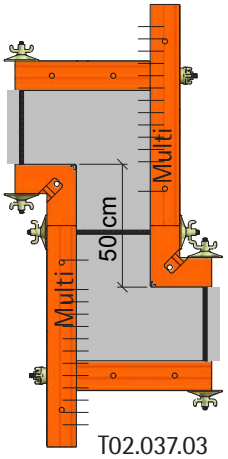


40 cm:
The joints of the inside corner / multi-panel are offset too far opposite each other to allow a tie rod to be guided. Secure the joints at the bottom on both sides with stop boards. Brace the joints at the top with tie rod guides and tie rods. Formwork heights > 2.70 m require additional on-site supports.



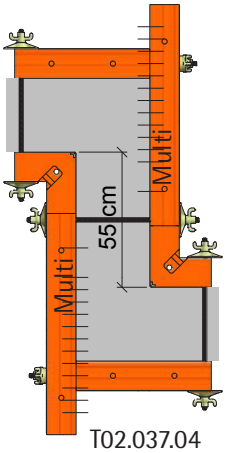
45 cm:
The joints of the inside corner / multi-panel are offset by 5 cm opposite each other. Tie rod guidance is via the offset joints.

Wall offset



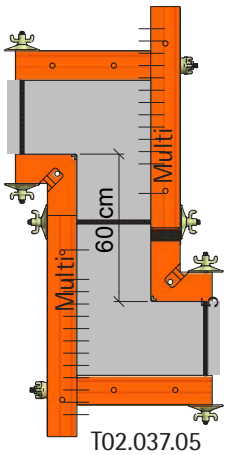
T02.037.03

50 cm:
The joints of the inside corner / multi-panel are the same opposite each other. Tie rod guidance is possible to the left and right of the joint.



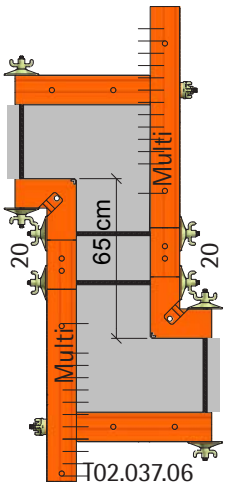
T02.037.04

55 cm:
The joints of the inside corner / multi-panel are offset by 5 cm opposite each other. Tie rod guidance is via the offset joints.



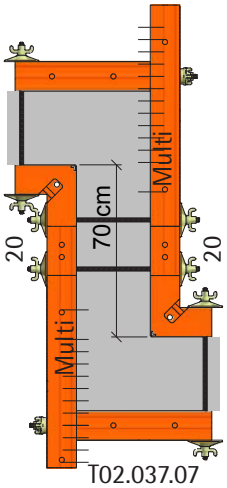
T02.037.05

60 cm:
The joints of the inside corner / multi-panel are offset by 5 cm opposite each other. Tie rod guidance is via the offset joints. In addition, a 5 cm wide filler should be installed on one side.



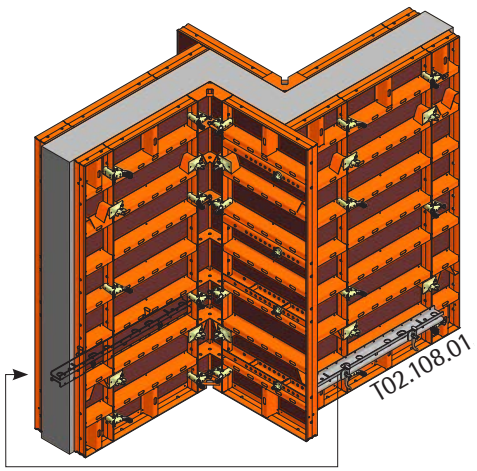
T02.037.06

65 cm:
Install a 20 cm wide panel between the inside corner and the multi-panel on both sides. All panel joints are offset by 5 cm opposite each other. Tie rod guidance is via the offset joints.



T02.037.07

70 cm:
Install a 20 cm wide panel between the inside corner and the multi-panel on both sides. All panel joints are the same opposite each other. Tie rod guidance is possible to the left and right of the joint.



Multi-waler

Attention:
To brace the formwork, multi-walers should be planned in for both sides after the offset at the lowest cross profile.

Wall offset

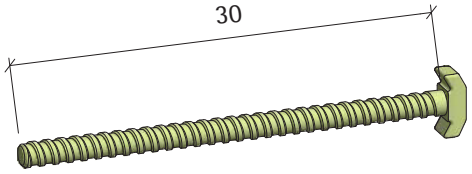
Wall offset 1–12 cm:
For wall offsets of 1 – 12 cm, the panels are offset against each other directly at the offset by the required dimension.

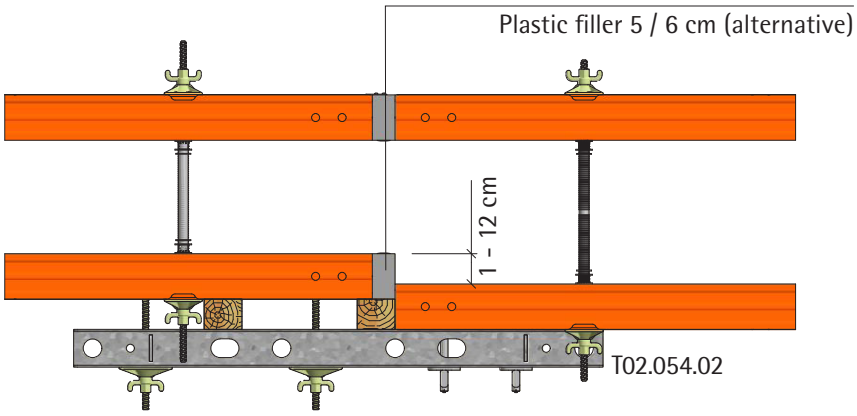
The panels are connected via the offset joint by means of the multi-walers 140. These are applied to the panel located further forward and fastened with 10 cm clamping pieces.

The panel behind is connected with two additional hook-headed bolts DW15 300/240 and plates with ball-and-socket joint. The offset between the multi-waler 140 and the panel is compensated with a board or square timber.

Note:
If the concrete imprint of the profiled flat steel frame at the offset interferes, a 5 cm or 6 cm wide plastic filler can be installed there.

Hook-headed bolt DW 15 300/240 L/N/A
Art. no.: 187.500.0022
Weight: 0.53 kg



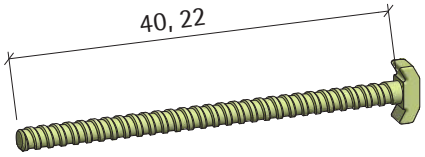


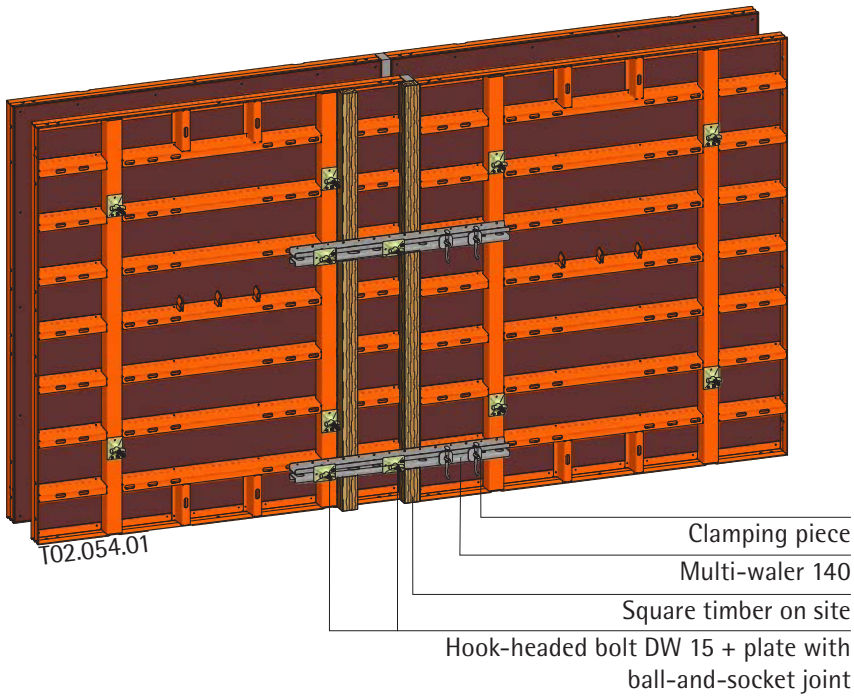
Additional hook-headed bolts are available for fastening walers or rails:

A plate with ball-and-socket joint must be accounted for in each case.

Hook-headed bolt DW 15 400/340 L/N/A
Art. no.: 187.500.0024
Weight: 0.70 kg

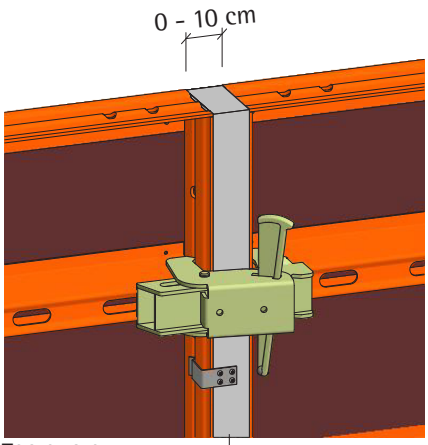
Hook-headed bolt DW 15 220/160 L/N/A
Art. no.: 183.500.0034
Weight: 0.40 kg





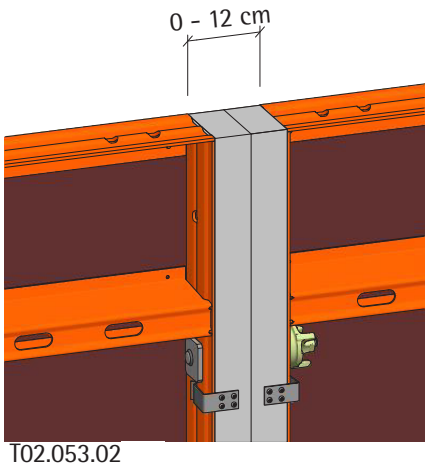
Residual compensation

Multi-clamp 0 - 10 cm



T02.053.01

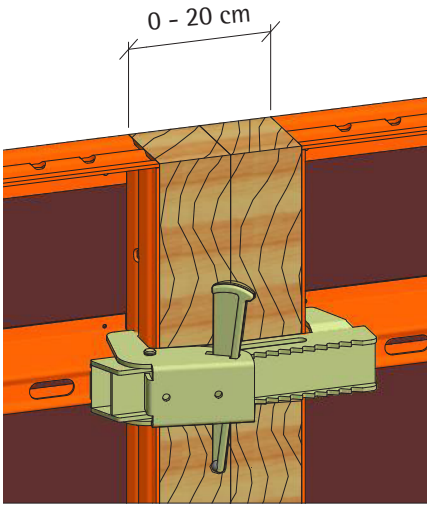
Locking screw



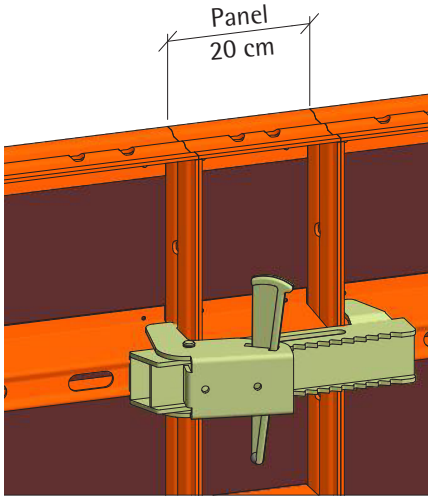
T02.053.02

Plastic compensation 1 cm - 6 cm

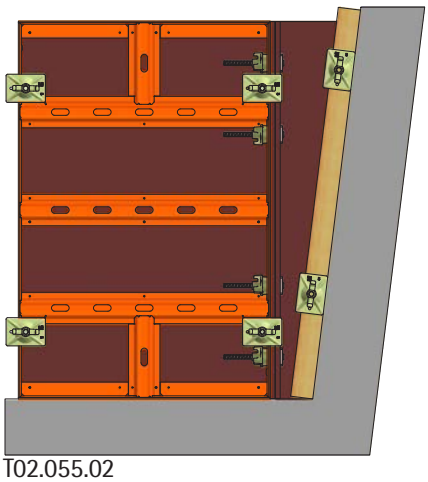
Multi-clamp 0 - 20 cm



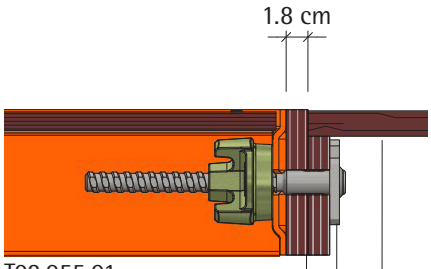
T02.053.04



T02.053.05



T02.055.02



T02.055.01

Fixing post

Locking screw

Plywood

Plastic fillers with a width of 1 cm to 6 cm are available for all panel heights for cm-precise systematic forming. These can be combined up to a width of 12 cm.

Multi-clamp 0 – 10 cm:
The multi-clamp can be opened so far that a compensation of up to 10 cm width is possible at the panel joint.

Locking screw:
The range of the locking screw allows the fitting of a compensation with a width of up to 12 cm.

Multi-clamp 0 – 20 cm:
The large multi-clamp enables for compensations with widths of up to 20 cm, e.g. with square timbers.

Note:
All the connecting pieces named above can also be used at a panel joint without compensation.

Fixing post (multilayer plywood panel):
The fixing post can be used to connect an on-site plywood to be connected to the formwork panels in order to create residual compensations. The fixing post is fixed to the flat steel frame of the formwork panel with locking screws.
Examples of use:

- Formwork on inclined surfaces (page 68)
- Formwork around pipes in underground construction shafts
- Connection to inclined surfaces

Attention:
Depending on the size of the formwork facing to be installed and the fresh concrete pressure, walers and ties are required in the area of the residual compensation.

Corner, any angle

Corner, any angle:
For oblique corners, hinged corners with different leg lengths are used.

The larger hinged corner with a leg length of 30 cm is used on the inside to be able to set acute angles up to a minimum dimension of 60°. The small hinged corner with a leg length of 12.5 cm is used on the opposite side.

Note:
For large angles α_2 or a resulting small outside / inside difference dimension x, the small hinged corner 12.5 cm can be used on the inside and outside.

The difference of the leg lengths and the value x as the difference of the wall lengths outside to inside yield the size of the outside compensation (Aa). The outside compensation must be applied to make the inside formwork flush with the outside formwork. The values for Aa can be taken from Tab. (p.65) depending on the enclosed angle α_2 and the wall thickness w.

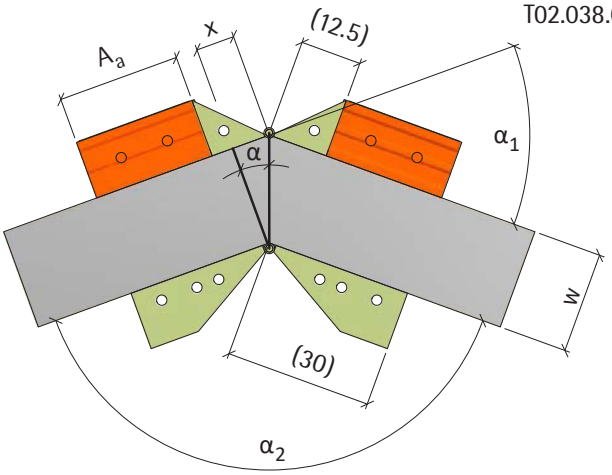
Note:
The calculated leg length (length in contact with concrete) of the hinged corners changes with different adjustment ranges. The difference ΔLse of the leg lengths can be read from Tab. (p.65) as a function of the included angle α_2.

Attention:
The opposing formwork panels cannot be anchored via the hinged corners, as the hinged corners have no tie holes. Following the inside hinged corner and the outside compensation (Aa), a midi-panel 135 cm, a panel width 20 - 90 cm or a plastic filler 5 cm / 6 cm must be arranged.

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

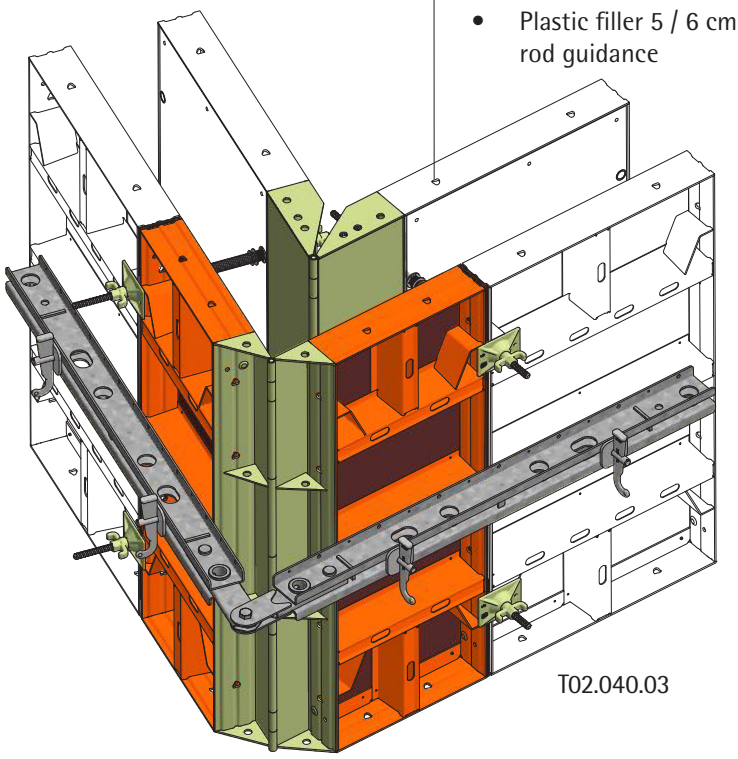
x	=	outside / inside differentiation dimension
w	=	wall thickness
Aa	=	outside compensation
ΔL_{se}	=	difference of the true lengths of the inside/ outside hinged corners as a function of α_2

T02.038.01



60° - 179°

- Midi-panel 135 cm
- Panel 20 - 90 cm
- Plastic filler 5 / 6 cm for tie rod guidance



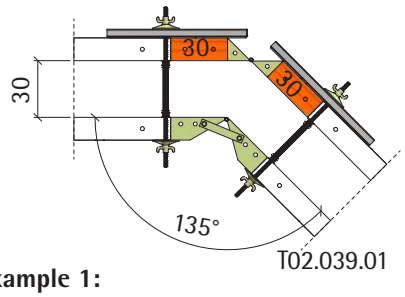
T02.040.03

Corner, any angle

Table for the compensation A_a [cm] to be applied externally as a function of the enclosed α_2 and the wall thickness w.

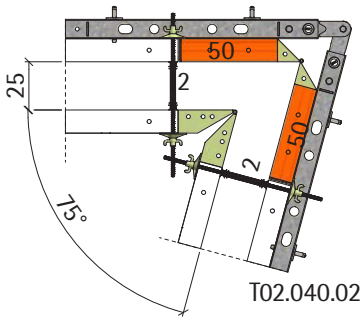
α2	α1	α	Δ l se	w [cm]					
				20	24	25	30	35	40
175	5	2.5	17.5	18.2	18.5	18.6	18.8	19.0	19.3
170	10	5	17.5	19.3	19.6	19.7	20.1	20.6	21.0
165	15	7.5	17.5	20.1	20.7	20.8	21.5	22.1	22.8
160	20	10	17.5	21.0	21.7	21.9	22.8	23.7	24.6
155	25	12.5	17.5	21.9	22.8	23.0	24.2	25.3	26.4
150	30	15	17.5	22.9	23.9	24.2	25.5	26.9	28.2
145	35	17.5	17.5	23.8	25.1	25.4	27.0	28.5	30.1
140	40	20	17.5	24.8	26.2	26.6	28.4	30.2	32.1
135	45	22.5	17.5	25.8	27.4	27.9	29.9	32.0	34.1
130	50	25	17.7	27.0	28.9	29.4	31.7	34.0	36.4
125	55	27.5	17.8	28.2	30.3	30.8	33.4	36.0	38.6
120	60	30	17.9	29.5	31.8	32.3	35.2	38.1	41.0
115	65	32.5	18.0	30.7	33.3	33.9	37.1	40.3	43.5
110	70	35	18.0	32.0	34.8	35.5	39.0	42.5	46.0
105	75	37.5	18.1	33.5	36.5	37.3	41.1	45.0	48.8
100	80	40	18.2	35.0	38.3	39.2	43.4	47.6	51.8
95	85	42.5	18.3	36.6	40.3	41.2	45.8	50.4	55.0
90	90	45	18.4	38.4	42.4	43.4	48.4	53.4	58.4
85	95	47.5	18.6	40.4	44.8	45.9	51.3	56.8	62.3
80	100	50	18.8	42.6	47.5	48.6	54.6	60.5	66.5
75	105	52.5	19.0	45.1	50.3	51.6	58.1	64.6	71.1
70	110	55	19.1	47.7	53.4	54.8	61.9	69.1	76.2
65	115	57.5	19.3	50.7	57.0	58.5	66.4	74.2	82.1
60	120	60	19.5	54.1	61.1	62.8	71.5	80.1	88.8

The joint between the outside hinged corner and the outside compensation (Aa) cannot be braced inwards. This joint must be braced over the next possible tie. For compensations Aa<=35 cm, the spacer channel is used for this purpose. For larger values, the multi-waler or the hinged bracing is used.
Inside, the hinged corners can be pinned with a locking bow for angles of 60°, 90° and 135°.
For angles α_2 > 150°, waling is required on the inside.



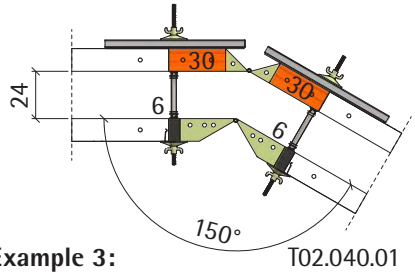
T02.039.01

Example 1:
α_2 = 135°; w = 30 cm; --> Aa = 29.9 cm
selected compensation panel 30 cm outside



T02.040.02

Example 2:
α_2 = 75°; w = 25 cm; --> Aa = 51.6 cm
selected compensation panel 50 cm outside + plastic filler 2 cm outside



T02.040.01

Example 3:
α_2 = 150°; w = 24 cm; --> Aa = 23.9 cm
selected compensation panel 30 cm outside + plastic filler 6 cm inside

Stop end

There are several system solutions for stop ends or setting frontal stop ends.

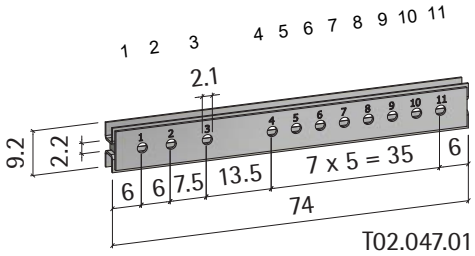
For construction joints with continuous reinforcement or metal water stop, the stop end formwork is provided by site. The forces arising from the fresh concrete pressure are transferred to the formwork panels via spacer channels or multi-walers.

1) Setting stop ends with a spacer channel:
The number and arrangement of the required spacer channels depends on the respective panel height. Each spacer channel must be screwed to both sides of the formwork with a DW15 locking screw.

The 11 holes of the spacer channel can be used to adjust wall thicknesses up to a maximum value of 50 cm.

For panel widths <= 90cm, the tie at the end of the formwork is not required, as in this case all forces that arise are diverted via the spacer rails.

Attention:
- The perforated plate of the spacer channel must always be in contact with the panel frame.
- Insert the locking screws first through the hole in the panel frame, then through the perforated plate in the spacer channel. Then screw on the locking nut and tighten it firmly.
- For panel heights >240 cm, 1 more connecting piece must be attached to the first panel joint after the stop end.

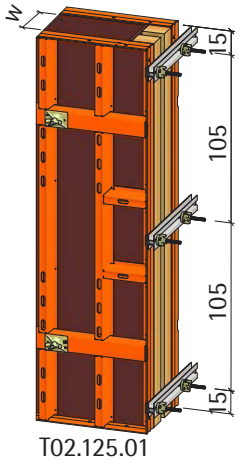


T02.047.01

Spacer channel 15 - 50 cm
Art. no.: 187.500.0006
Weight: 7.10 kg

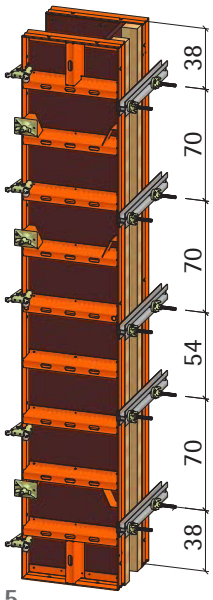
w [cm]	Connecting hole
11.5	3-6
13	4-9
14	2-5
15	1-4
16.5	3-7
18	4-10
19	2-6
20	1-5
21.5	3-8
23	4-11
24	2-7
25	1-6
26.5	3-9
29	2-8
30	1-7
31.5	3-10
34	2-9
35	1-8
36.5	3-11
39	2-10
40	1-9
44	2-11
45	1-10
50	1-11

Height 240 cm



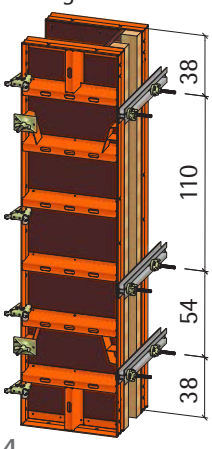
T02.125.01

Height 340 cm



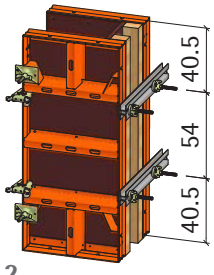
5 T02.042.01

Height 240 cm



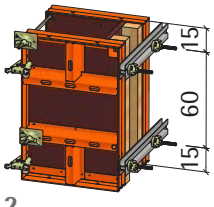
4 T02.044.01

Height 135 cm



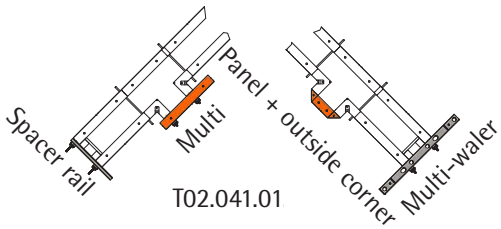
2 T02.045.01

Height 90 cm



2 T02.046.01

Stop end

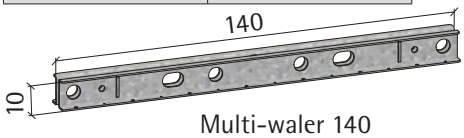


T02.041.01

w [cm]	Connecting hole
15	1-5
18	2-8
20	1-6
23	2-9
25	1-7
28	2-10
30	1-8
33	2-11
35	1-9
38	2-12
40	1-10
43	2-13
45	1-11
50	1-12
55	1-13
Hole spacing = w + 12 cm	

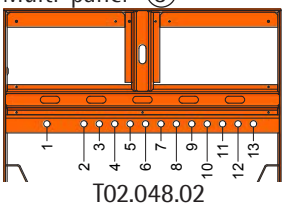
Only applies for stop ends with multi-waler ②

Fresh concrete pressure [kN/m2]	max. wall thickness w [cm]
70	60
60	70
50	80
40	100
35	115



Multi-waler 140
Art. no.: 187.500.0164
Weight: 16.50 kg

Multi-panel ③



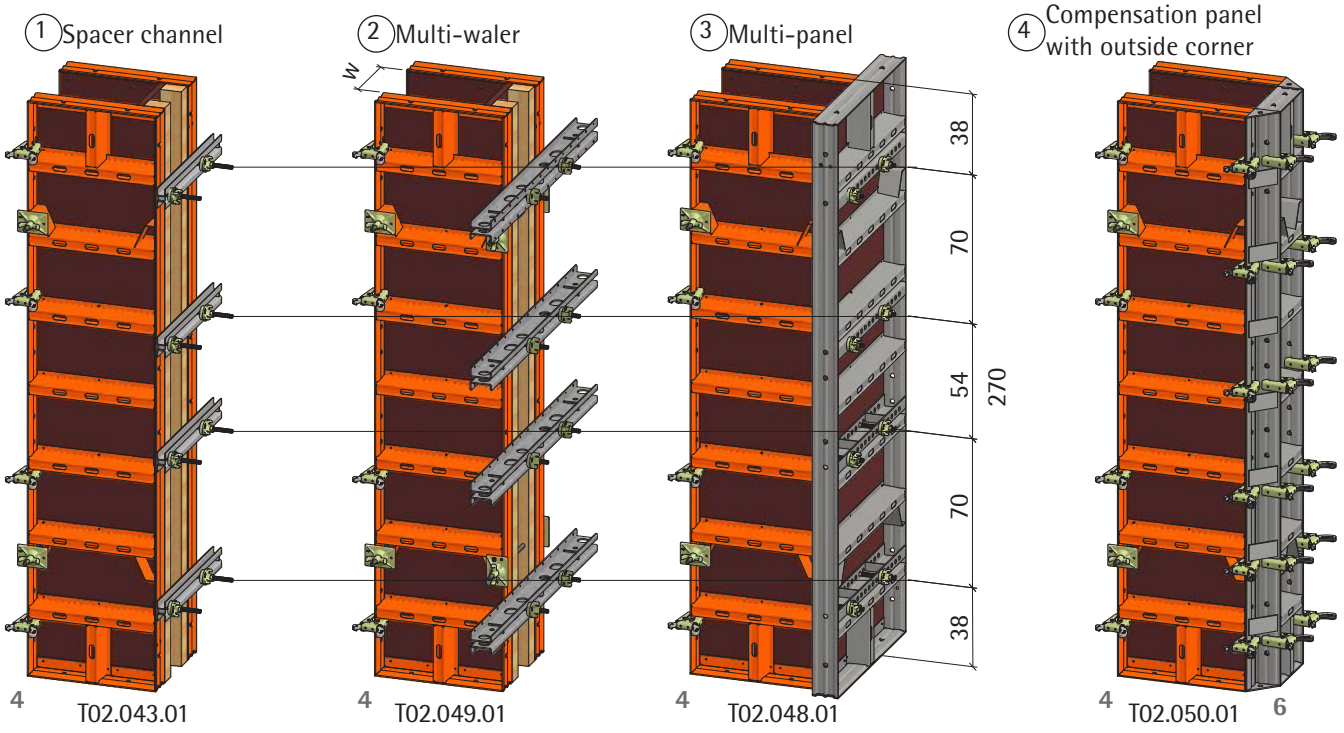
T02.048.02

2) Setting stop ends with a multi-waler:
For wall thicknesses > 50 cm or for conical walls, multi-walers are used. The position and number of the multi-walers for the different panel heights corresponds to the arrangement of the spacer channels. The same applies to the position and number of the DW15 locking screws.

If no construction joint with continuous reinforcement or metal water stop has to be taken into account, a multi-panel or a compensation panel with outside corners can be fastened at the front.

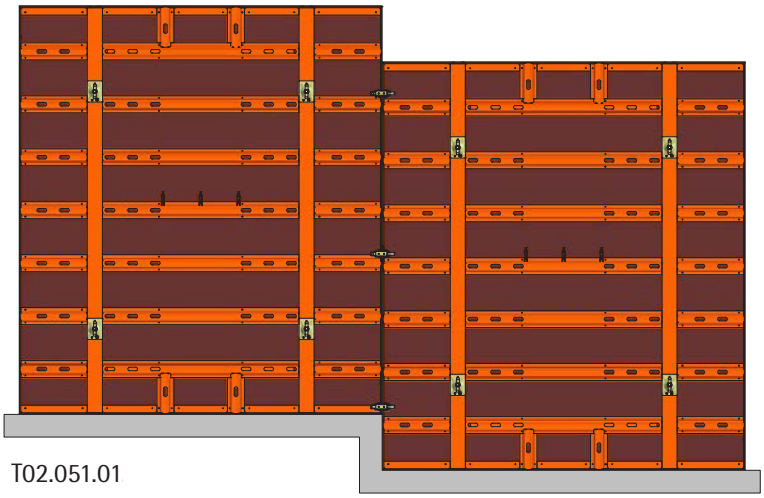
3) Setting stop ends with a multi-panel:
The multi-panel is connected to the formwork panel with locking screws, see ③. For the hole combination, see the table.

4) Setting stop ends with a compensation panel:
The compensation panel is connected to the formwork panels via outside corners and wedge clamps. The number of wedge clamps required depends on the panel height. See pages 54 f. Outside corner.



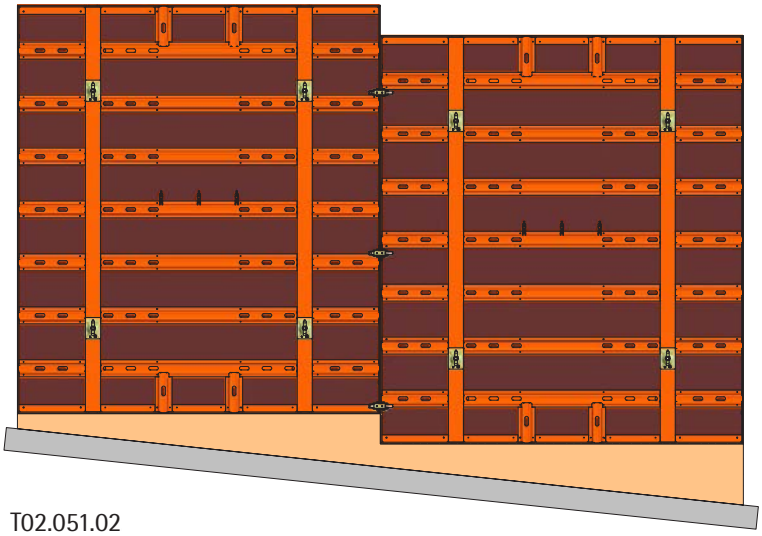
Height offset / slope

For steps or height offsets, a panel joint is usually included and the formwork panels there are offset in height by the specified size.
This can be done steplessly, as both the wedge clamp with curved wedge and the multi-clamp enclose the panel joint and are not bound to any hole sequence.



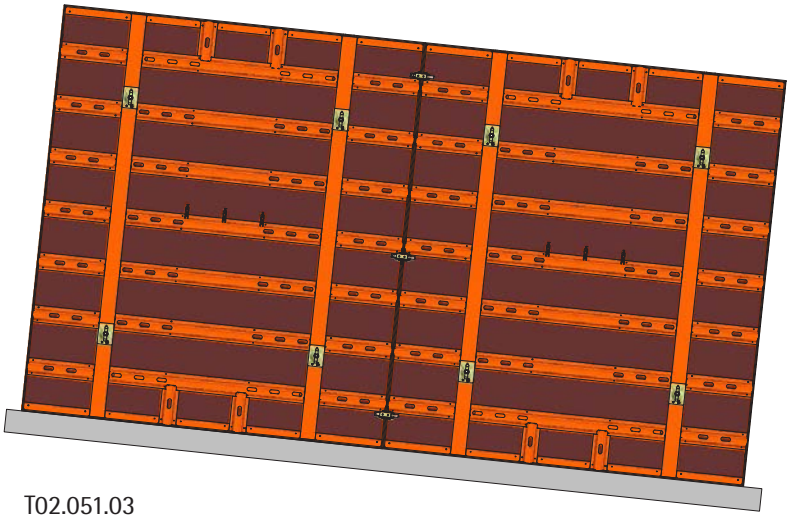
T02.051.01

The same applies to panels that are set up vertically on a slope. In this case, however, a wedge-shaped compensation must still be installed between the panels and the sloping surface.



T02.051.02

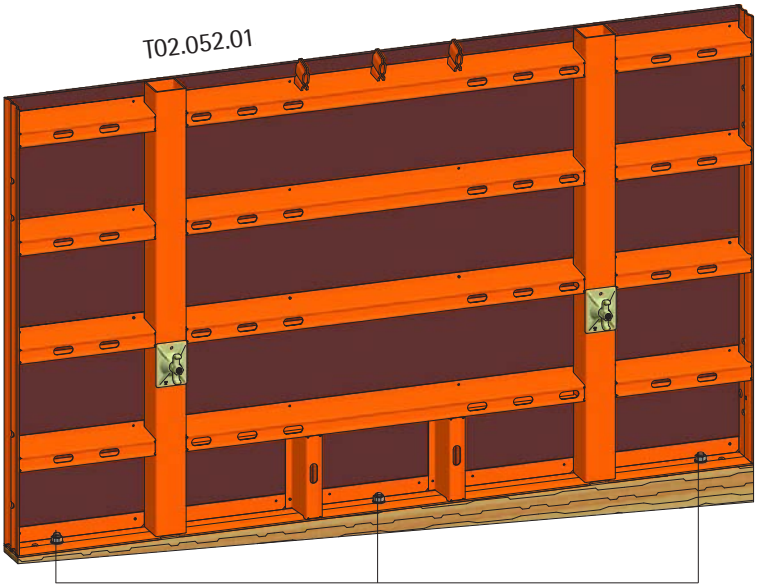
If the requirements for the concrete surface (joint pattern) allow it, the panels can also be installed at an angle on the sloping surface.



T02.051.03

Height offset / slope

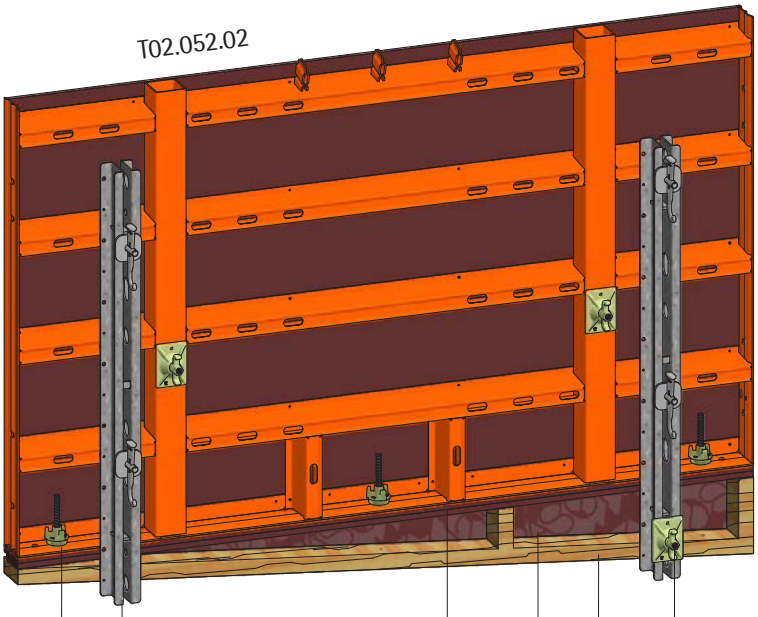
T02.052.01



Countersunk bolt M20 x... nut DIN 605

For a small slope, a square timber can be cut to a conical shape and screwed to the lower panel frame.

T02.052.02



Multi-waler 140

Locking screw

Additional tie

Square timber 10 cm

Plywood 21 mm

Fixing post

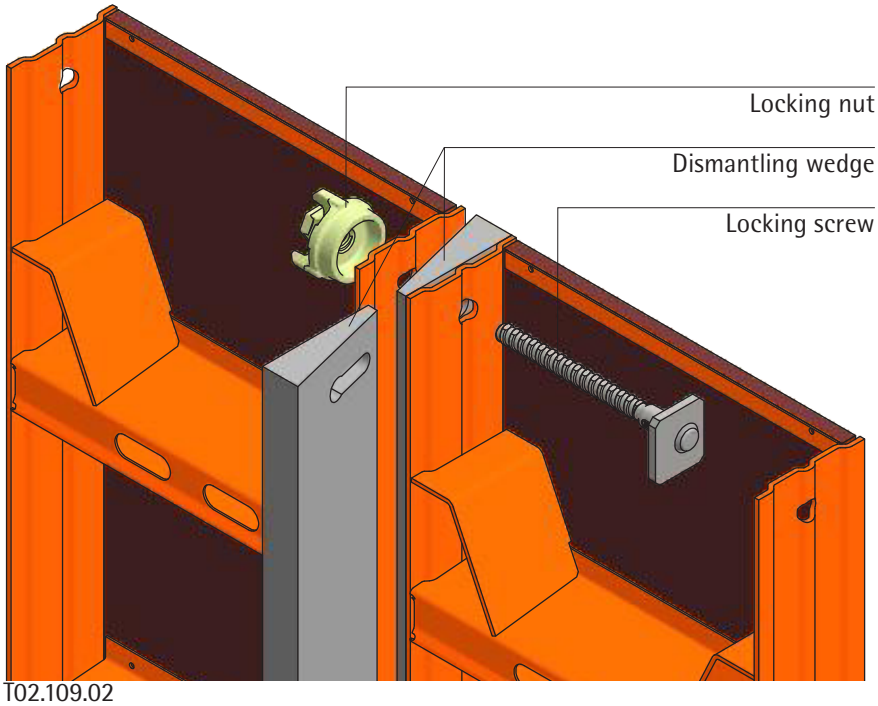
For larger slopes, a compensating piece made of 10 cm thick square timber, the fixing post, and a 21 mm thick plywood panel is installed and screwed to the lower panel frame via the fixing post.
For bracing, multi-walers are required above the joint between the panel and the compensating piece.
Depending on the fresh concrete pressure, additional ties may be necessary in the fitting area, which are guided over the multi-walers.
If necessary, please consult the manufacturer's application engineering department.

Shaft (dismantling wedge)

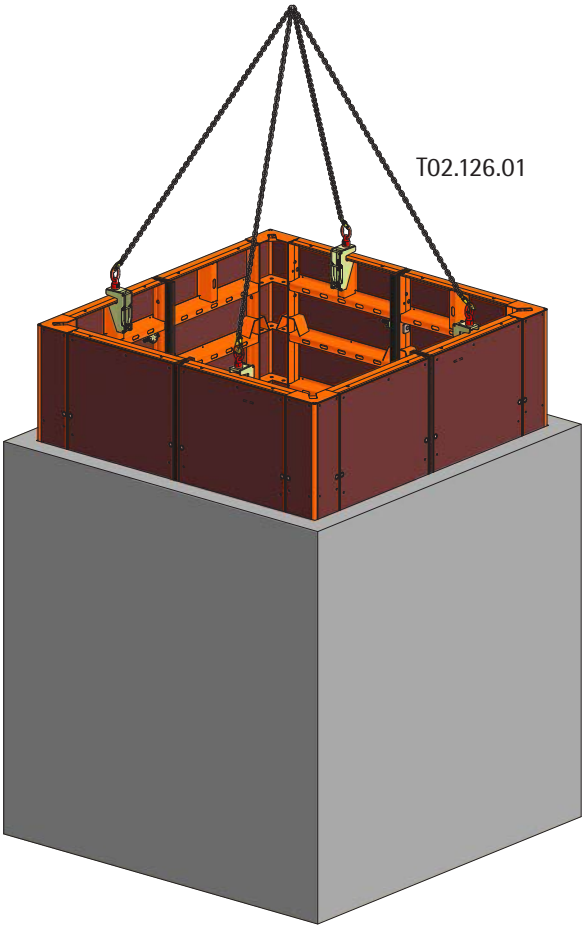
Shafts can be formed with the usual system components. Due to short wall lengths between the corners, however, the formwork is under compressive stress in the longitudinal direction of the formwork after concreting, which makes dismantling difficult.
In this regard, Logo.3 offers several possibilities for pulling the complete inner formwork without complete disassembly.

- Using dismantling wedges (2-part)
- Using dismantling insider corners (p. 72)

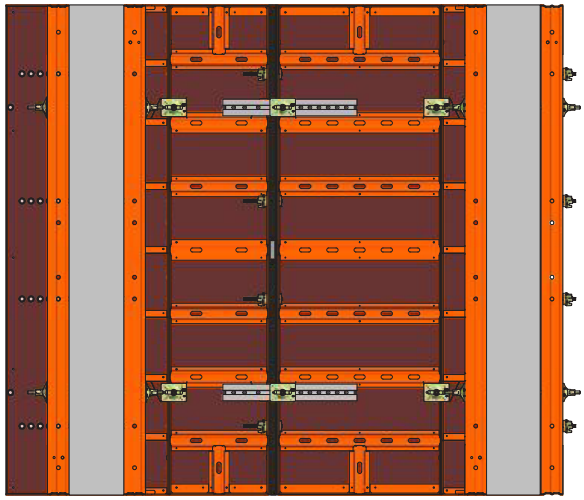
The two parts of the dismantling wedge have a width of 5 cm and they are installed in the inner shaft formwork approximately in the middle on each side with locking screws.
The required dismantling clearance is achieved by pulling the left wedge (with oblong hole) until there is 1 cm clearance between the wedge and the formwork panel. After that, everything is braced again by means of the locking screw and the complete internal formwork can be pulled and moved with one crane cycle.



T02.109.02

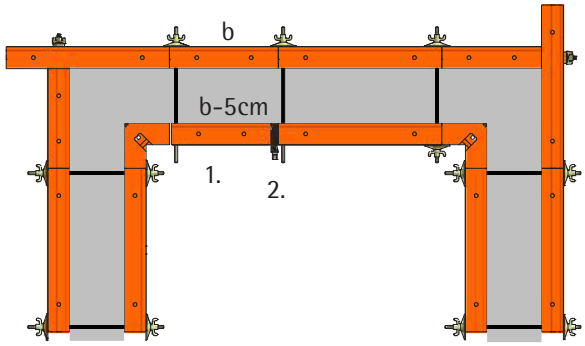

T02.126.01

Shaft (dismantling wedge)



T02.061.11

2.



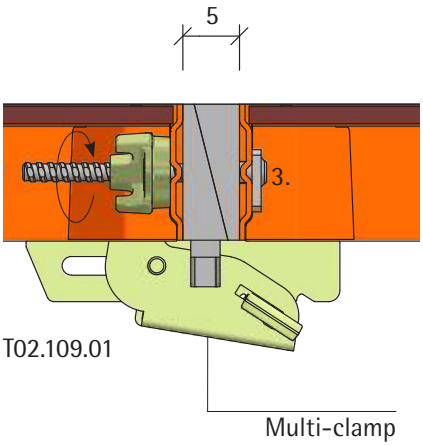
Assembly:

1. Where dismantling is difficult, choose a panel width b 5 cm smaller than the total formwork length requires.
2. Fill the missing piece with the dismantling wedge, the part with the round hole D. 22 mm on the right panel, the part with the oblong hole on the left panel.
3. Insert the locking screw from the right, screw on the locking nut and brace everything flush.

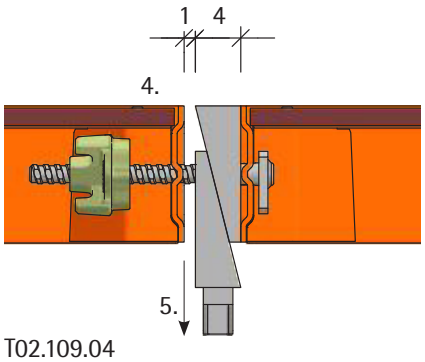
Note:
To assemble the dismantling wedge, attach multi-clamps to the joint.

Dismantling:

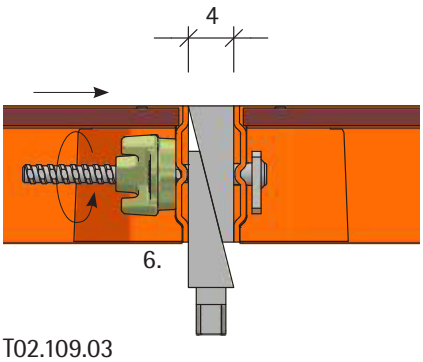
4. Loosen the locking nut, but do not remove it completely.
5. Pull the left part of the dismantling wedge (with oblong hole) over the integrated handle as far as it will go.
6. Pull the formwork together again with the locking screw + locking nut.
7. Pull the complete inner core.



T02.109.01



T02.109.04



T02.109.03

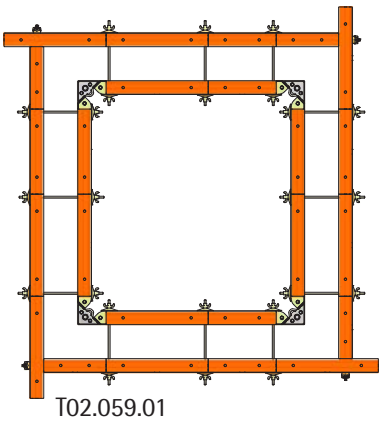
Shaft (dismantling inside corner)

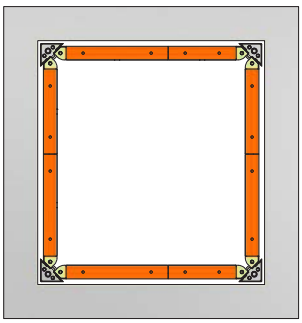
Shafts:
Shafts can be formed with the usual system components. Due to short wall lengths between the corners, however, the formwork is under compressive stress in the longitudinal direction of the formwork after concreting, which makes dismantling difficult.
In this regard, LOGO.3 offers several possibilities for pulling the complete inner formwork without dismantling it.

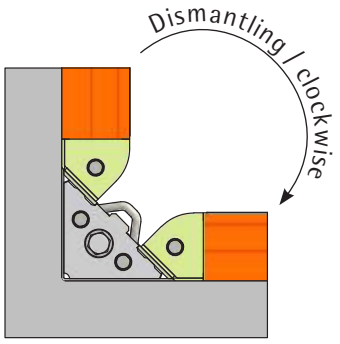
- Using dismantling inside corner
- Using dismantling wedges (2-part) Page 70

The dismantling inside corner are placed in the corners of the shaft, in between they are precisely filled with available panel widths.
During dismantling, the two movable legs of the inside dismantling corner are pulled inwards by a rotating mechanism together with the attached formwork panels. This creates enough free space between the concrete and the formwork to be able to pull the formwork completely. Likewise, the formwork can be moved apart again to the actual formwork dimensions for the next application.

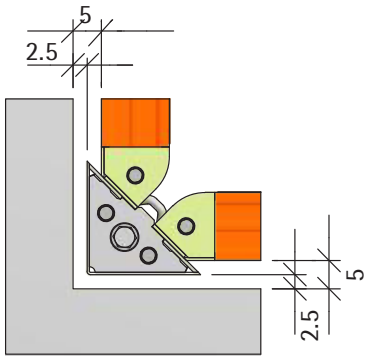
Note:
For detailed information, please refer to the LOGO.3 and Modular dismantling corner technical information.


T02.059.01

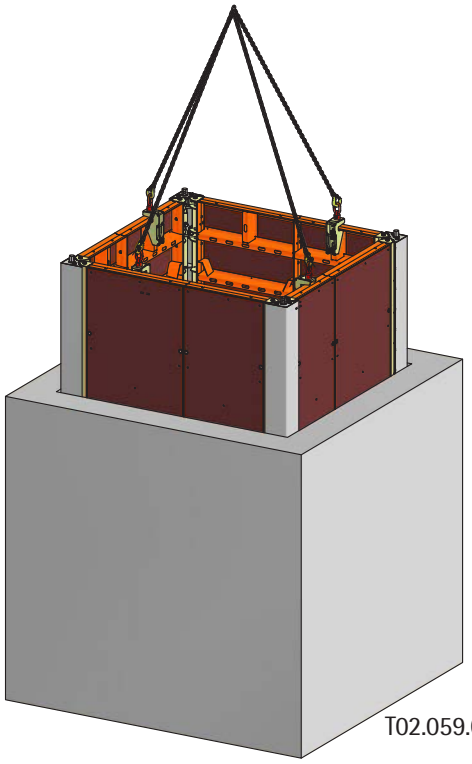

T02.059.02



T02.059.04



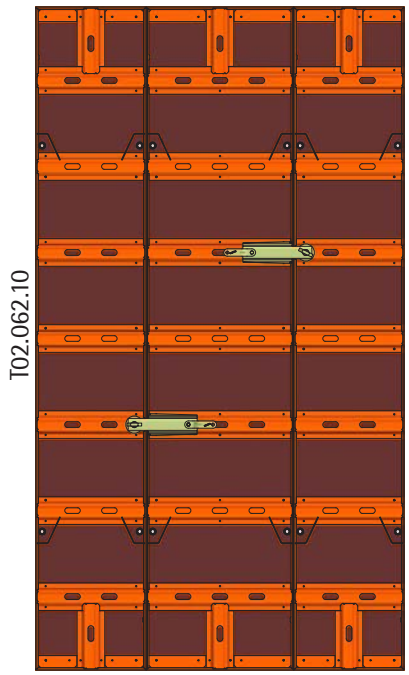
T02.059.05


T02.059.03

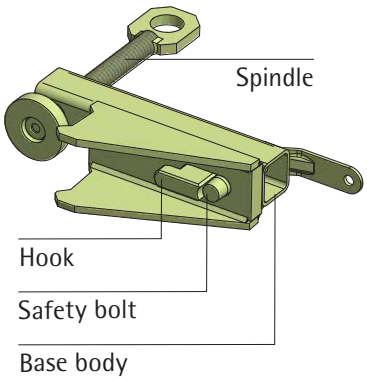
Ring open-end wrench angled 24
Art. no.: 941.015.0024
Weight: 0.35 kg

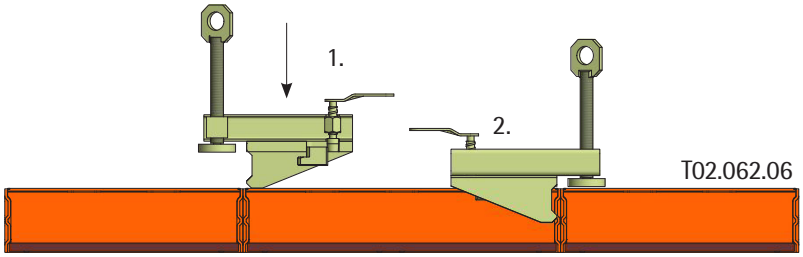
Required for height extension

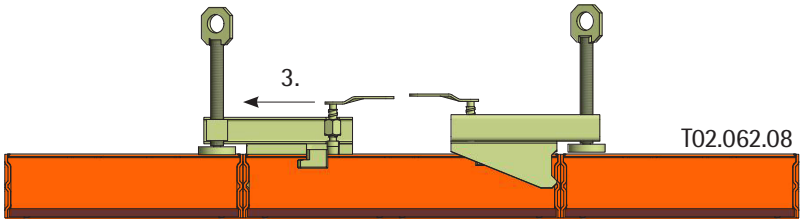
Dismantling (dismantling aid)

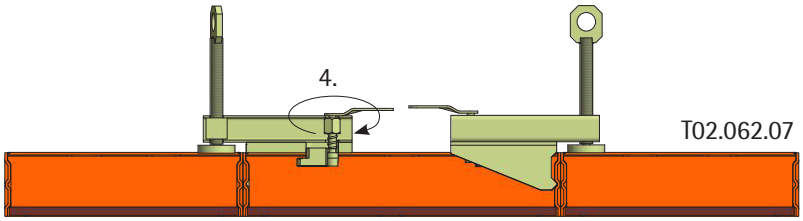


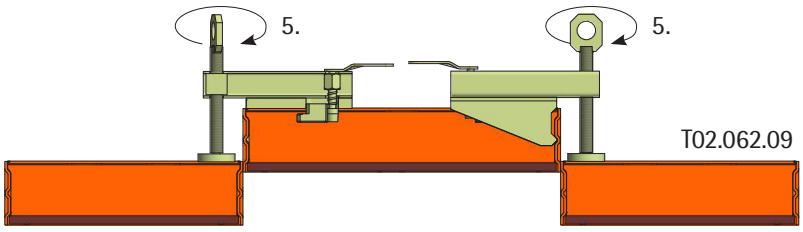
Dismantling aid
Art. no.: 187.500.0040
Weight: 6.00 kg









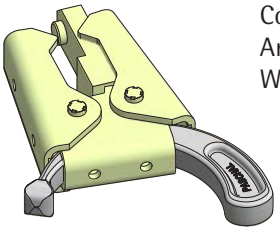


With two dismantling aids, a single panel can be removed from a closed panel composition if no dismantling clearance is included.
To do this, mount the dismantling aids on the left and right of the panel to be removed, in each case at the first oblong hole in the cross profile. The entire dismantling process must be carried out on the top and bottom of the panel:

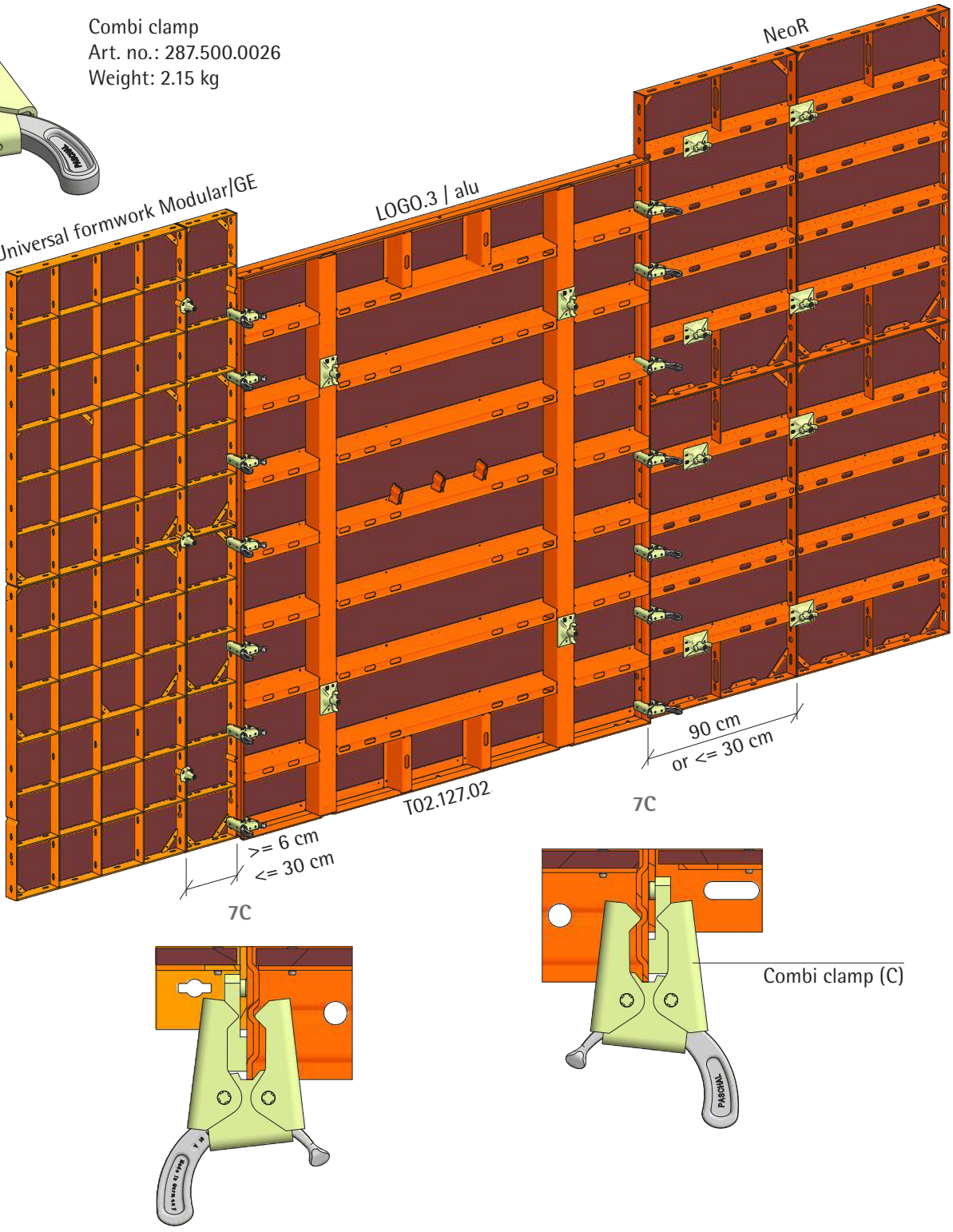
1. Unscrew the safety bolt.
2. Insert the hook into the oblong hole.
3. Push the dismantling aid outwards until the base body stops in the middle flange of the panel frame.
4. Screw the safety bolt back in as far as it will go.
5. Turn the spindles on both dismantling aids evenly, thereby loosening the formwork panel.

Note:
The panel to be removed must be at least 30 cm wide.

Compatibility

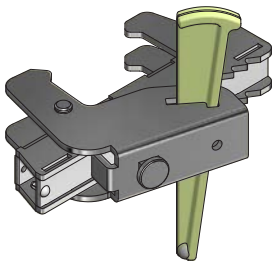


Combi clamp
Art. no.: 287.500.0026
Weight: 2.15 kg

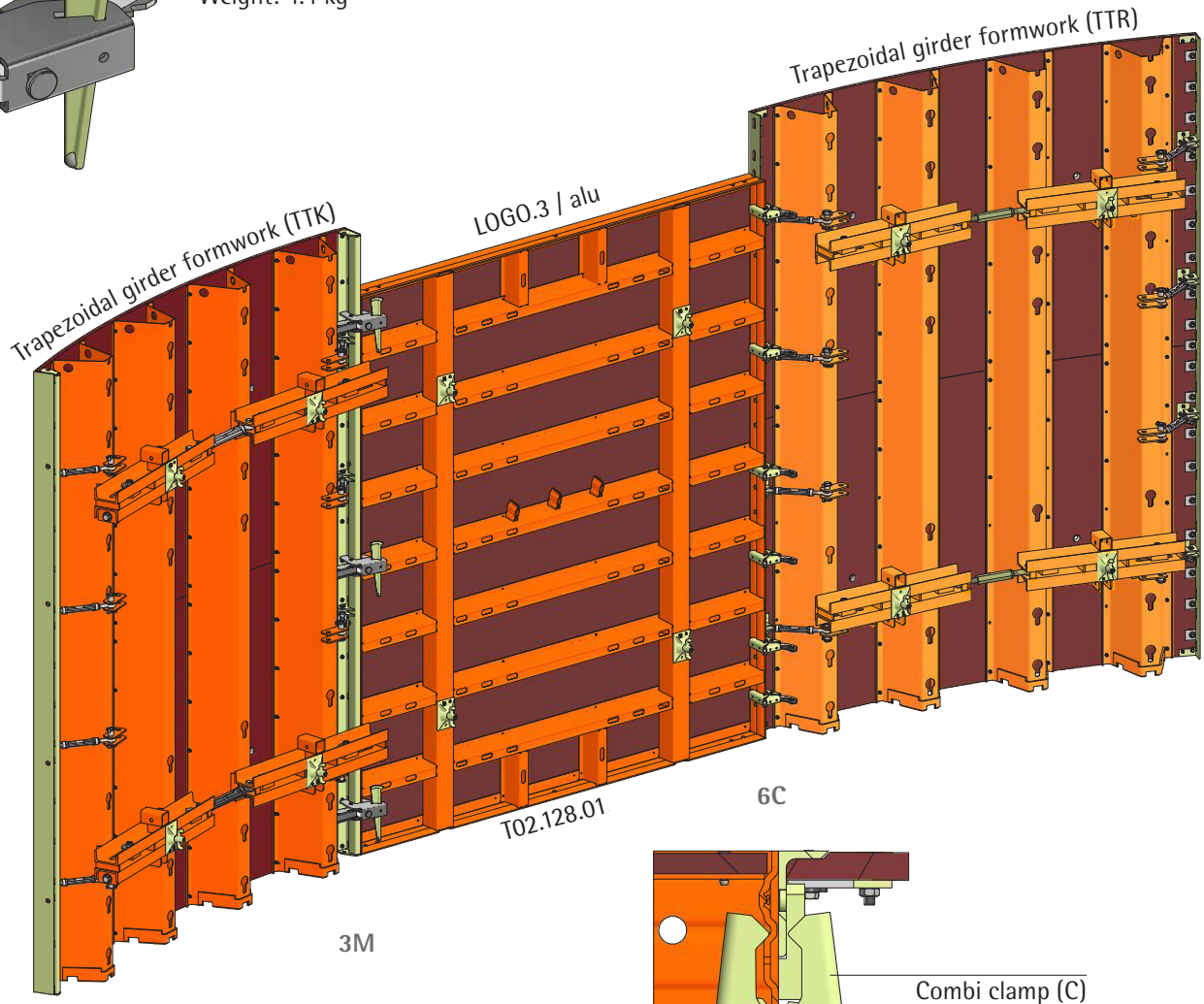


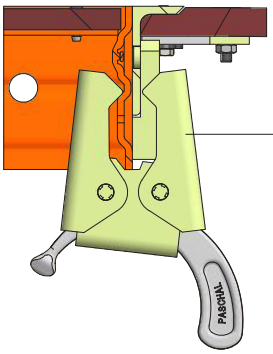
The LOGO formwork panels can be connected to the other PASCHAL systems as required, whether in straight or round form.
The panel joints are made directly and the combi clamp (Modular, NeoR and TTR) or the TTK multi-clamp (TTK) are sufficient as connecting pieces.

Compatibility

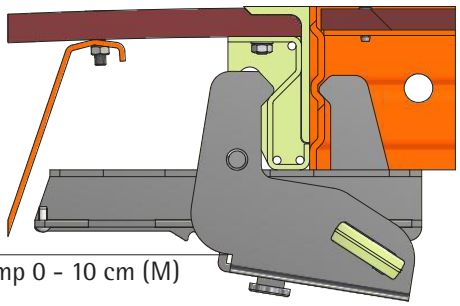


TTK multi-clamp 0-10 cm
Art. no.: 182.008.0001
Weight: 4.4 kg





Combi clamp (C)



TTK multi-clamp 0 - 10 cm (M)

The number of combi clamps required depends on the connections to:

- Modular
- NeoR
- TTR

generally according to the number of keybolts required depending on the panel height.

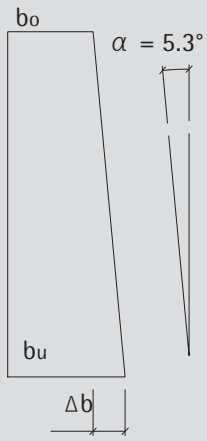
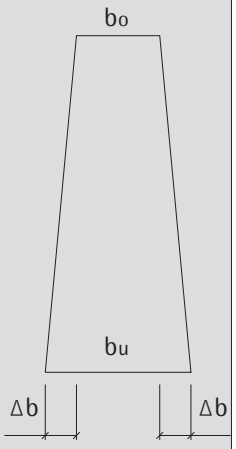
Conical walls

For walls to be formed conically, the possible inclination of the panels depends on the tie rod guidance in the internal girders of the large-size panels. The limit values Delta b for different formwork heights are provided in the table.

Delta b = lower wall thickness – upper wall thickness.

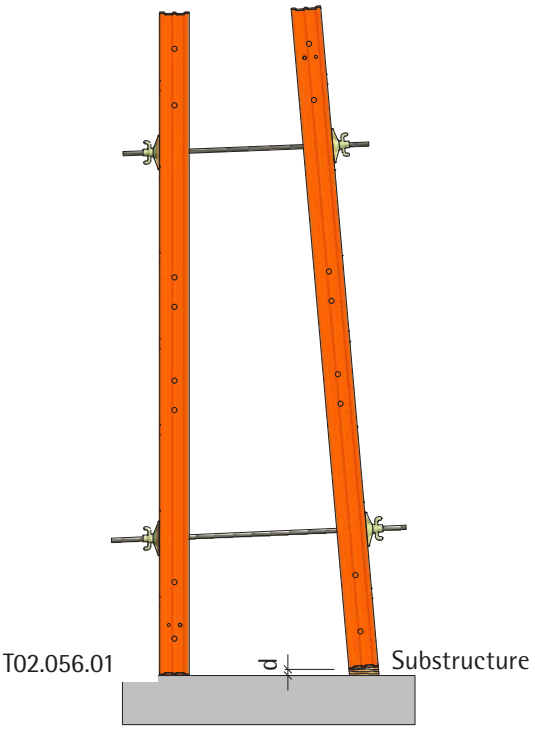
A substructure t for the panels on the conical formwork side allows even greater inclinations.

For panel widths <= 90 cm, a tie rod inclination of up to 20° is possible, as the tie rod has more tolerance there when guided through the plywood.

Formwork height	conical on one side without substructure	conical on one side with substructure t		conical on both sides
				
2.70 m	25 cm	35 cm	t = 2.5 cm	25 cm
		45 cm	t = 5.0 cm	
		55 cm	t = 7.5 cm	
4.05 m	40 cm	50 cm	t = 2.5 cm	35 cm
		60 cm	t = 5.0 cm	
5.40 m	50 cm	60 cm	t = 2.5 cm	45 cm
		70 cm	t = 5.0 cm	
		80 cm	t = 7.5 cm	

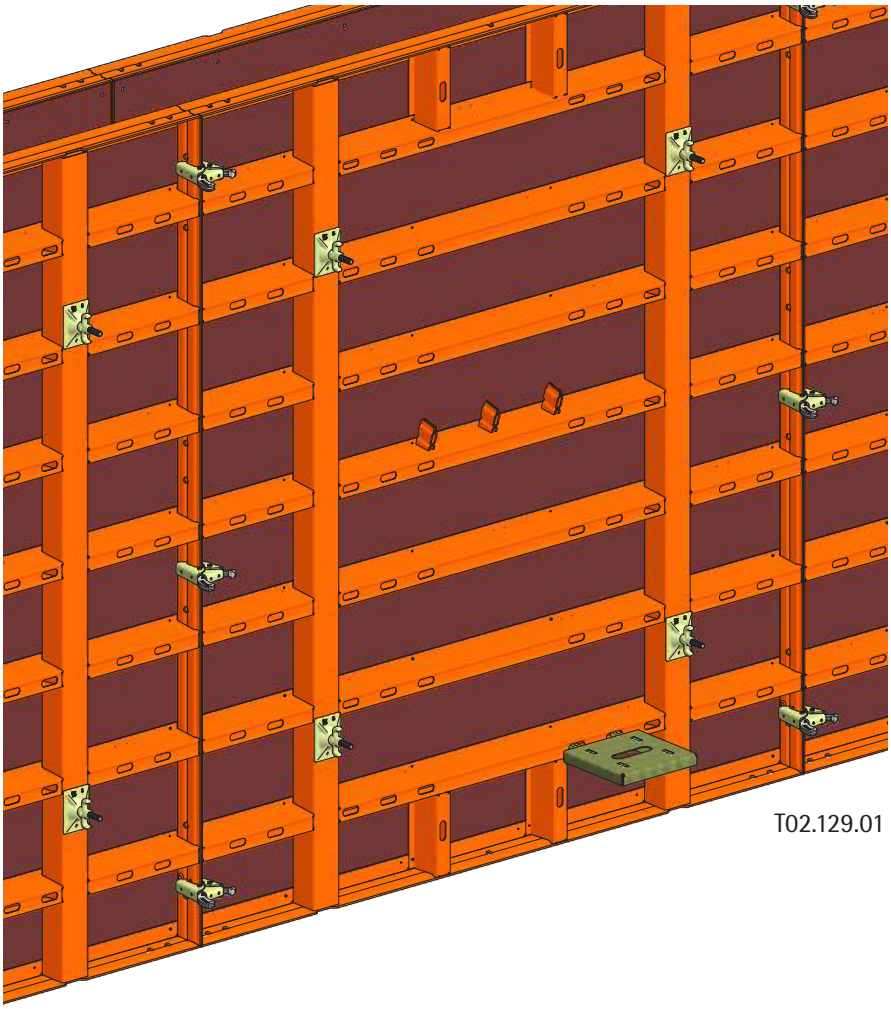
Permissible values Δb as a function of the formwork height

Attention:
For inwardly inclined formwork, the panels must be secured against uplift.



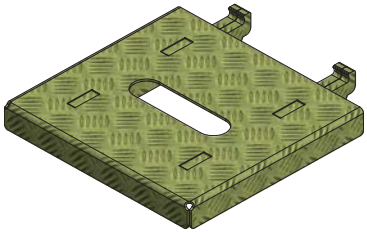
T02.056.01

Step



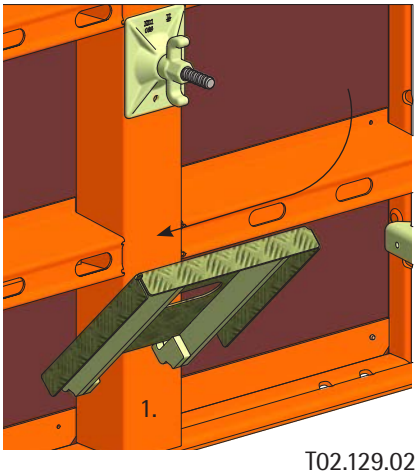
T02.129.01

Step L/N
Art. no.: 187.500.0162
Weight: 4.7 kg



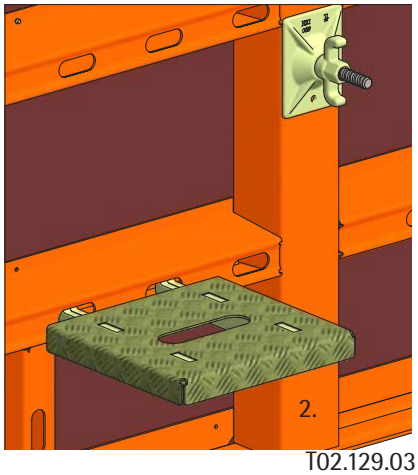
The step is hooked onto the lowest cross profile of the formwork panels for better accessibility of ties and connecting pieces in the upper panel area.

1.



T02.129.02

2.



T02.129.03

1. Insert the step at a slight angle with the suspension brackets into the oblong holes of the panel cross profiles.

2. Fold the step down

Safety at work, platforms, supports

There are numerous regulations and guidelines from the legislator, associations and employers' liability insurance associations for the requirements of occupational safety when handling formwork systems.
The latest versions of these regulations must be observed at all times.

Important points here include:

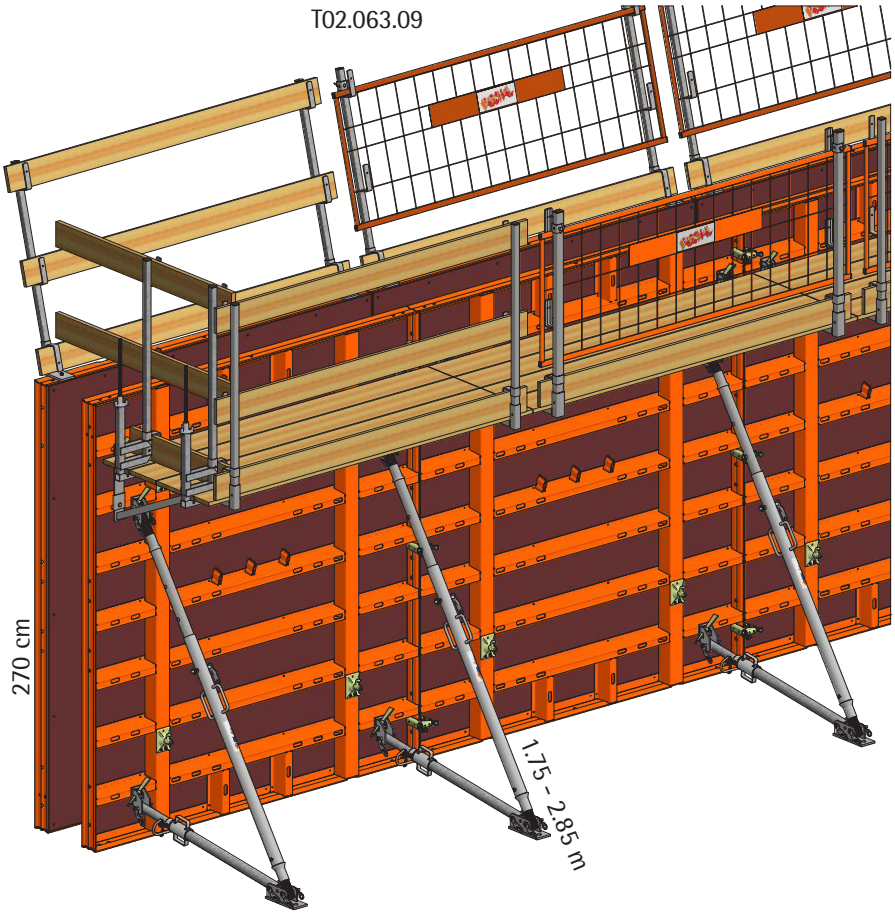
- Workplaces on the formwork
- Fall protection
- Absorption and dissipation of wind loads

For setting up workplaces on and at the formwork, the platform bracket or the Secuset bracket with the lateral protection railing post and toe board support are attached to the panels, which are then completed with on-site platform and a railing (lateral protection).

- The regulations of DIN EN 12811-1 apply.
- The area-related working load is 3.0 kN/m^2 (scaffold group 4)
- The distance between brackets must not exceed 2.00 m

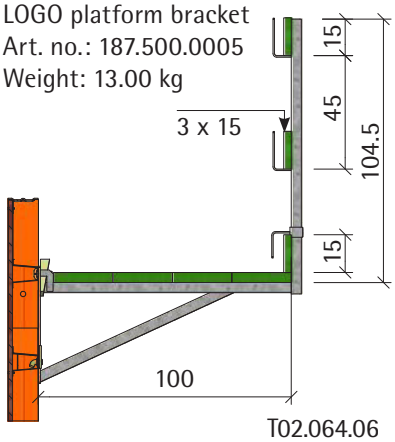
Alternatives:
- Concreting platform p. 88ff.
- Mutip platform p. 92ff.

T02.063.09

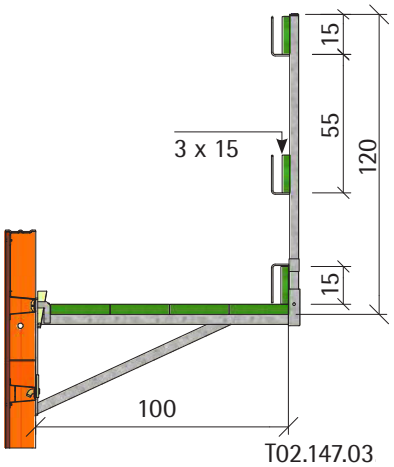


Permissible support width in m for scaffold platforms made of wooden planks or boards (DIN 4420, part 3), scaffold group 4					
Board or plank width [cm]	Board or plank thickness [cm]				
	3.0	3.5	4.0	4.5	5.0
20	1.25	1.50	1.75	2.2	2.50
24 and 28	1.25	1.75	2.00	2.25	2.50

LOGO platform bracket
Art. no.: 187.500.0005
Weight: 13.00 kg



T02.064.06

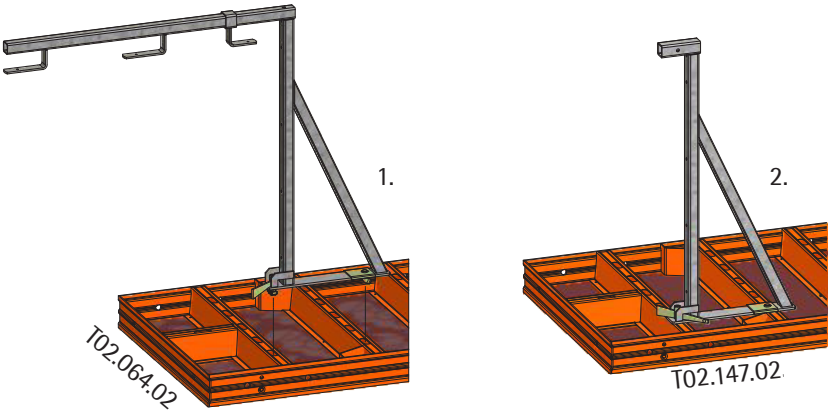


T02.147.03

Railing post lateral protection 120 cm Secuset
Art. no.: 189.000.1001
Weight: 3.20 kg

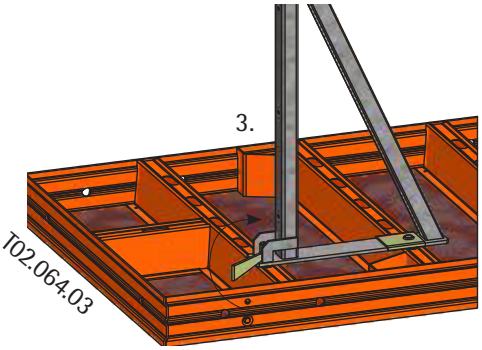
LOGO bracket Secuset
Art. no.: 189.000.0003
Weight: 9.40 kg

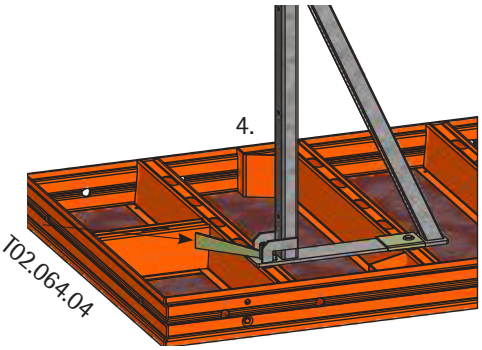
Safety at work, platforms



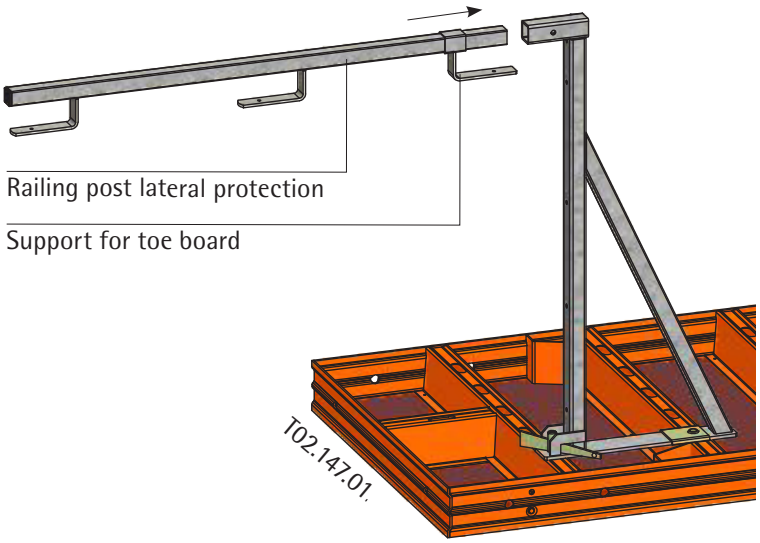
Assembly of the platform bracket / bracket:

1./2. Pin the platform bracket or bracket with the pin in the oblong hole of the lower cross profile, place the hook-headed bolt in the oblong hole of the upper cross profile.





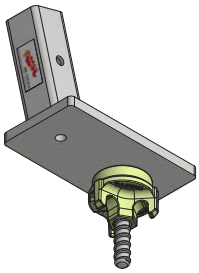
3./4. Turn the hook-headed bolt with the wedge by 90° and fasten the wedge firmly.



When using the bracket, also pin the lateral protection railing post with toe board support.

Safety at work, lateral protection on opposing side

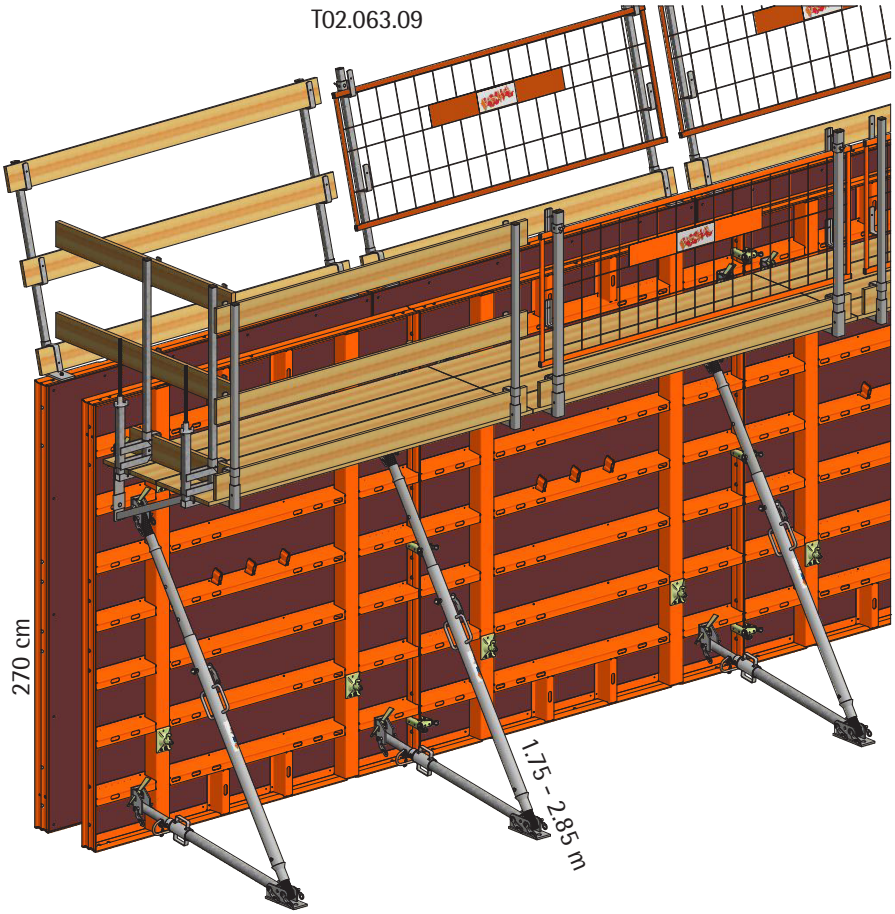
LOGO support lateral protection
Art. no.: 189.000.0001
Weight: 3.1 kg

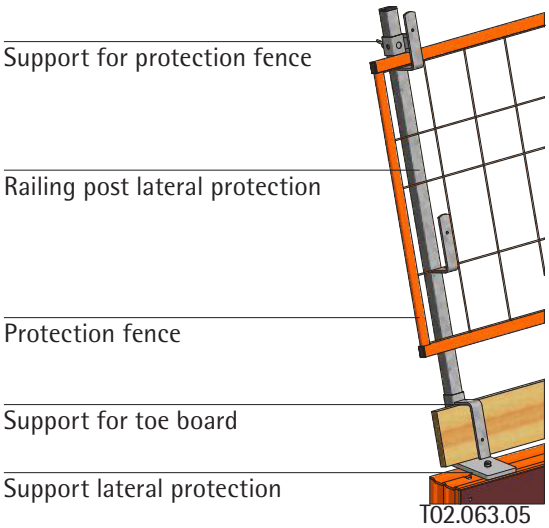


At the upper workplaces of the formwork, lateral protection must be provided on the opposing side from a fall height of 2.00 m.

For this purpose, railing posts are attached to the formwork panel and completed with fences or boards.

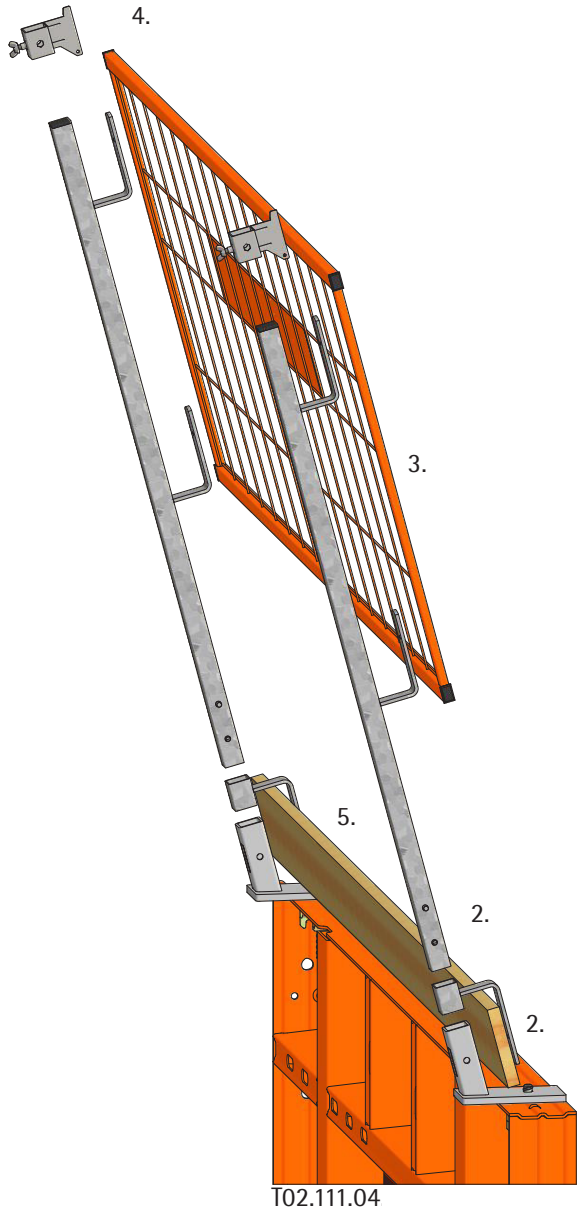
T02.063.09





T02.063.05

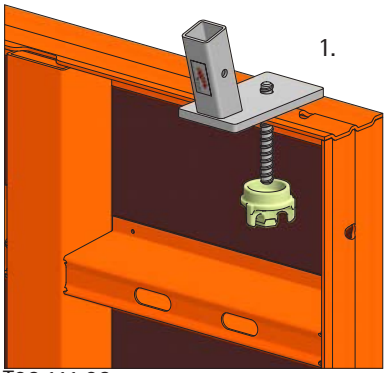
Safety at work, lateral protection on opposing side



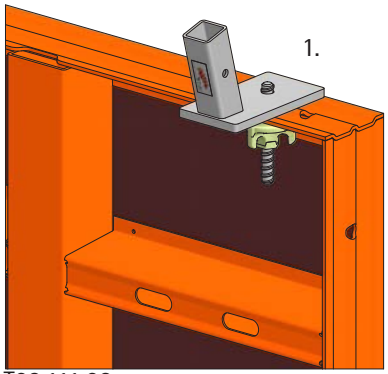
T02.111.04

Assembly sequence

1. Attach the LOGO support lateral protection to the panel top.
2. Insert railing post lateral protection with toe board support
3. Hinge railings with fences or boards 3 x 15 cm
4. Secure fence with support
5. Attach toe board



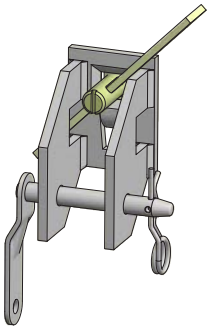
T02.111.02



T02.111.03

Safety at work, supports

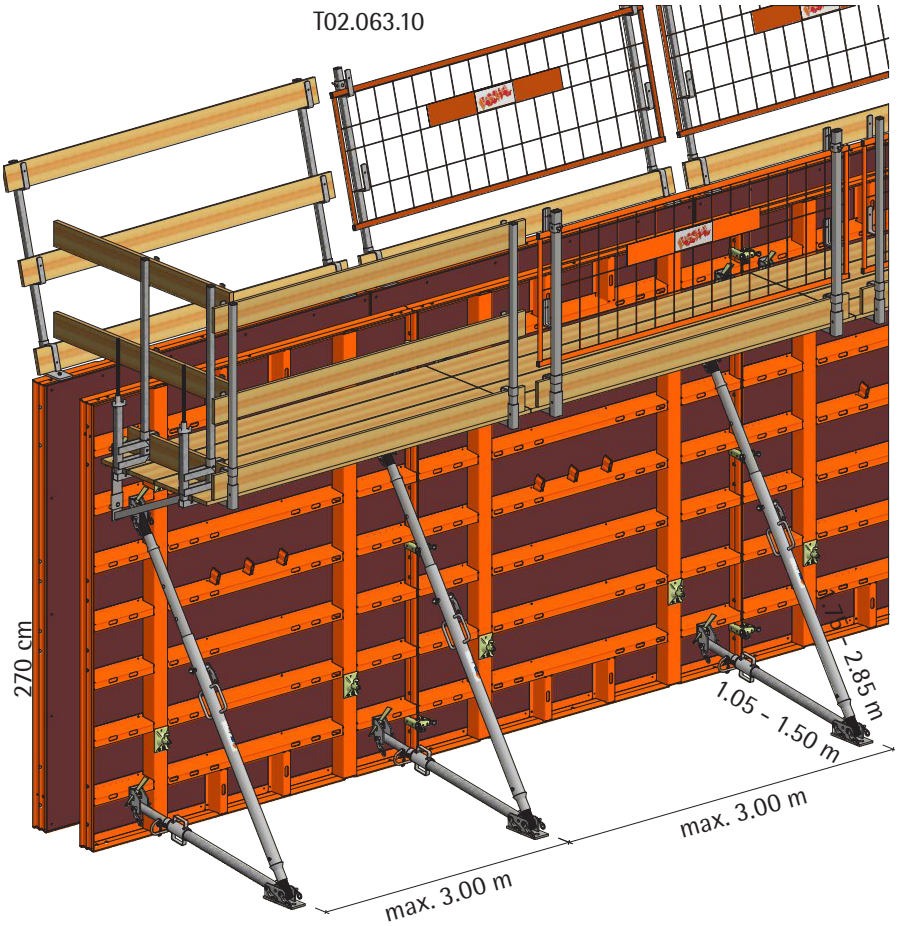
Suspending piece
for adjustable props cpl. L/N/A
Art. no.: 187.500.0003
Weight: 2.0 kg

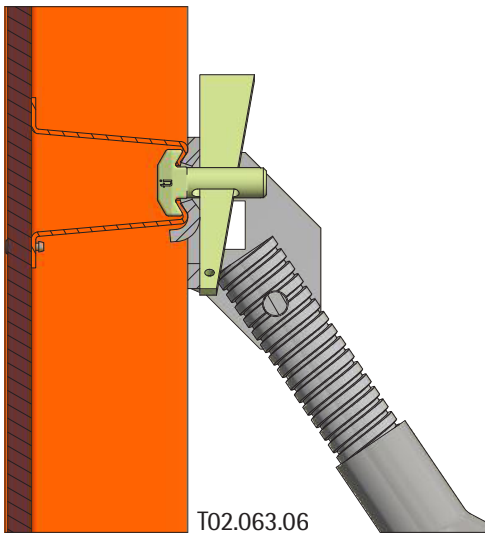


Adjustable props are used to align the formwork vertically and to transfer wind loads to the formwork assembly surface.
These are available in four different lengths depending on the formwork height.
The two numbers in the product description indicate the basic length and the maximum extension dimension.
For rough adjustment, the inner and outer tubes are moved in 20 cm increments and then secured with a locking pin.
Then the fine adjustment is made by turning the outer tube by means of the integrated handles.

The connection to the formwork is made with suspending pieces for adjustable props via an integrated hook-headed connection in the oblong holes of the cross profiles.
3-hole foot plates or an end plate articulation are bolted to the assembly surface and connected to the adjustable props.

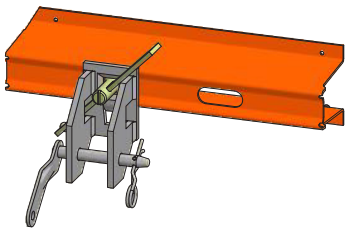
T02.063.10

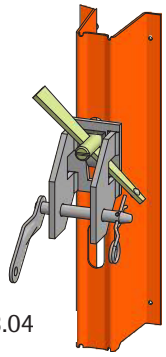




T02.063.06

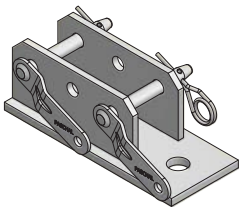
Safety at work, supports





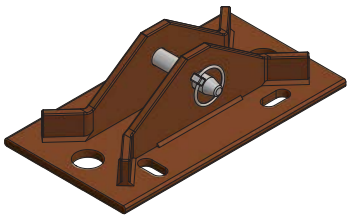
T02.063.04

Foot plate 3 holes cpl.
Art. no.: 189.005.0023
Weight: 4.20 kg

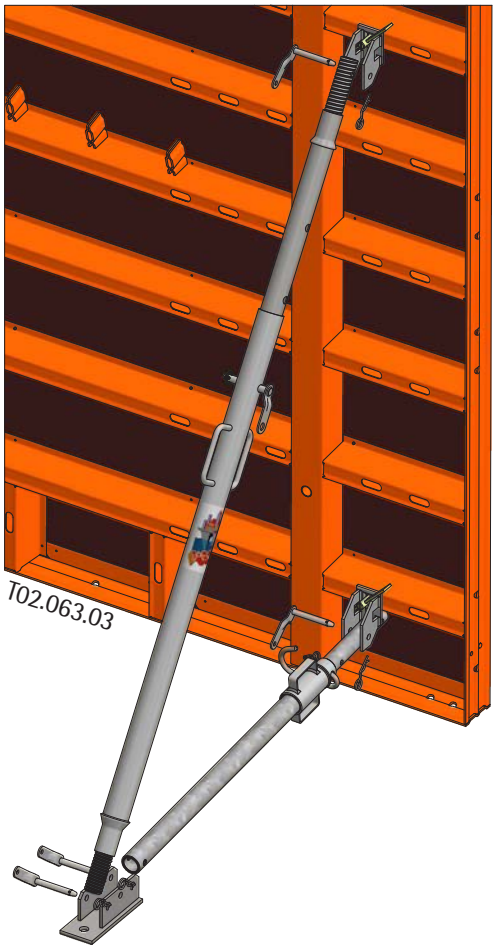


For adjustable props up to 620 cm extension length, the 3-hole foot plate is used, which can hold two adjustable props. Make sure that the outer tube of the adjustable prop always comes towards the foot plate, not against the formwork.

End plate articulation BKS
Art. no.: 189.005.0033
Weight: 7.20 kg

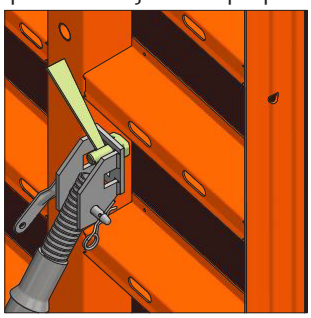


For the 620 - 1000 cm adjustable prop, both inner tubes have to be extended evenly. The end with the right-hand thread (black) is attached to the end plate articulation on the assembly surface, the end with the left-hand thread (galvanised) is attached to the formwork with the suspending piece for adjustable props.



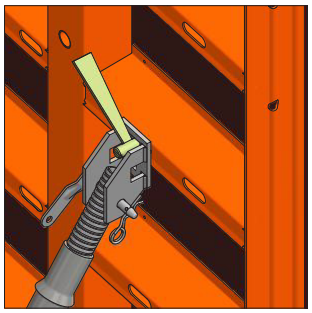
T02.063.03

Assembly of the suspending piece for adjustable props

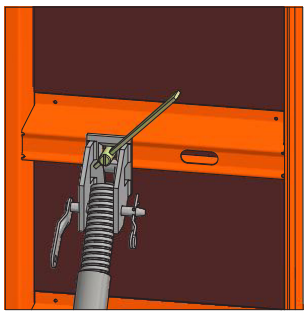


1. Insert the hook-headed bolt into the oblong hole provided for attachment.

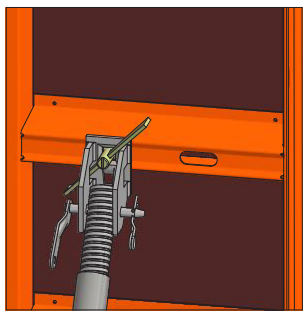
T02.063.02



2. The suspending piece for adjustable props must be in contact with the profile.

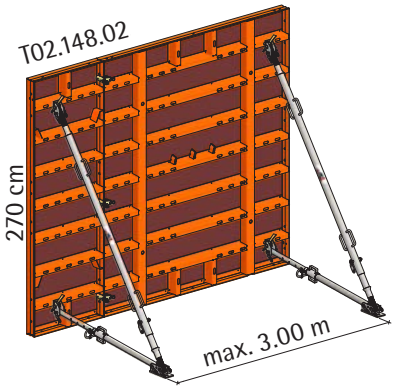


3. Turn the hook-headed bolt with the wedge by 90°.

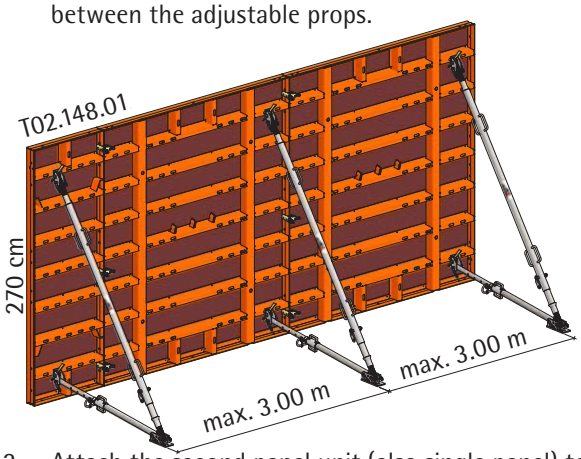


4. Punch wedge tightly

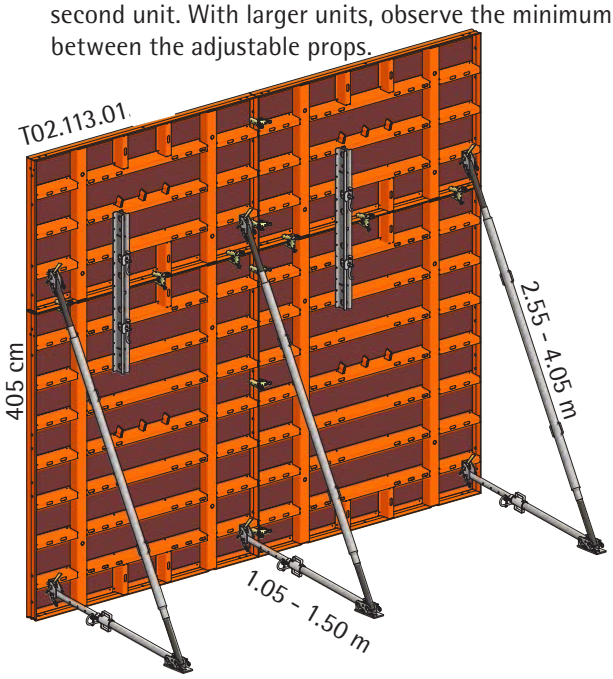
Safety at work, supports



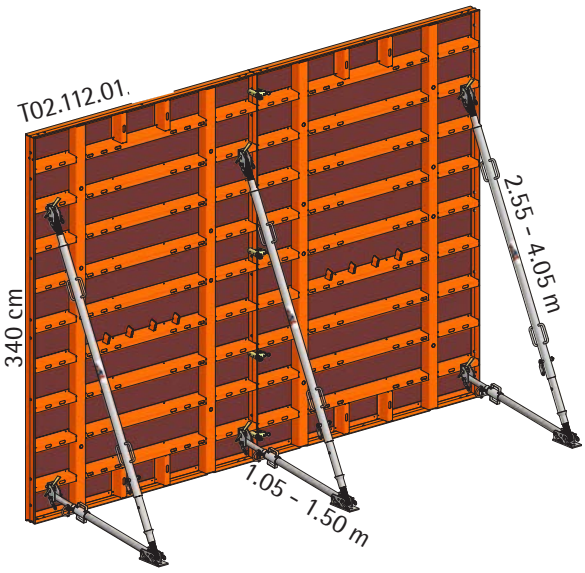
1. Place the first panel unit (also single panel) and support it with at least one adjustable prop on the left and right edge. For larger units, observe the minimum distances between the adjustable props.



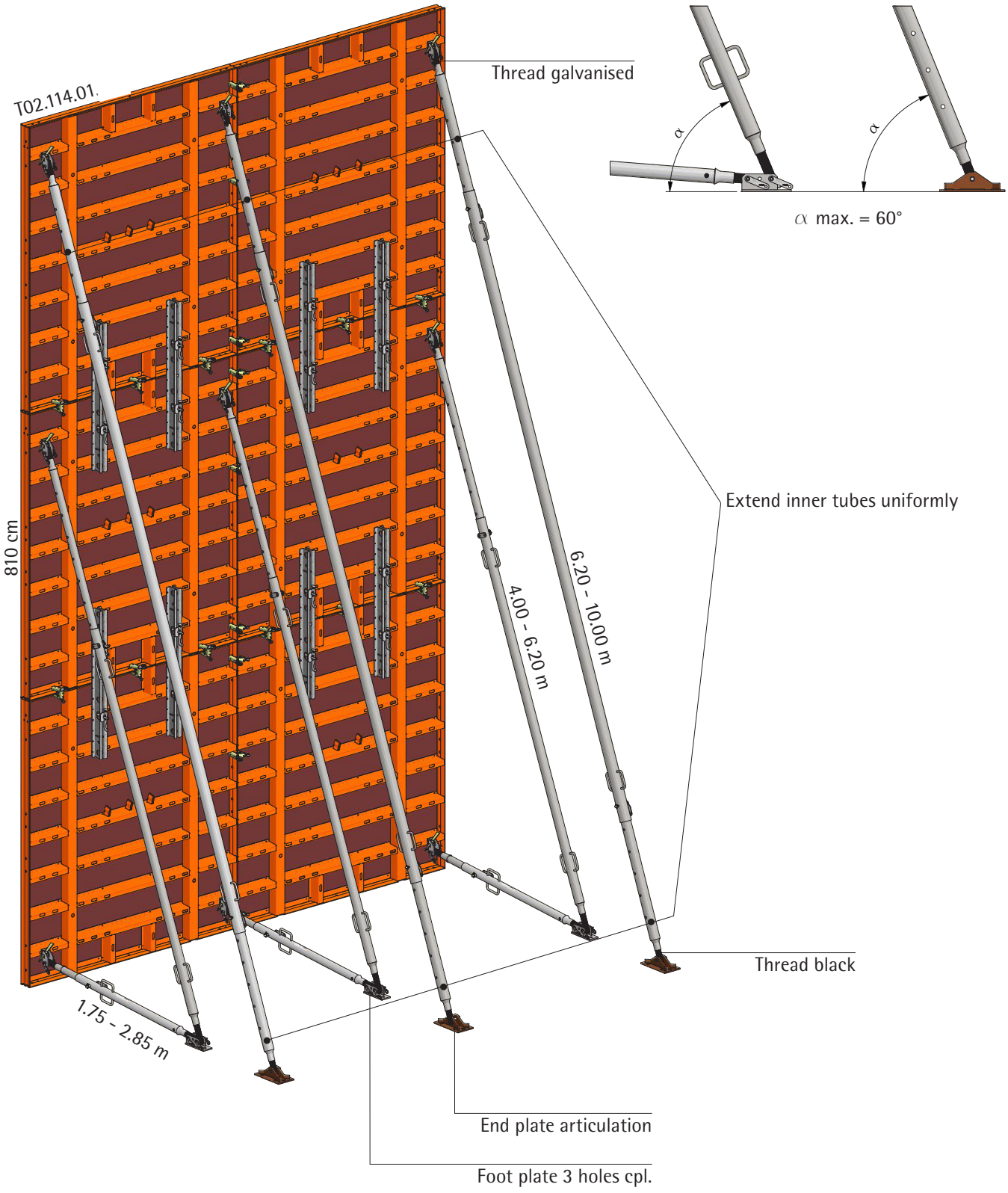
2. Attach the second panel unit (also single panel) to the already standing unit using the required connecting pieces.
3. Mount at least one more adjustable prop on the outside of the second unit. With larger units, observe the minimum distances between the adjustable props.



	Extension length L [m]	Max. compressive force D [kN]	Max. tensile force Z [kN]
Adjustable prop	L	D	kN
175-285 cm (18.2 kg)	1.75	36.00	36.00
	2.00	36.00	
	2.60	36.00	
	2.85	27.50	
255-405 cm (33.5 kg)	2.55	40.00	40.00
	2.90	35.80	
	3.30	27.10	
	3.70	20.50	
	4.05	16.50	
400-620 cm (54.5 kg)	4.00	36.90	
	4.50	29.30	
	5.00	22.90	
	5.50	17.80	
	6.00	13.80	
	6.20	12.60	
620-1000 cm (110.0 kg)	6.20	30.00	
	6.50	27.60	
	7.00	24.00	
	7.50	20.80	
	8.00	18.10	
	8.50	15.90	
	9.00	14.10	
	9.50	12.80	
	10.00	12.00	

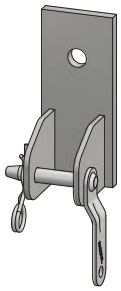


Safety at work, supports

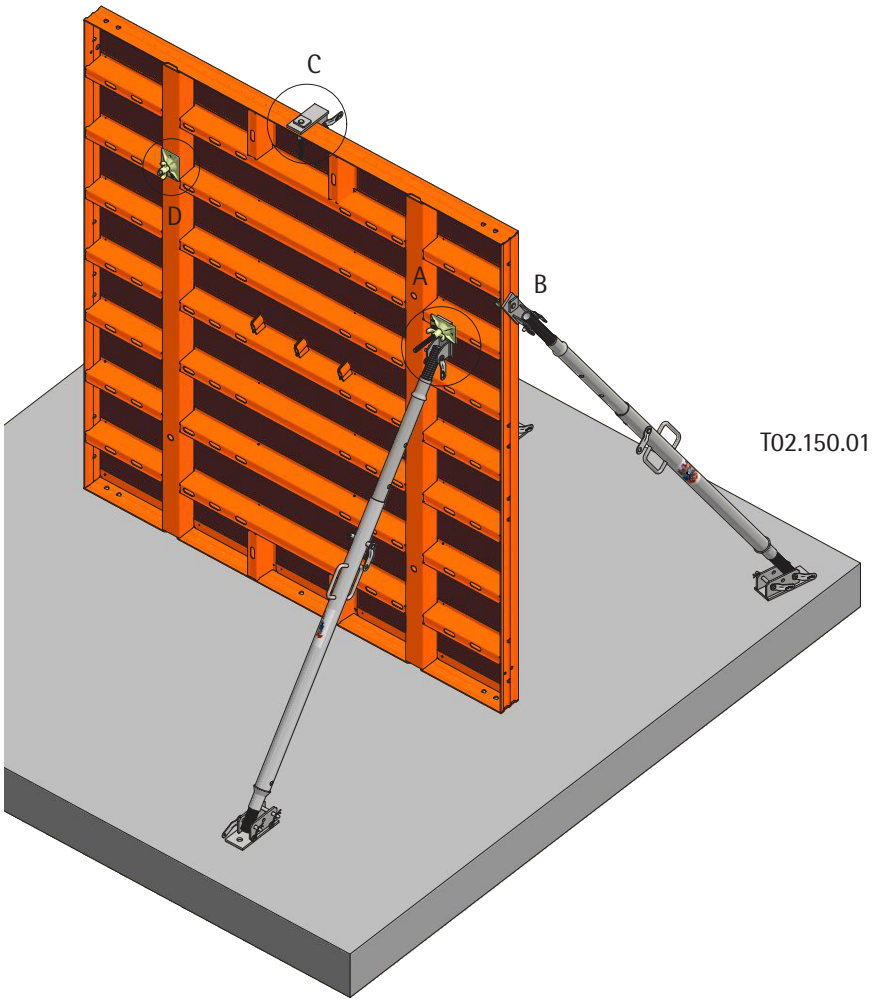


Safety at work, supports

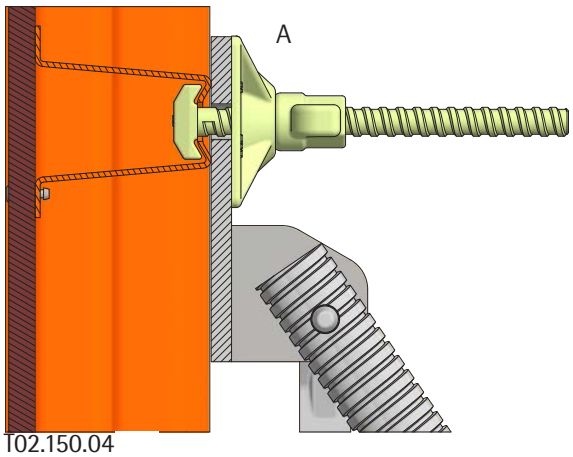
LOGO suspending piece for adjustable props universal
Art. no.: 187.500.0178
Weight: 2.2 kg



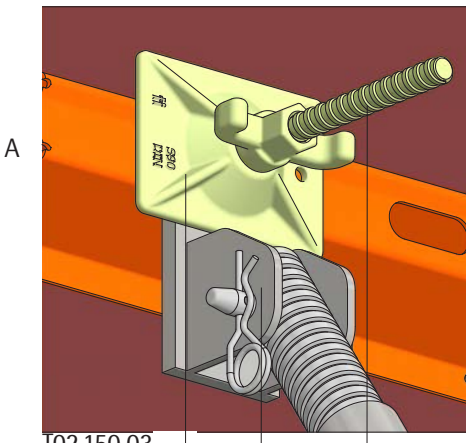
If the suspending piece for adjustable props cpl. L/N/A described on pages 80ff. cannot be used, the LOGO suspending piece for adjustable props universal is available as an alternative. It can be attached not only to the cross profiles of the formwork panels (A), but also to the panel frame (B + C) and through the usual tie hole (D).



T02.150.01



T02.150.04



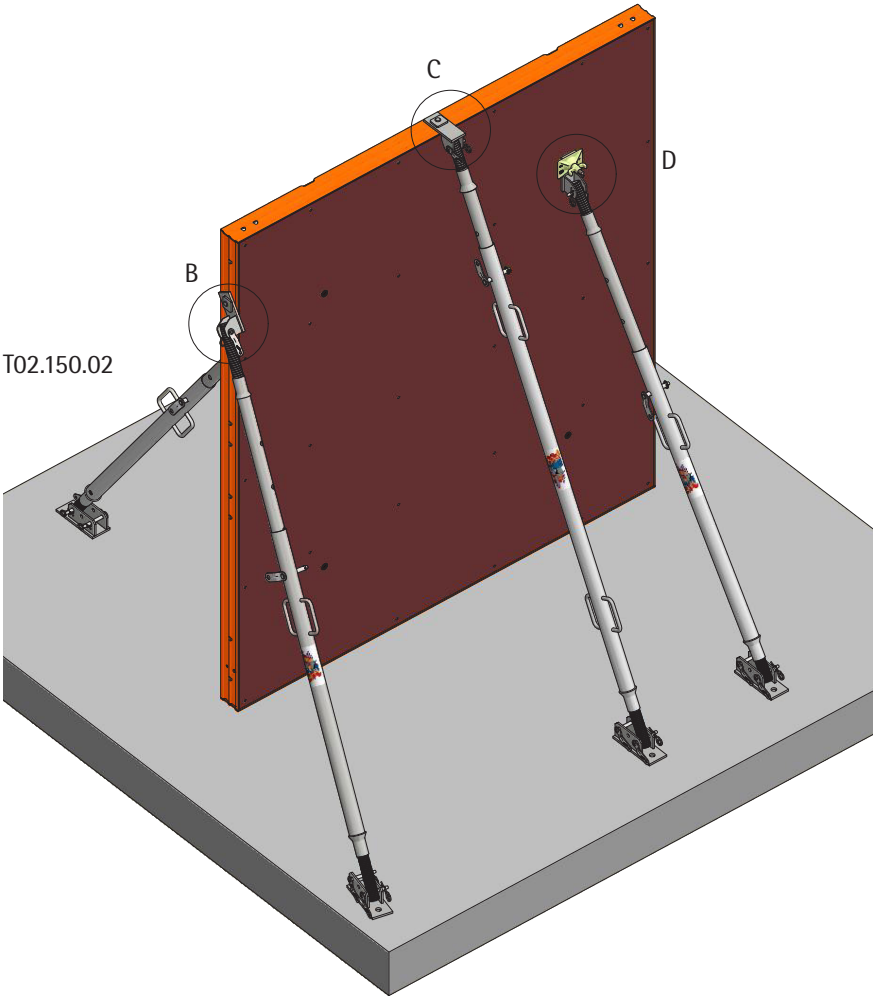
T02.150.03

Plate with ball-and-socket joint DW15

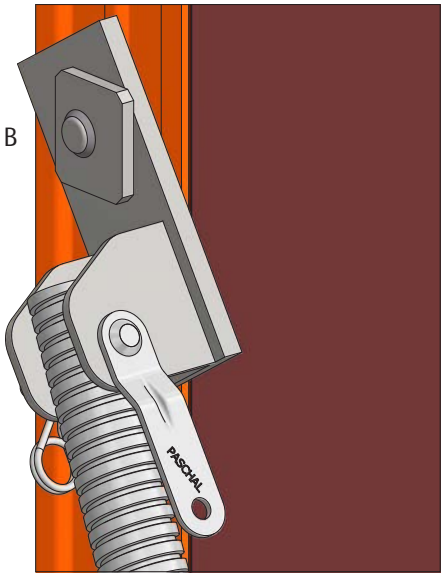
Suspending piece for adjustable props universal

Hook-headed bolt DW15 x 220/160

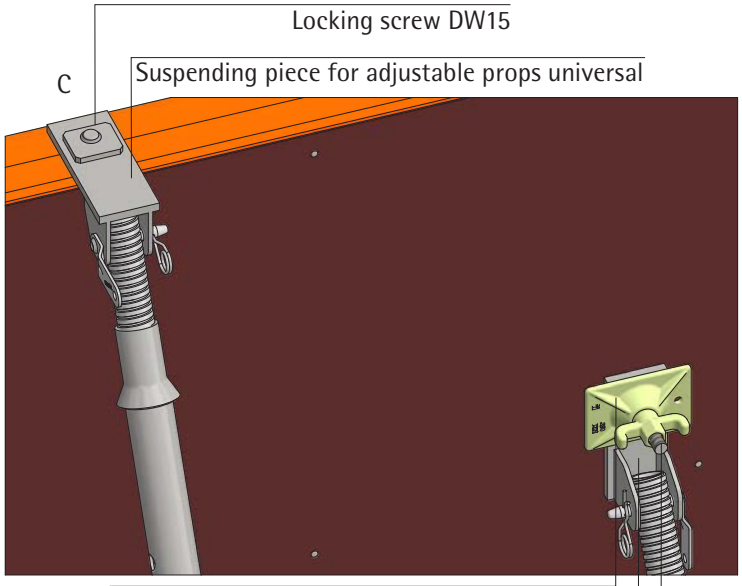
Safety at work, supports

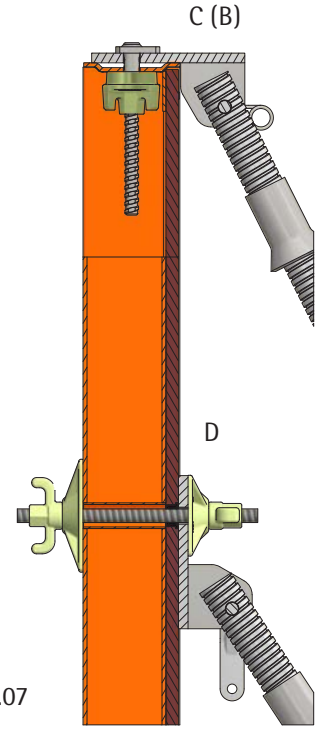


T02.150.02



T02.150.05





T02.150.07

LOGO concreting platform

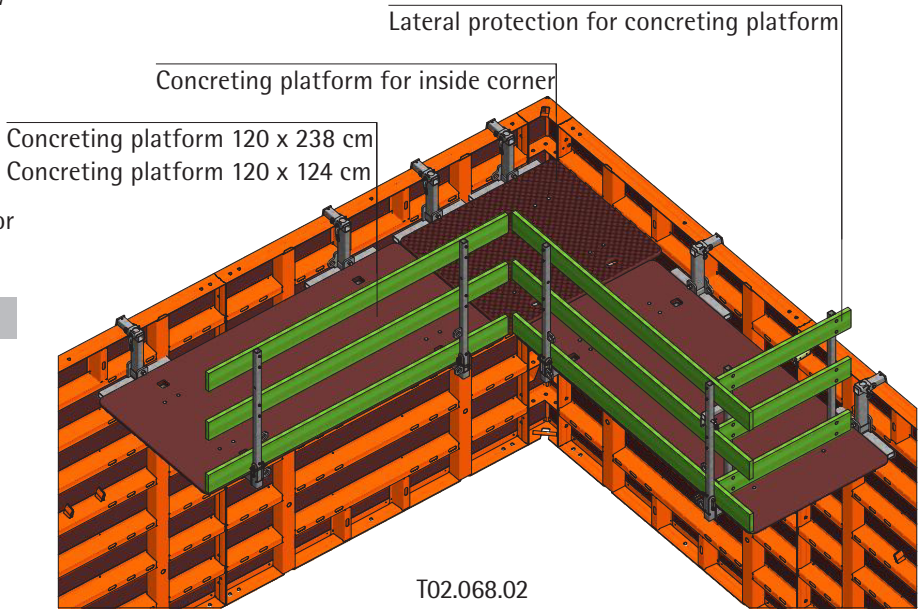
For pouring and compacting the concrete, concreting platforms are placed and secured as a complete part on the upper formwork frame. They consist of two bracing, load-bearing brackets with attachments, platform and a lateral protection railing.

T02.068.01

For straight wall sections, two platforms with widths of 238 cm and 124 cm are available. In the vicinity of an inside corner, a platform without lateral protection railing is suspended to allow continuous platform. The depth of the platforms is 120 cm.
Additional lateral protection can be attached to the end platforms.

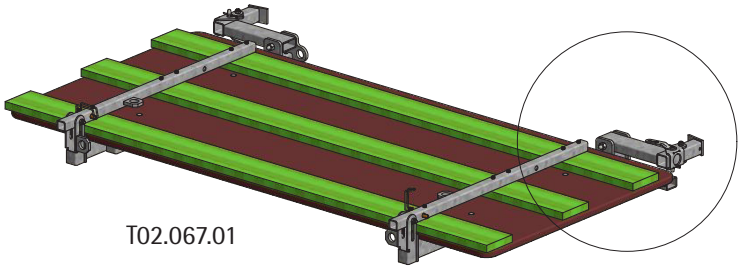
All parts of the platform are hinged together and can be folded together for transport or storage to save space.

Max. payload = 1.50 kN/m^2



T02.068.02

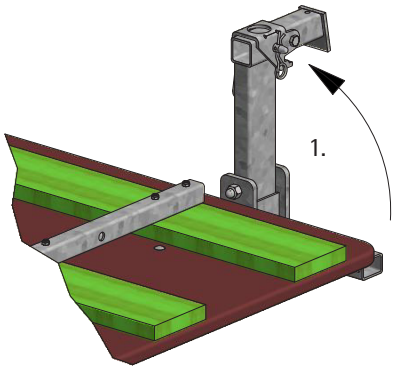
LOGO concreting platform

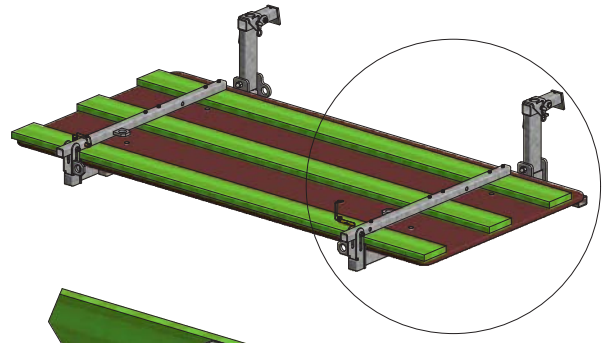


T02.067.01

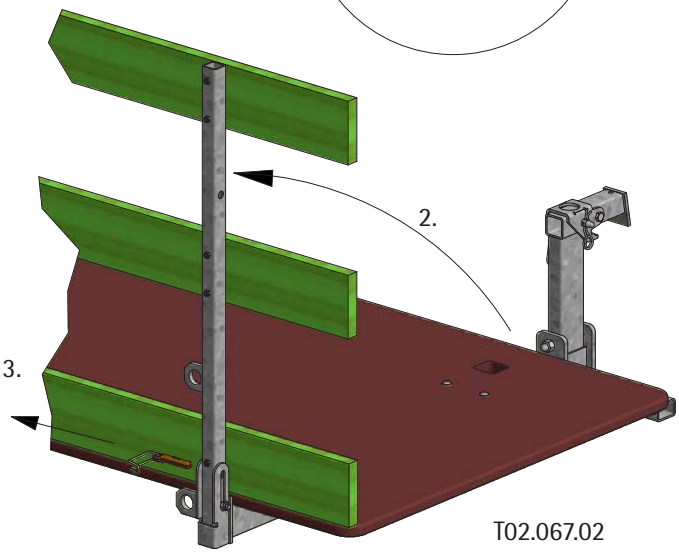
Horizontal unfolding process:

1. Turn the attachment on the brackets upwards.





2. Place the complete railing (lateral protection) in a vertical position

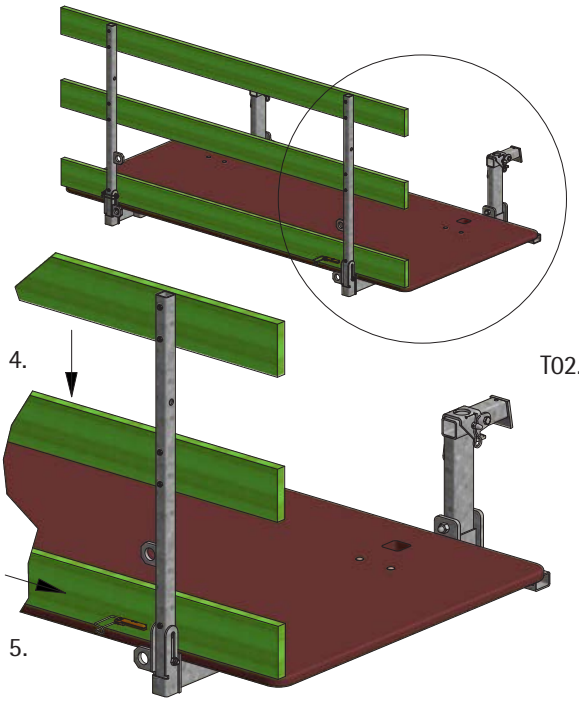


T02.067.02

3. Pull the safety bolt

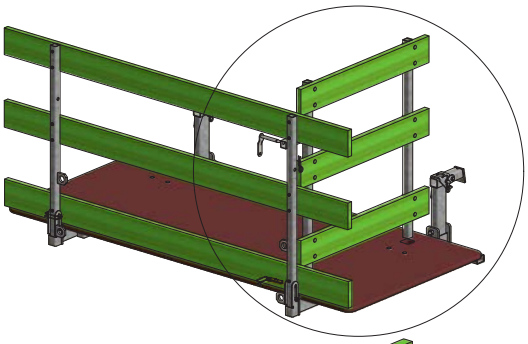
LOGO concreting platform

4. Lower the complete railing (lateral protection) in the guide.

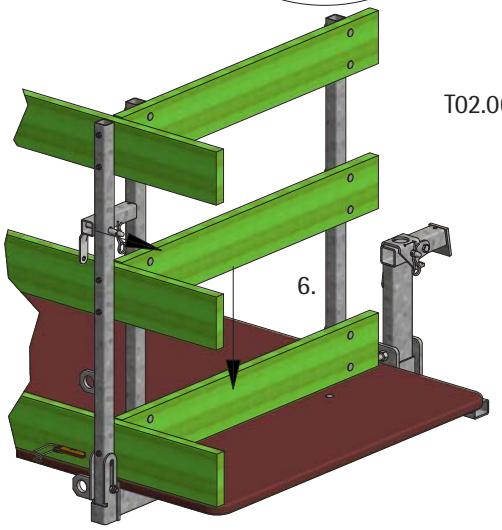


T02.067.03

5. Replace the safety bolts

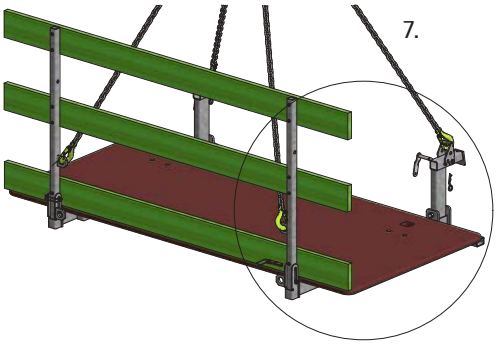


6. Insert the lateral protection at the front of the first and last respectively platform of a continuous flooring. (openings in the platform next to the brackets).

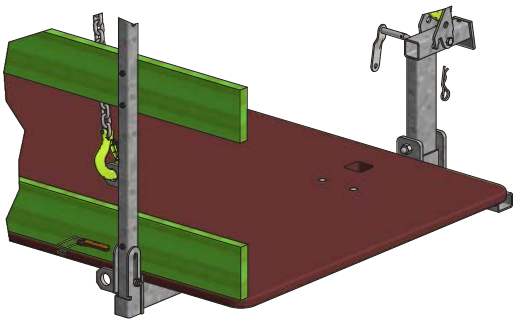


T02.067.04

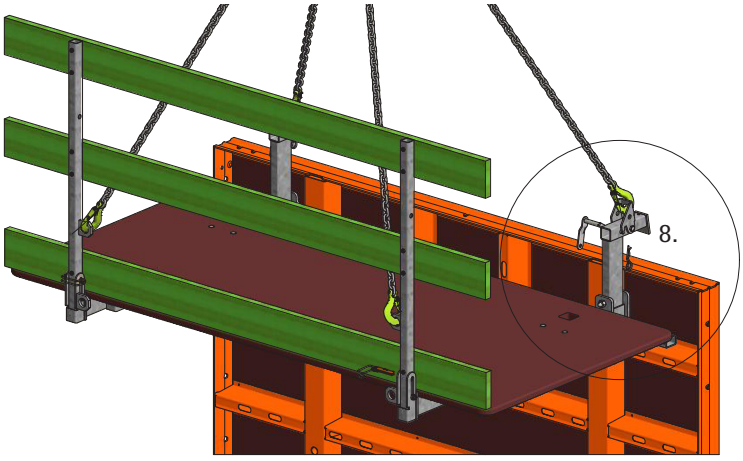
LOGO concreting platform



T02.067.05

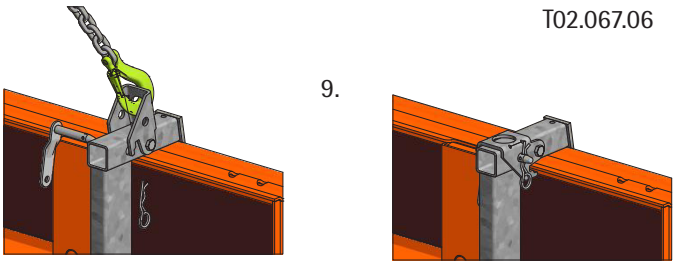


7. Move ready-to-use platforms with a four-part suspension.



8. Place the suspensions on the upper panel frame and secure.

T02.067.06

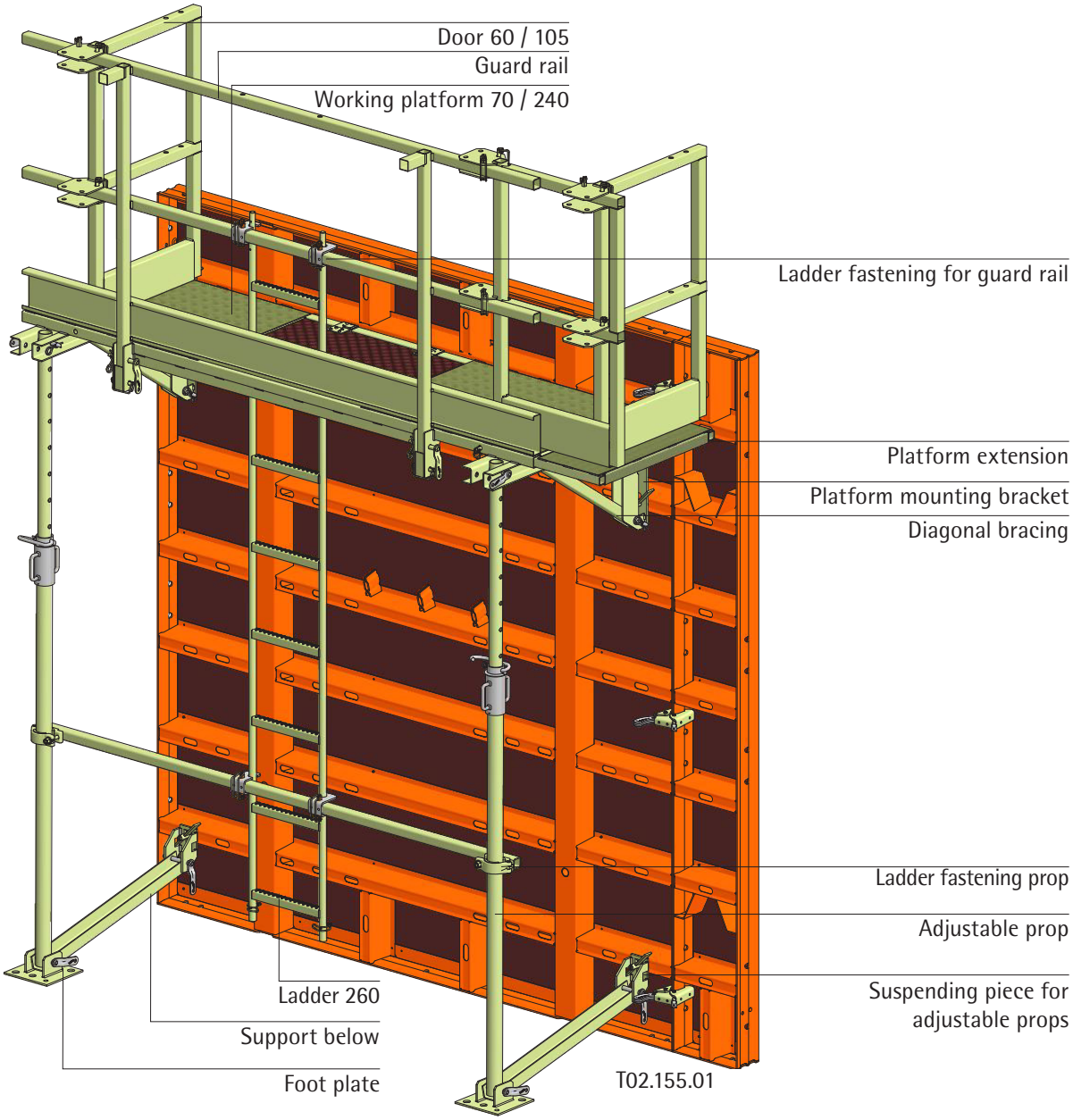


9. Remove four-part suspension

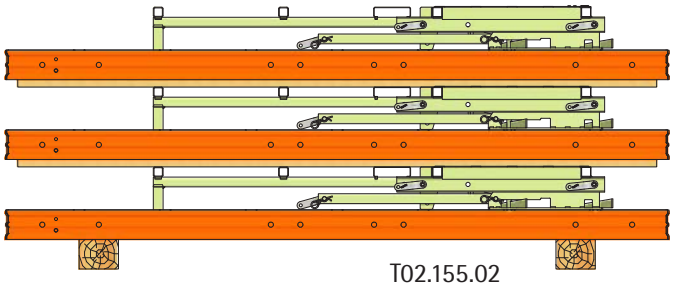
Multip multi-functional working platform

With regard to occupational safety when handling formwork systems, safe workplaces must be provided. This applies, among other things, to operating the accessories when mounting and dismantling as well as to pouring and compacting the concrete. Safe access to the individual working levels must also be provided for.
These requirements are met by the multi-functional Multip working platform, which, like the employed LOGO formwork, can be systematically adapted to different lengths:

- Steel platforms and lateral protection, two working platforms with widths of 240 cm and 135 cm.
- Extensions in increments of 15 cm for insertion for horizontal applications to a length of 270 cm or for bridging compensation panels.
- Integrated doors at the ends.
- Ladder ascent through traps in the working platforms.
- Working platforms and lateral protection can remain folded on the formwork for storage and transport.
- For large formwork heights, individual levels can be height-extended and supported together with the LOGO panels (page 40ff.).



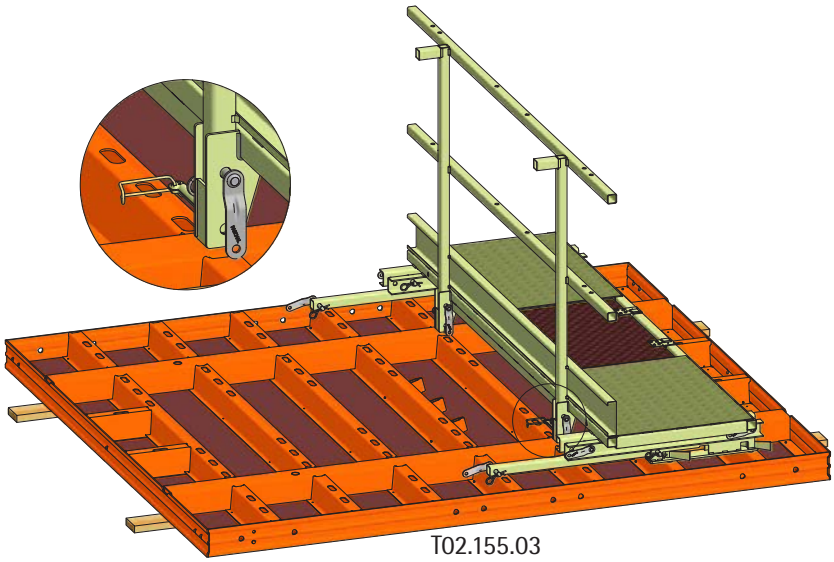
Multip multi-functional working platform



T02.155.02

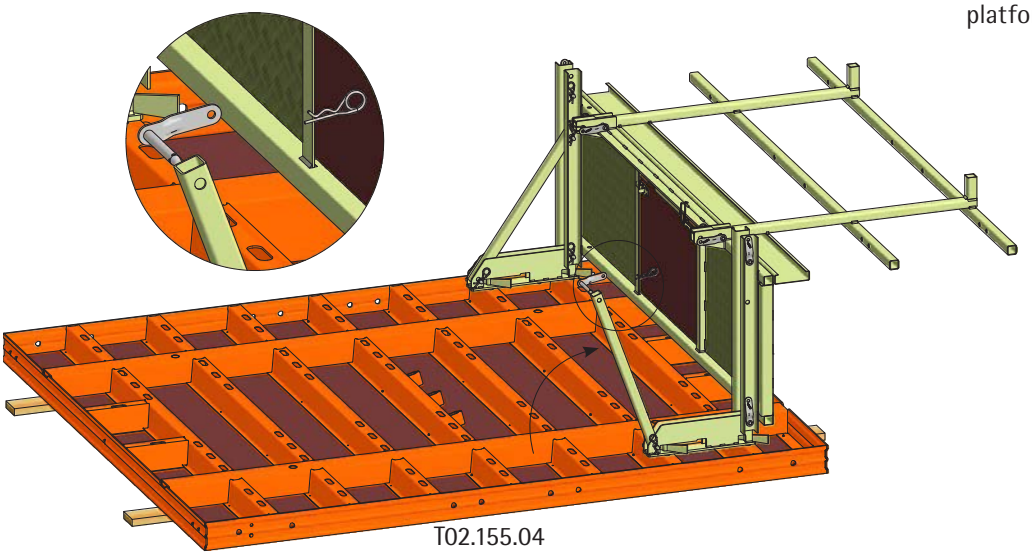
Due to the articulated connections, the guard rail, the platform and the diagonal bracing for transport and storage can be folded on the panel and placed in a linear arrangement. This eliminates the need for complete dismantling or assembly on changing construction sites. The adjacent illustrations show the unfolding process. The folding process is carried out in reverse order.

1. Place the formwork panel with the folded parts horizontally, turn the guard rail upwards and secure it to the platform with two form clips.



T02.155.03

2. Place the platform with the unfolded guard rail perpendicular to the panel, also turn the diagonal braces and connect them to the platform with locking pins.

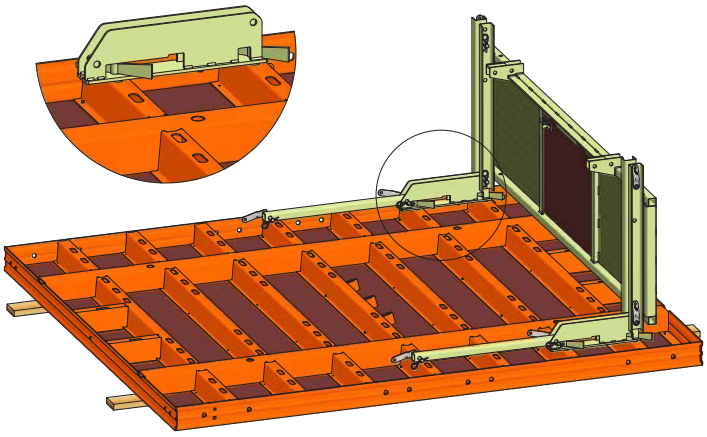


T02.155.04

Multip multi-functional working platform

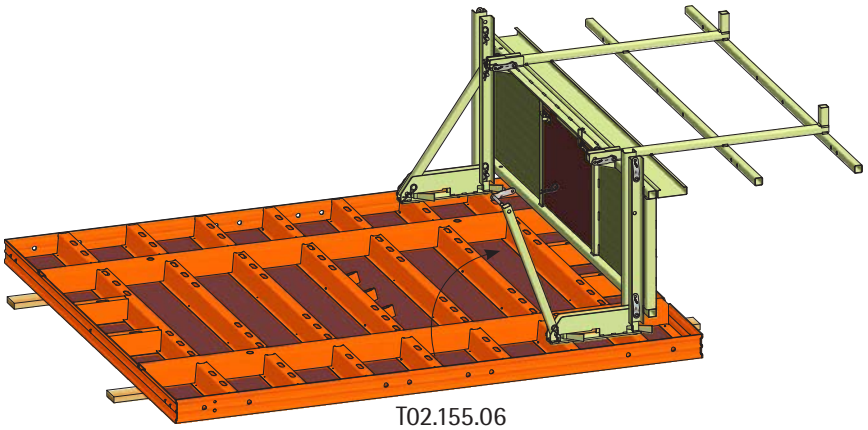
Basic assembly:

1. Insert the brackets of the platform with the hook-headed connections into the outer oblong holes of the cross profiles, turn the hook-headed bolts by 90° and drive the wedges in tight. Then connect the platform and the diagonal braces to each other with locking pins and cotter pins.



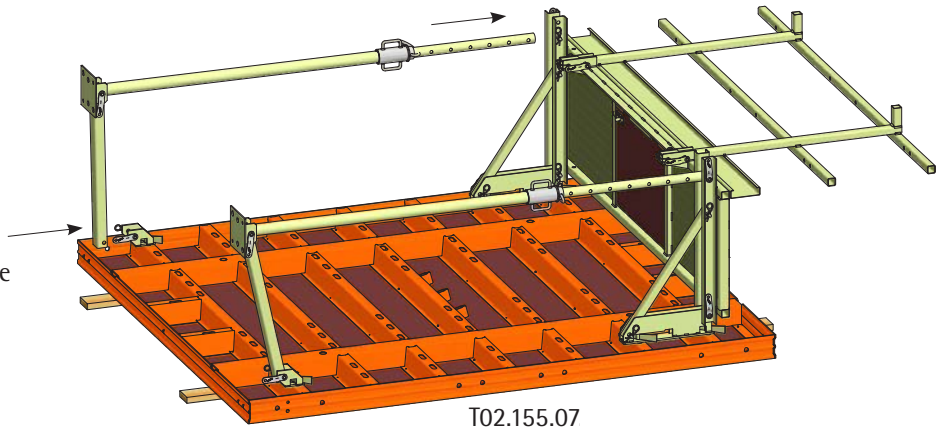
T02.155.05

2. Attach the guard rail to the outside of the platform with locking pins and cotter pins in the upper hole and the form clip in the lower hole.



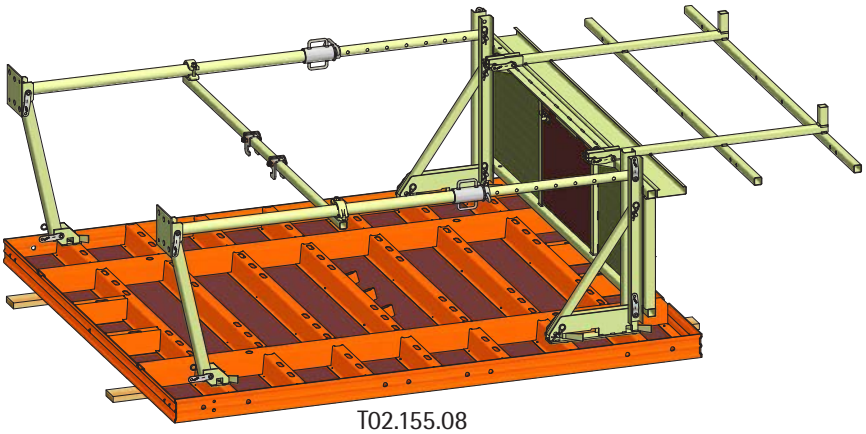
T02.155.06

3. Connect the adjustable props, the foot plates and the supports at the bottom with locking pins and cotter pins. Also use locking pins to attach the adjustable props to the platform and attach the supports to the formwork with the suspending piece for adjustable props (hook head).



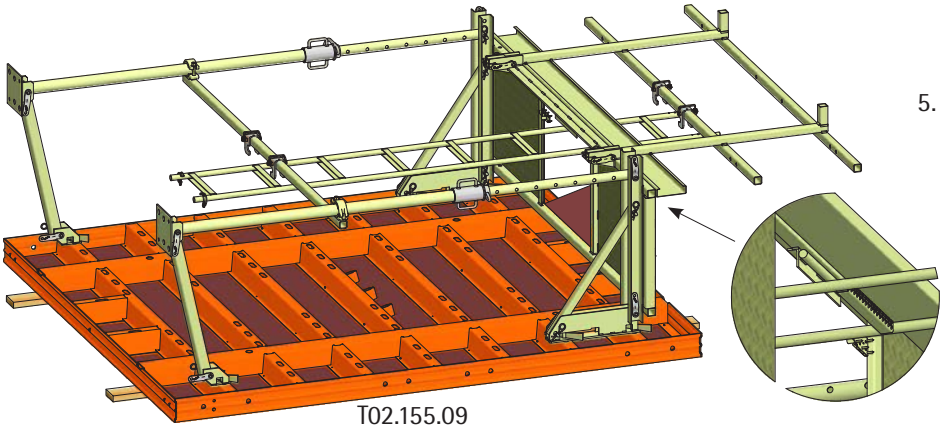
T02.155.07

Multip multi-functional working platform



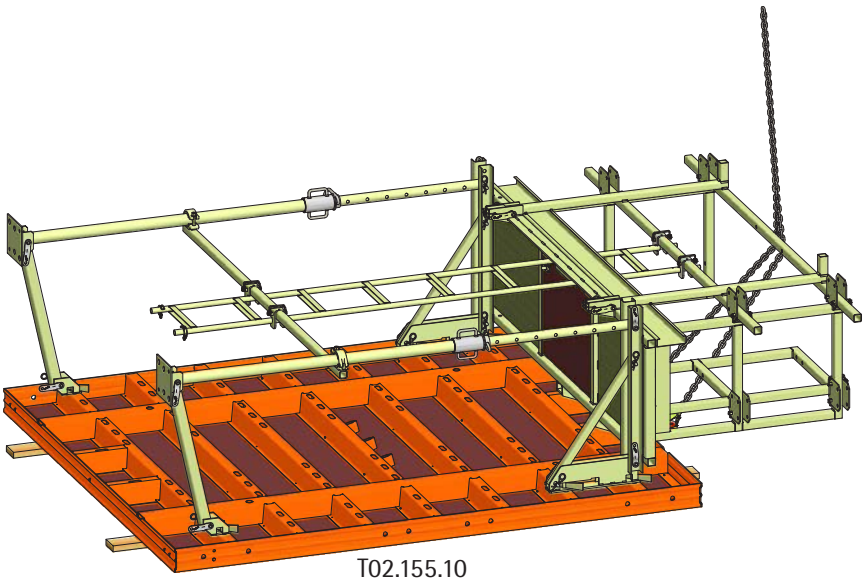
T02.155.08

4. Clamp the ladder fastening with the couplers to the adjustable props.



T02.155.09

5. Hinge the ladder with one rung in the ladder holder in the platform. There are further securing points at the top in the guard rail with the ladder fastening guard rail and at the bottom in the ladder fastening prop.

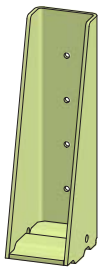


T02.155.10

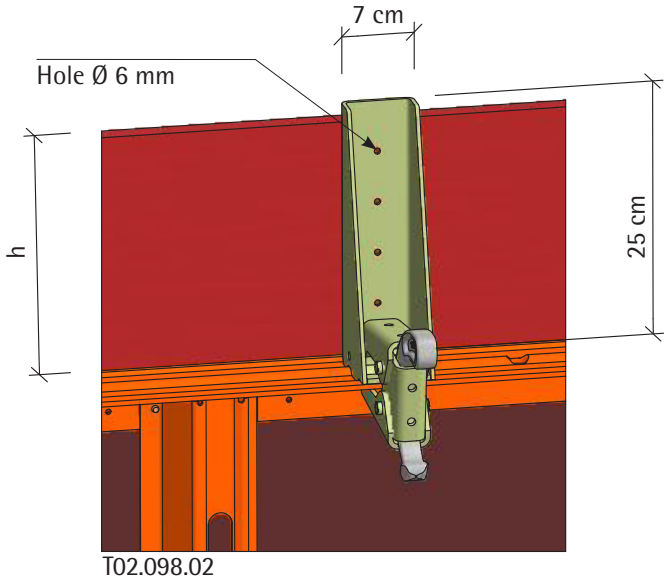
6. Mount the doors with form clip. Then attach the KLF 3D crane lifting clamps to move the formwork.

Height extension

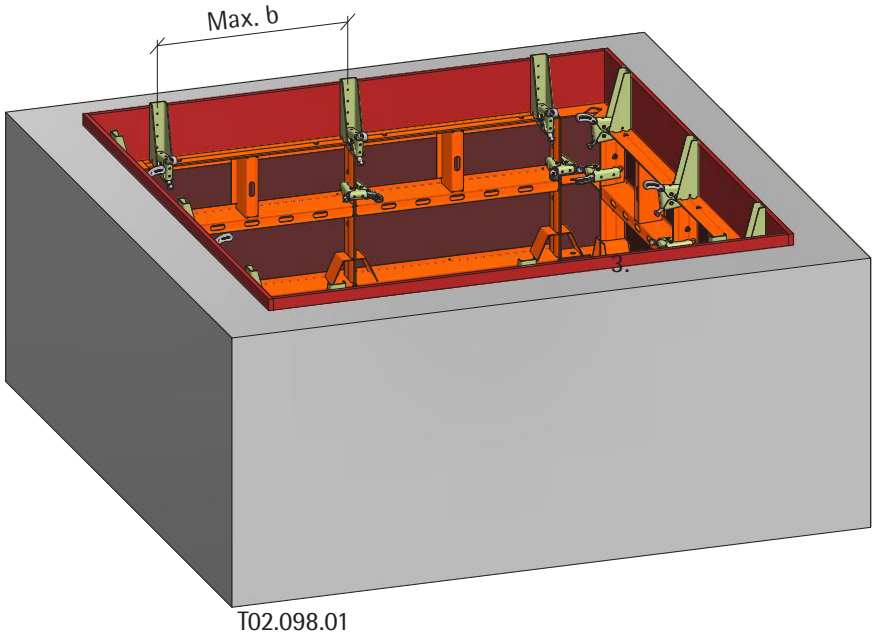
LOGO.3 extension bracket 25 cm
Art. no.: 187.500.0132
Weight: 1.7 kg



The 25 cm extension bracket is used to fix on-site plywood strips for small extension heights.
This is the case when small panel widths (used horizontally) are not available or when space is limited, e.g. in shafts.
The extension bracket is fixed to the upper panel frame with the wedge clamp.
Holes are provided in the extension brackets for fixing the plywood strips.



T02.098.02

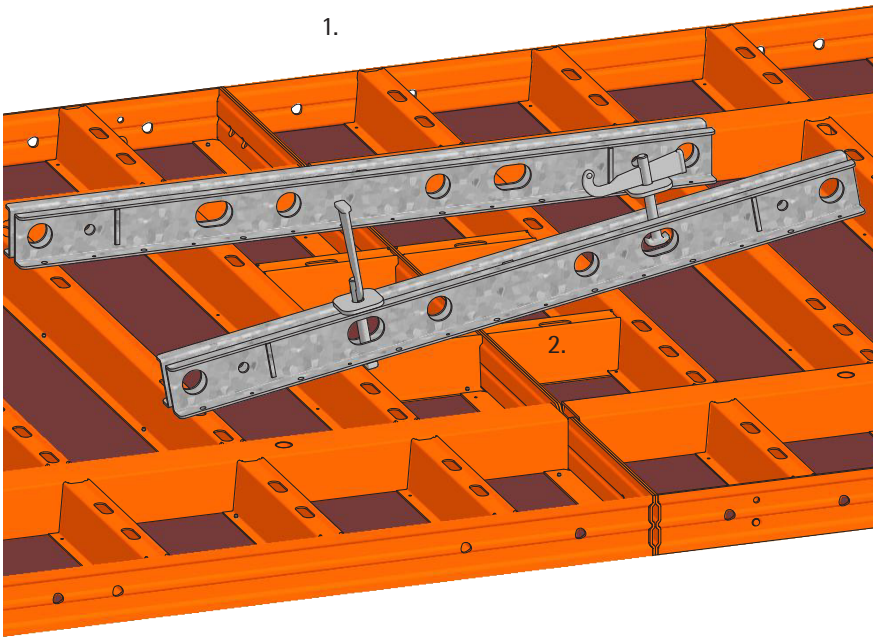


T02.098.01

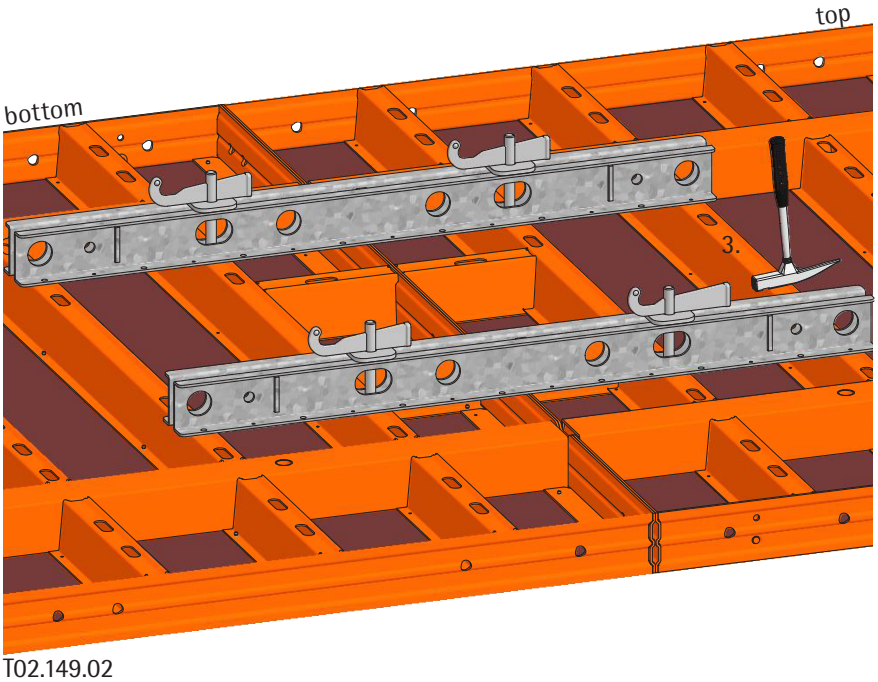
Height h (cm)	Max. distance b (cm)	Deflection f (mm)
10	110	2.5
15	100	2.6
20	90	2.2
25	85	2.2
30	80	2.1
35	75	1.9
40	70	1.6

Note:
Due to the frame profile shape, there is a separate LOGO.alu extension bracket for the LOGO.alu formwork. The technical data is identical.

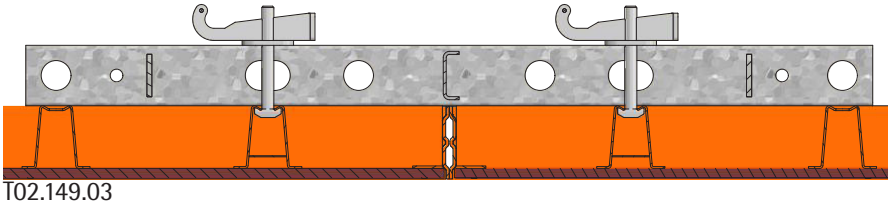
Height extension



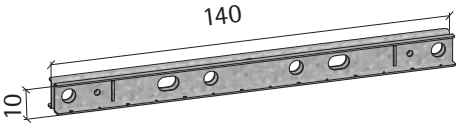
T02.149.01



T02.149.02

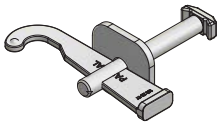


T02.149.03



Multi-waler 140
Art. no.: 187.500.0164
Weight: 16.80 kg

Clamping piece 10 cm L/N/A
Art. no.: 187.500.0165
Weight: 1.3 kg



If high panel units are erected after horizontal pre-assembly, high bending loads occur at the horizontal panel joints.
The same is the case when the pnael units are put down again for cleaning when forming in cycles.
To absorb these loads, multi-walers are mounted at the panel joints.

1. Place the multi-waler on the panels
2. Insert the clamping piece and turn it in the oblong hole
3. Drive wedge tightly

Attention:
Vertical panels:
Wedge top to bottom
Horizontal panels
Wedge horizontal

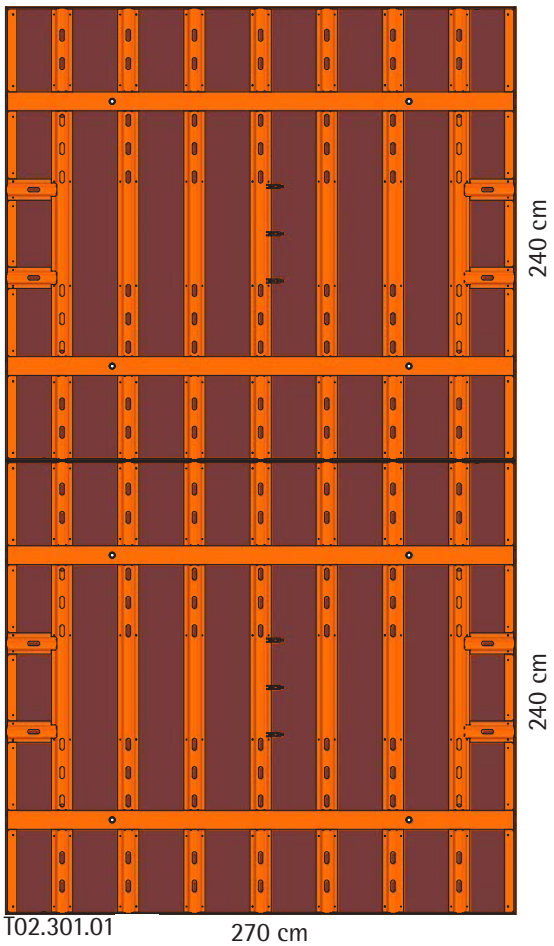
The respective number and position of the multi-walers depending on the panel dimensions can be found on the following pages.

Height extension

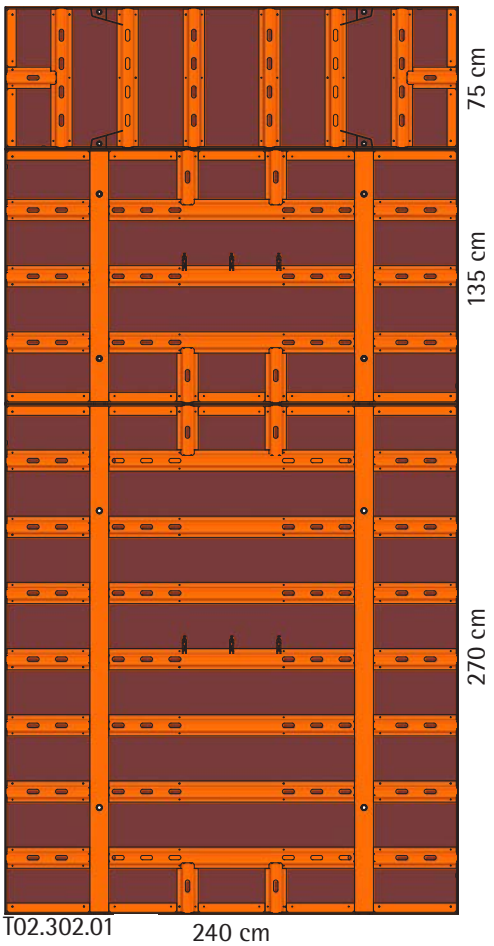
The following shows different extension variants with different panel heights.
In order to achieve the optimum formwork height, the panels can be extended either vertically or horizontally or both vertically and horizontally.
It is possible for two extension variants to result in an identical or nearly identical height (see below). Several factors can be decisive for the choice of the most economical solution:

- Complete purchase or rent
- Consideration of own stock
- Joint pattern (variant on left)
- Minimal amount of formwork for different concreting heights (variant on right)

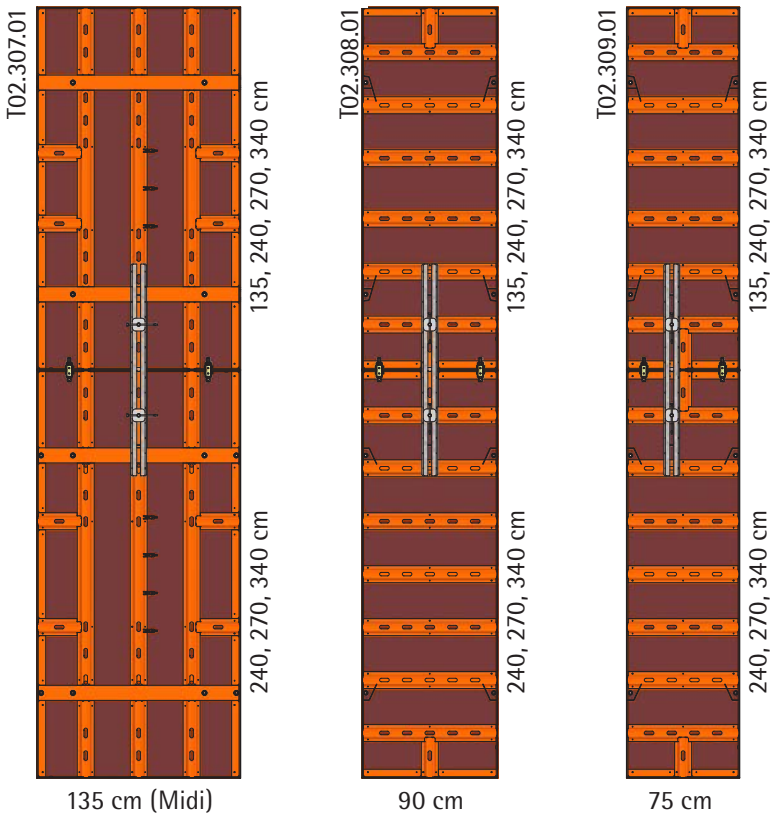
The illustrations (p.99ff.) include not only the positions of the required multi-walers, but also the positions of the connecting pieces and ties.



480 cm



Height extension

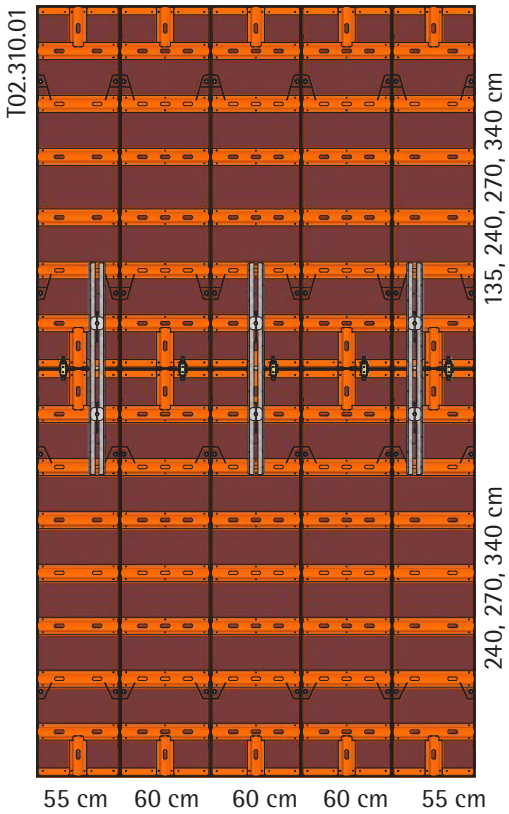


Arrangement of the multi-walers for small panel widths:

Panel widths 135 cm, 90 cm and 75 cm:

- 1 multi-waler

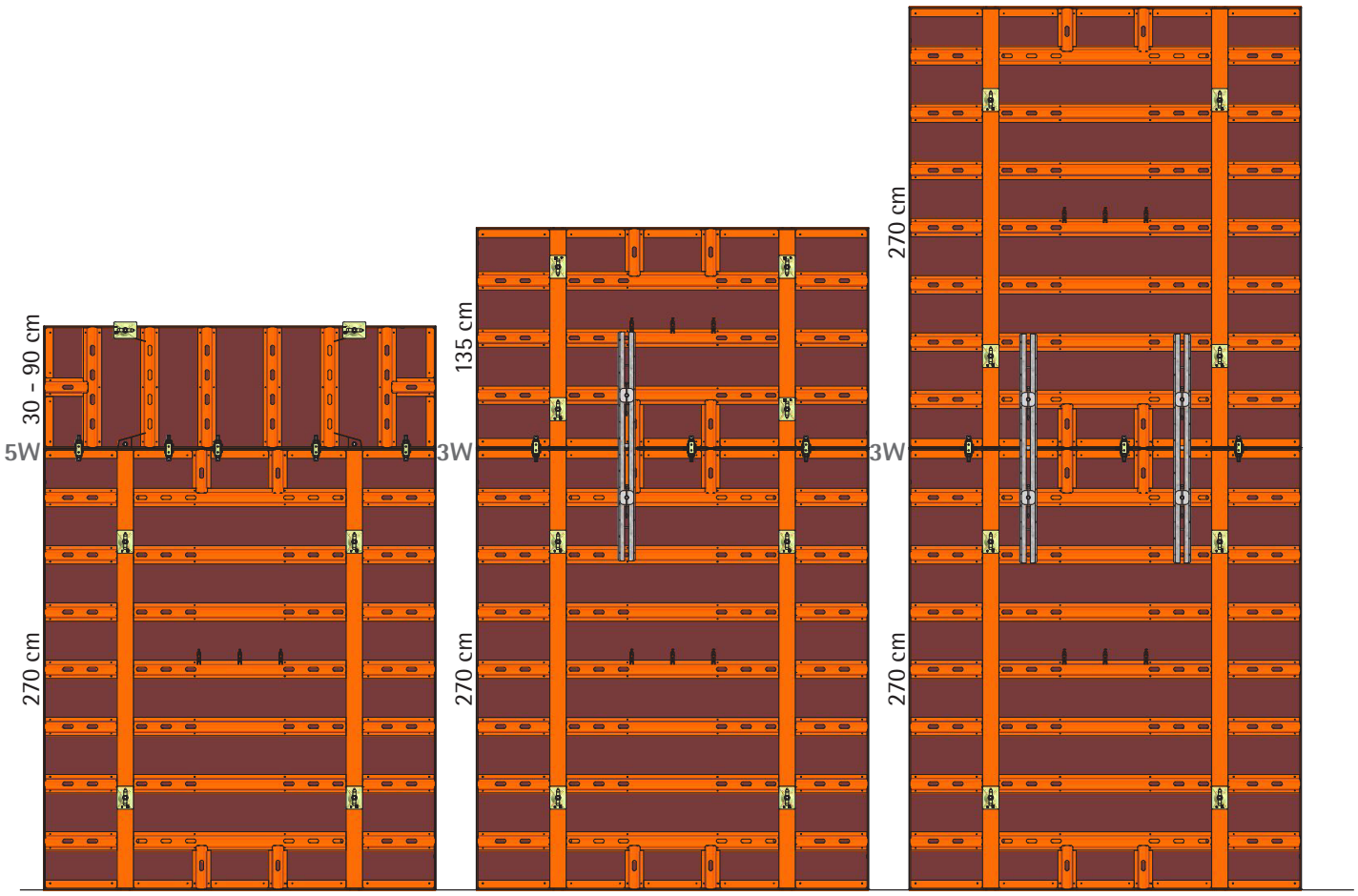
Example illustration of gang form

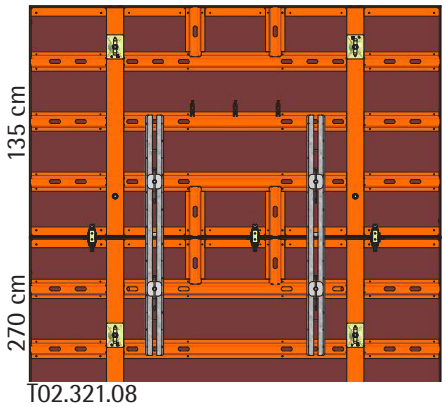


Panels <= 60 cm in longitudinal connection:

- 1 multi-waler on every second panel

Extension heights, base panel 240 x 270 cm



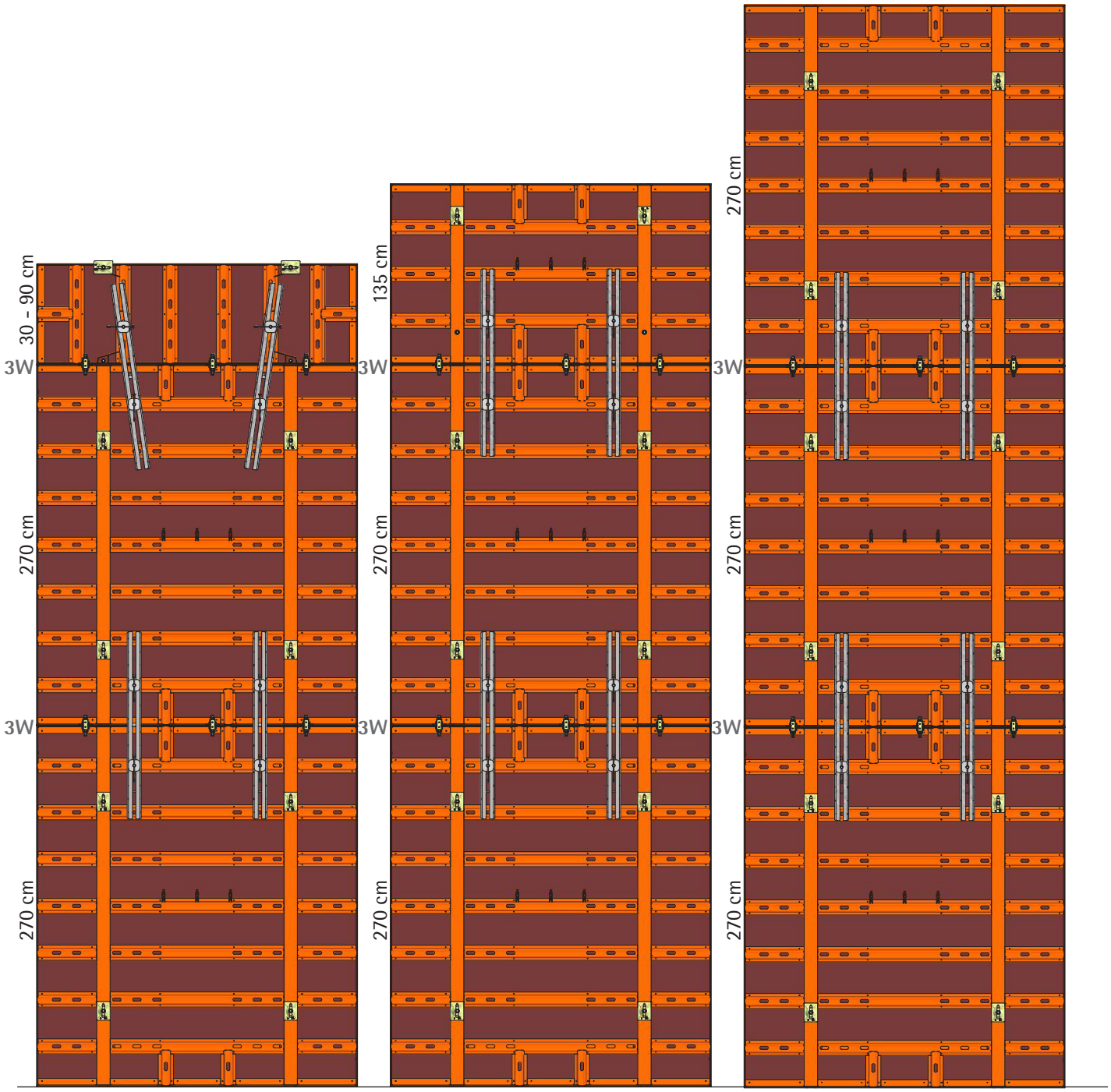


Alternative:

like T02.321.08

Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 240 x 270 cm

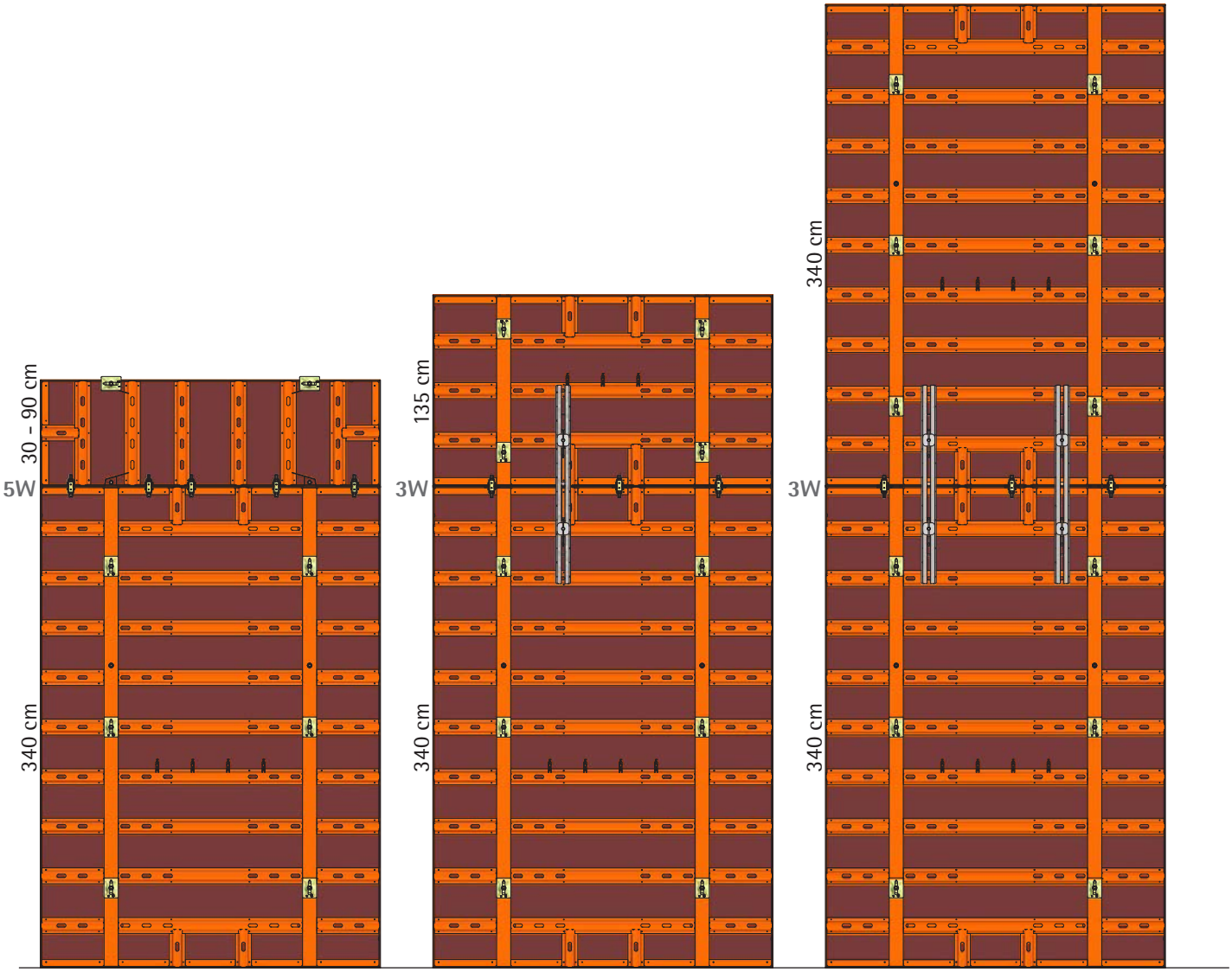


T02.321.07 240 / 570 – 630

T02.321.08 240 / 675

T02.321.09 240 / 810

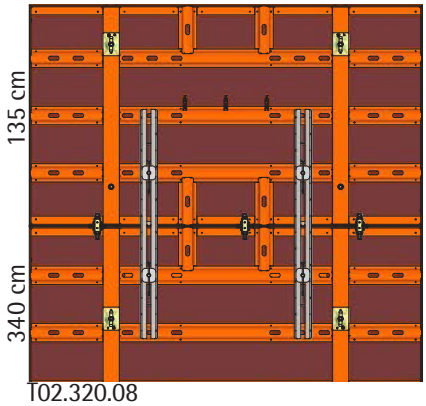
Extension heights, base panel 240 x 340 cm



T02.320.06 **240 / 370 – 430**

T02.320.03 **240 / 475**

T02.320.04 **240 / 680**



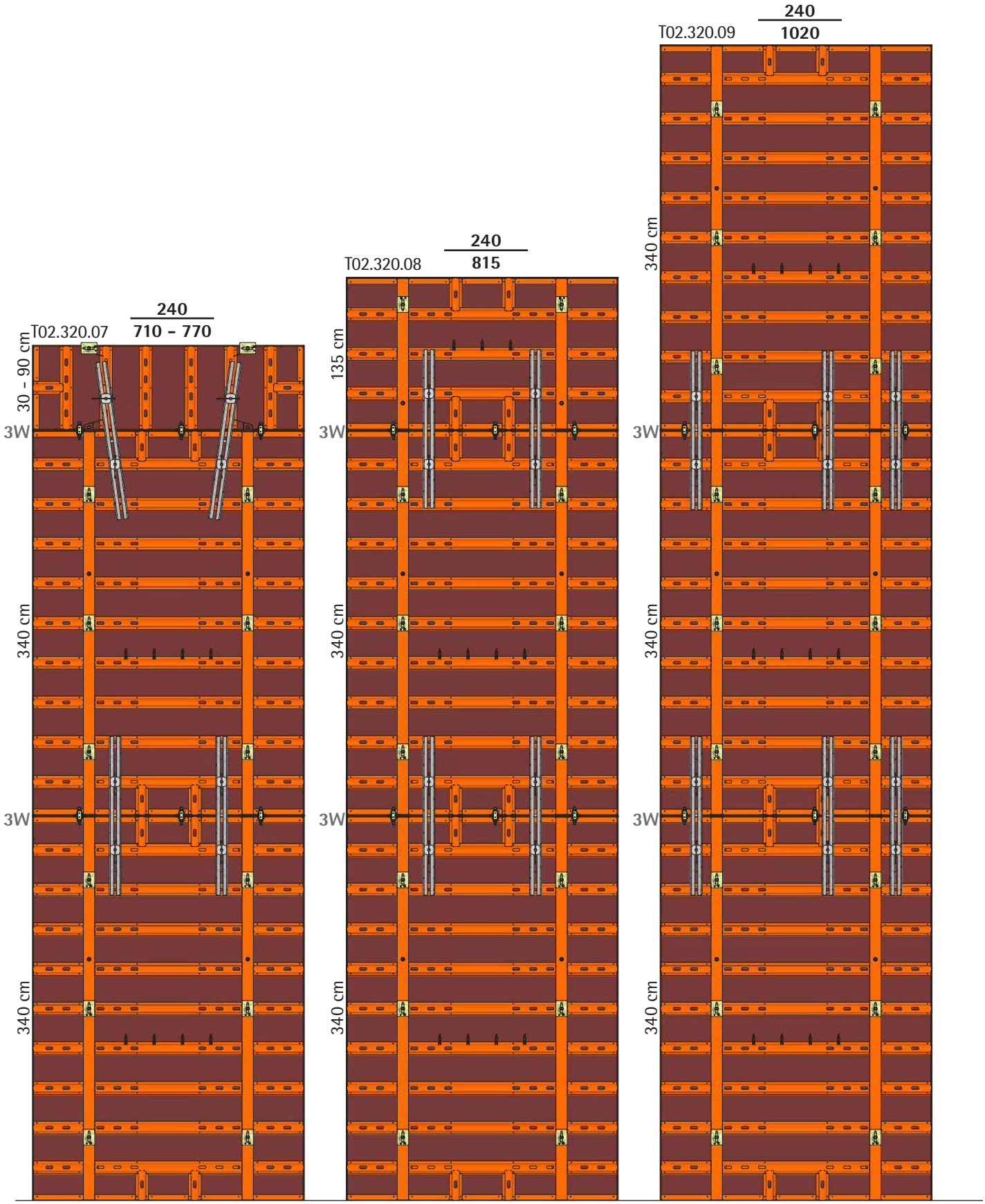
T02.320.08

Alternative:

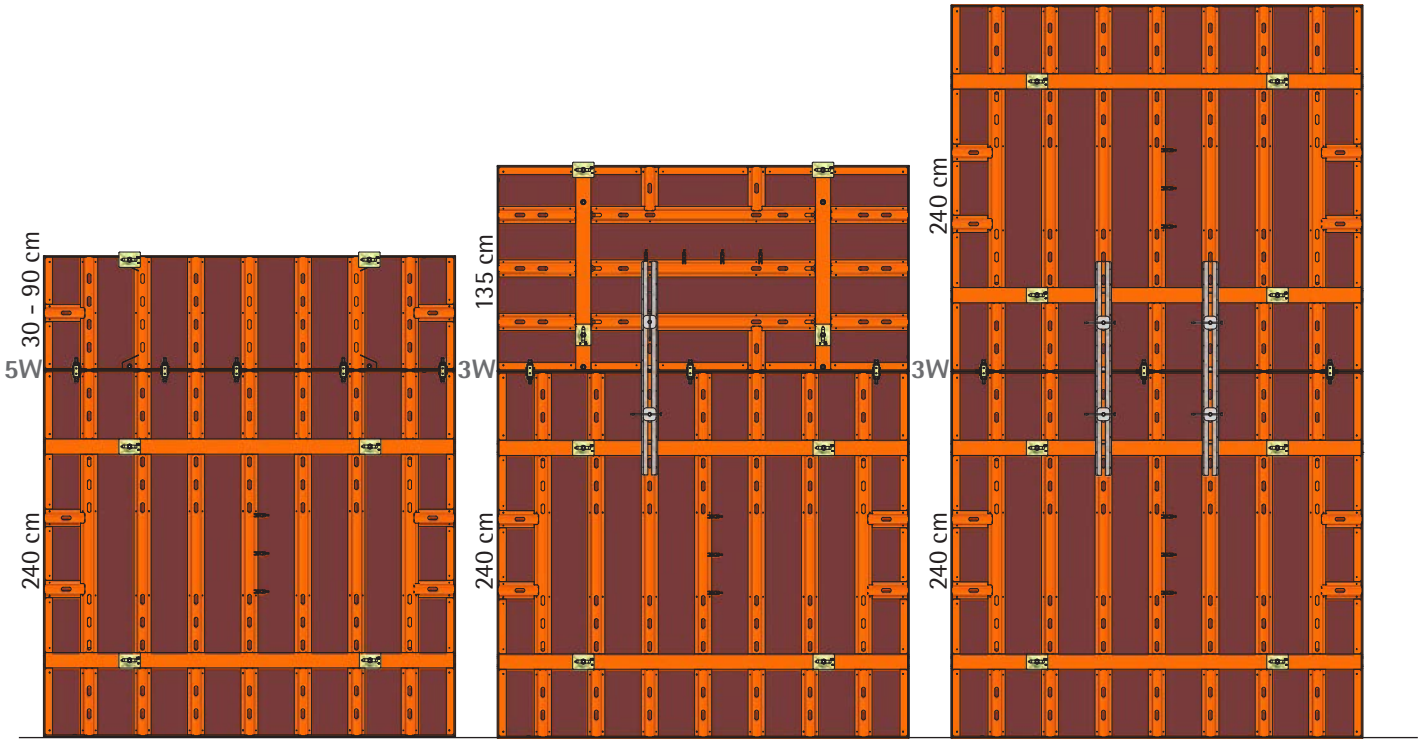
like T02.320.08

Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 240 x 340 cm



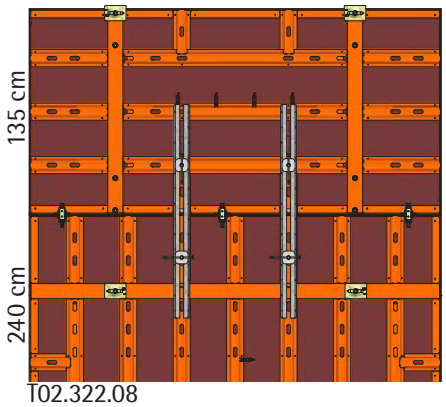
Extension heights, base panel 270 x 240 cm



T02.322.06 270 / 270 – 330

T02.322.03 270 / 375

T02.322.04 270 / 480



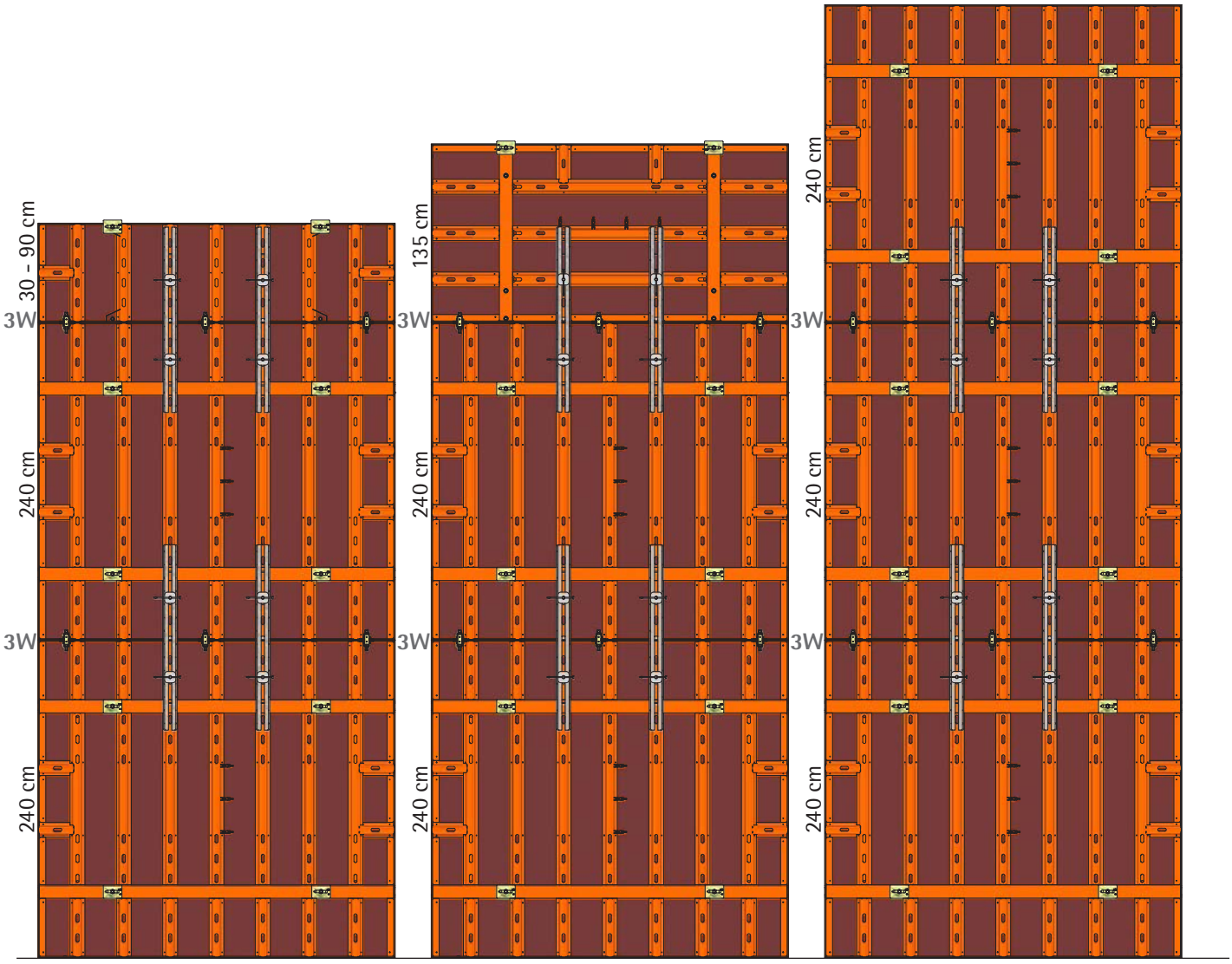
T02.322.08

Alternative:

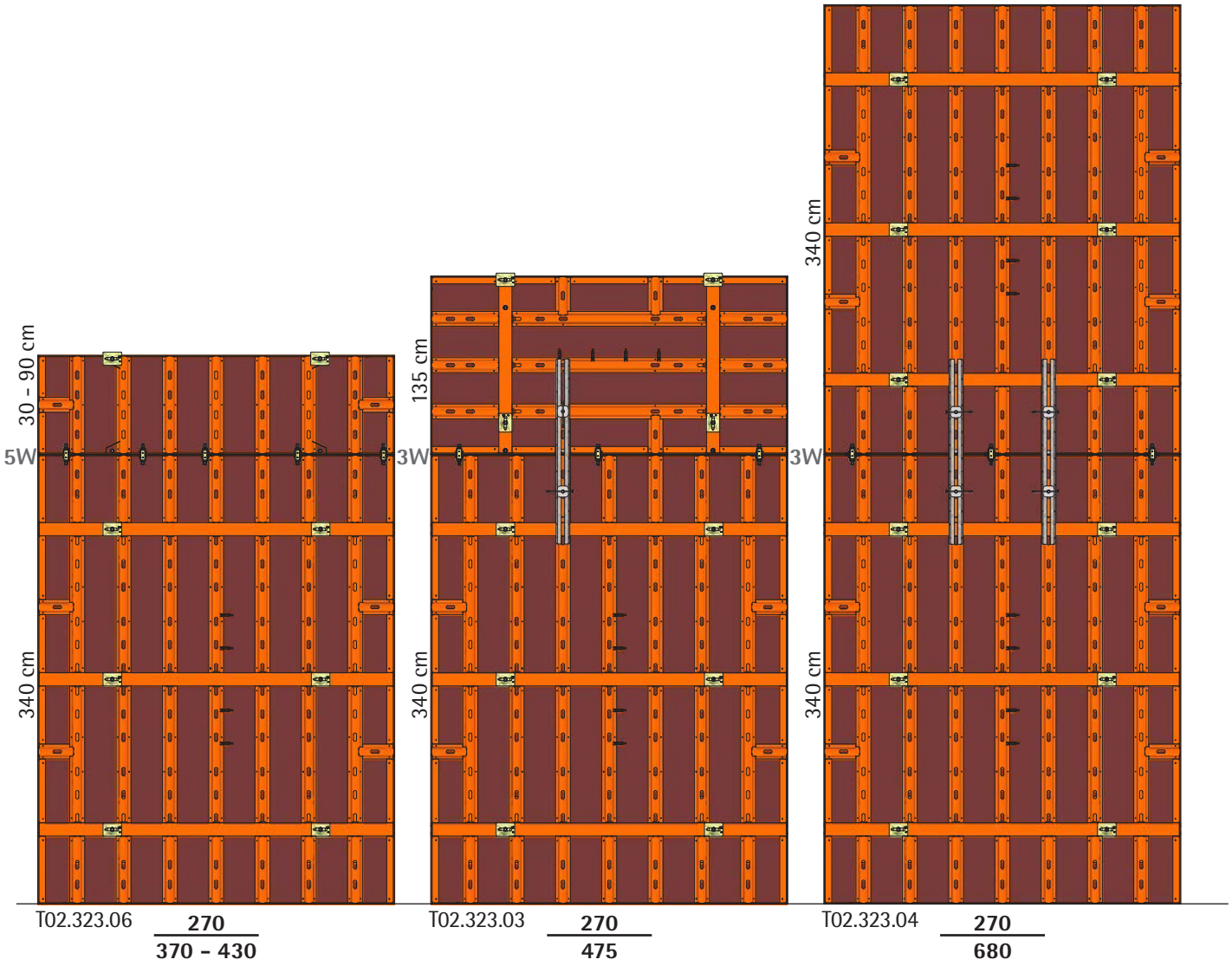
like T02.322.08

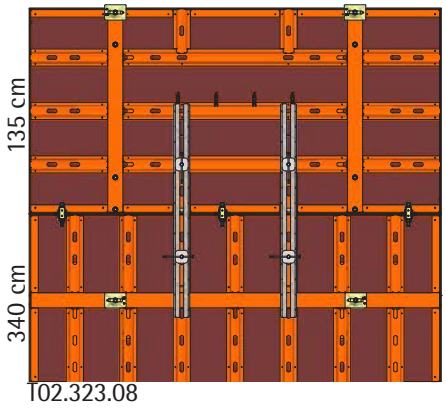
Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 270 x 240 cm



Extension heights, base panel 270 x 340 cm



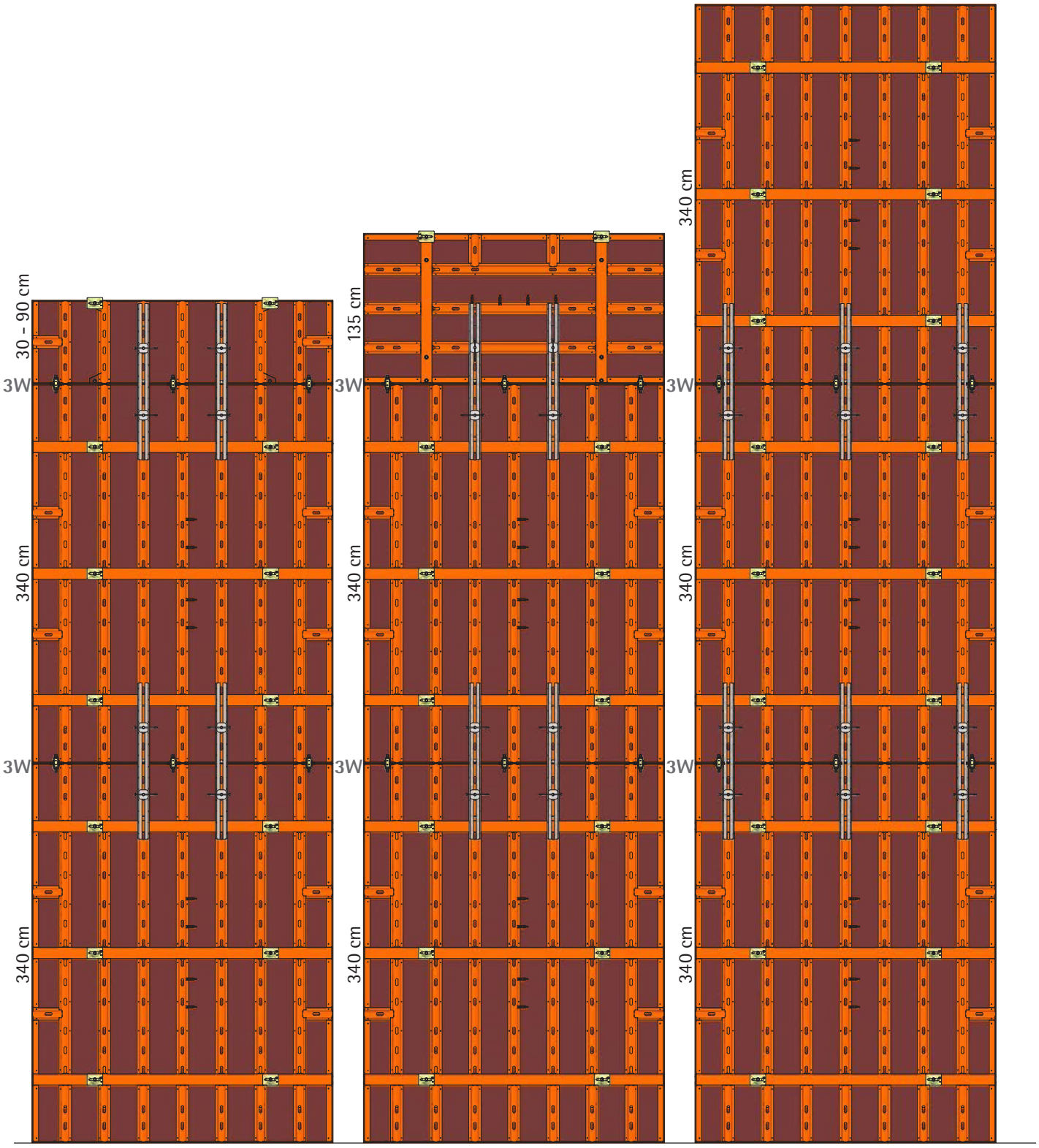


Alternative:

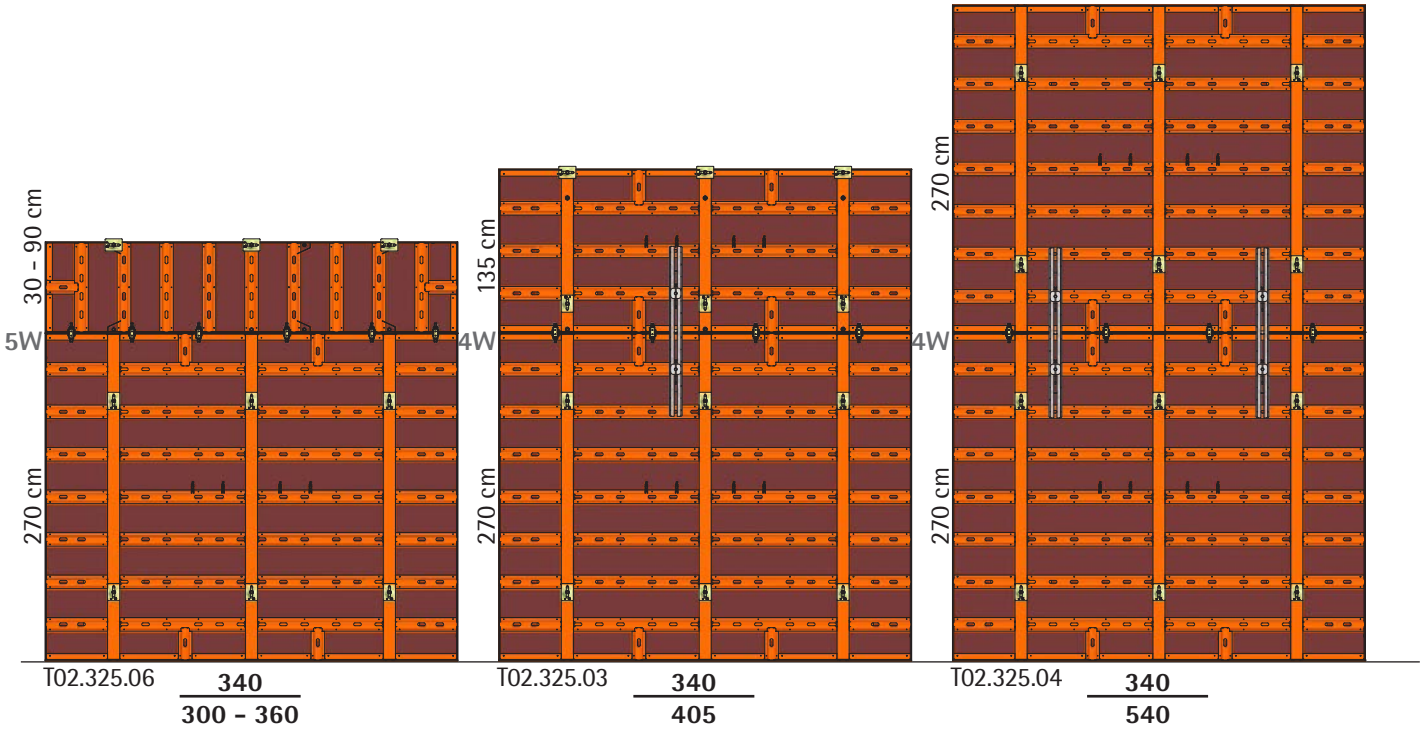
like T02.323.08

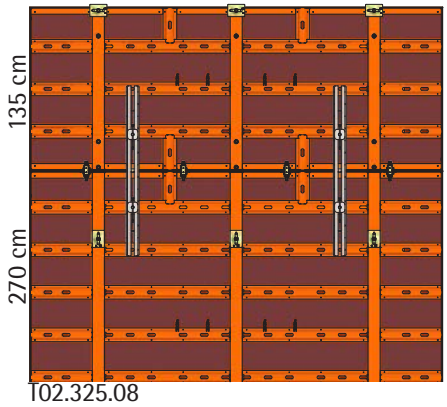
Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 270 x 340 cm



Extension heights, base panel 340 x 270 cm



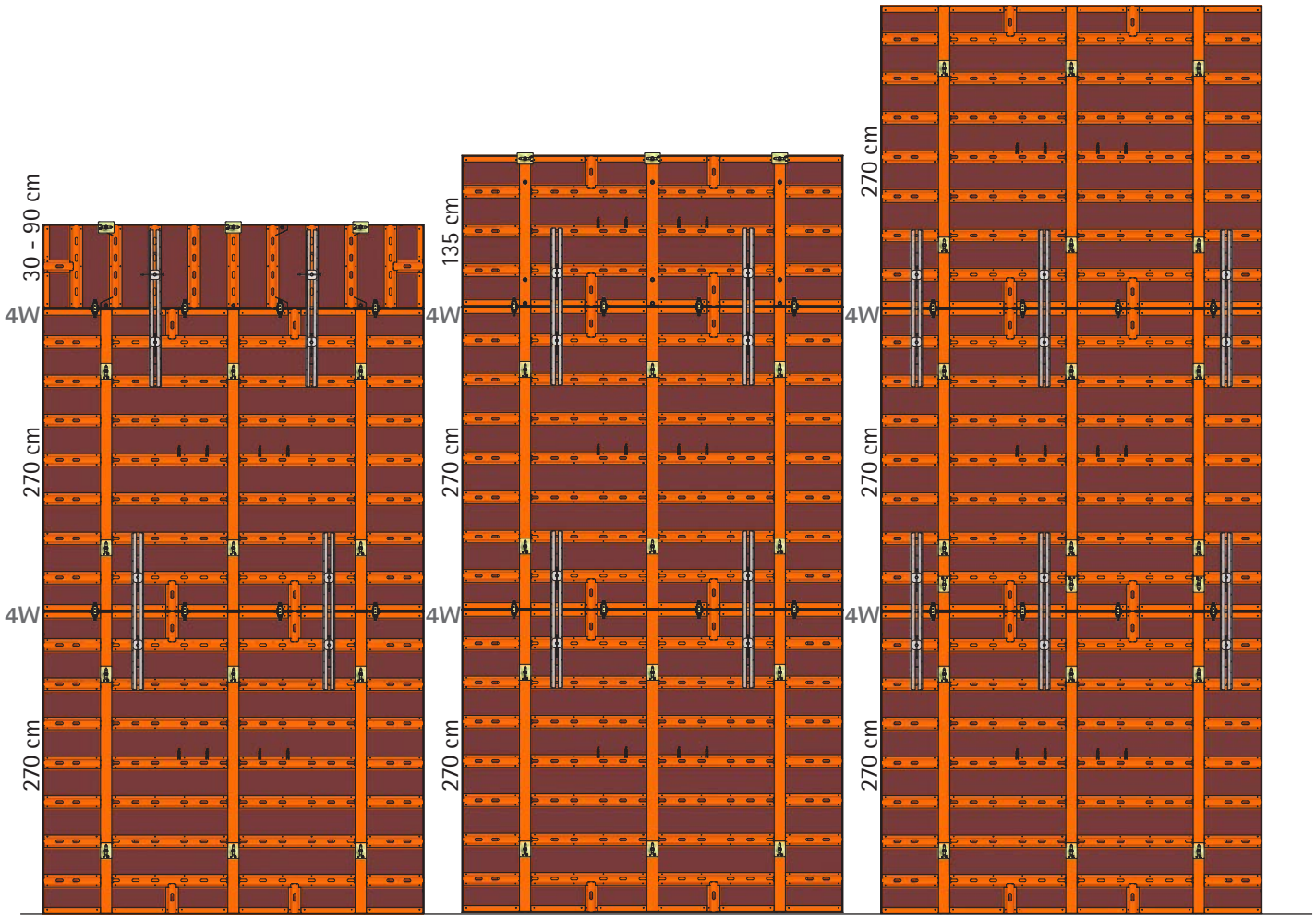


Alternative:

like T02.325.08

Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 340 x 270 cm

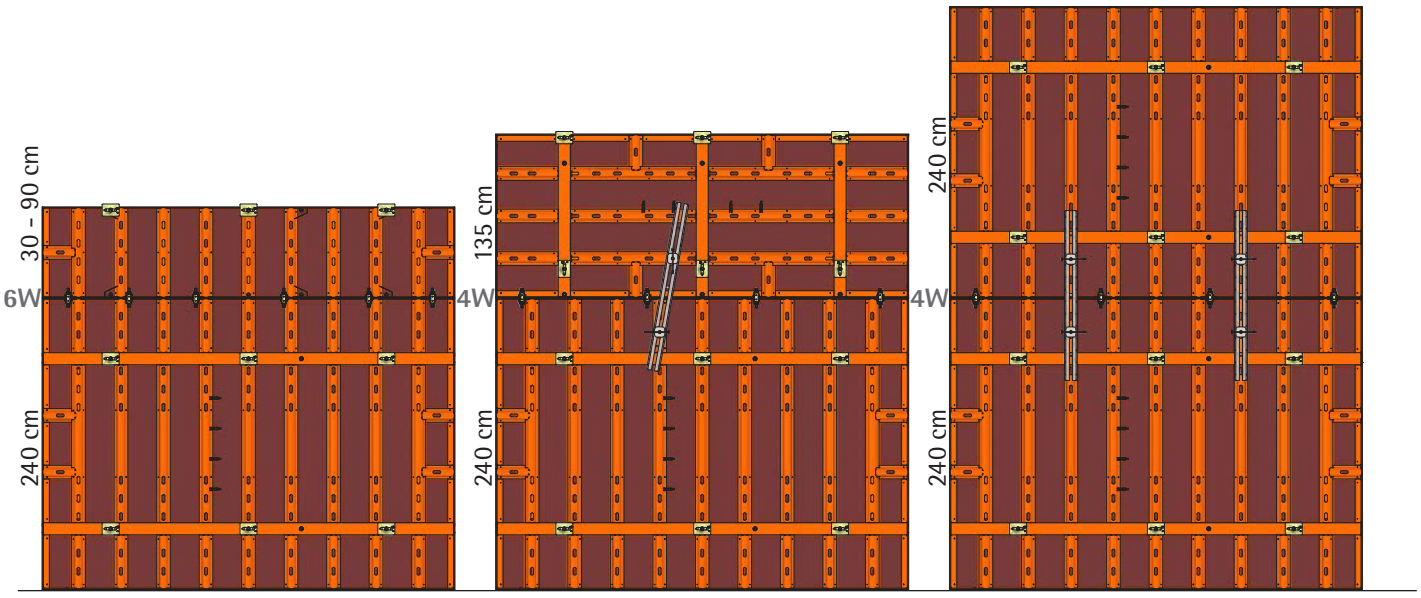


T02.325.07 340 / 570 – 630

T02.325.08 340 / 675

T02.325.09 340 / 810

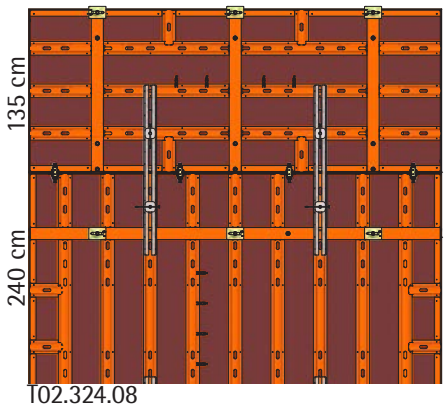
Extension heights, base panel 340 x 240 cm



T02.324.06 340 / 270 – 330

T02.324.03 340 / 375

T02.324.04 340 / 480



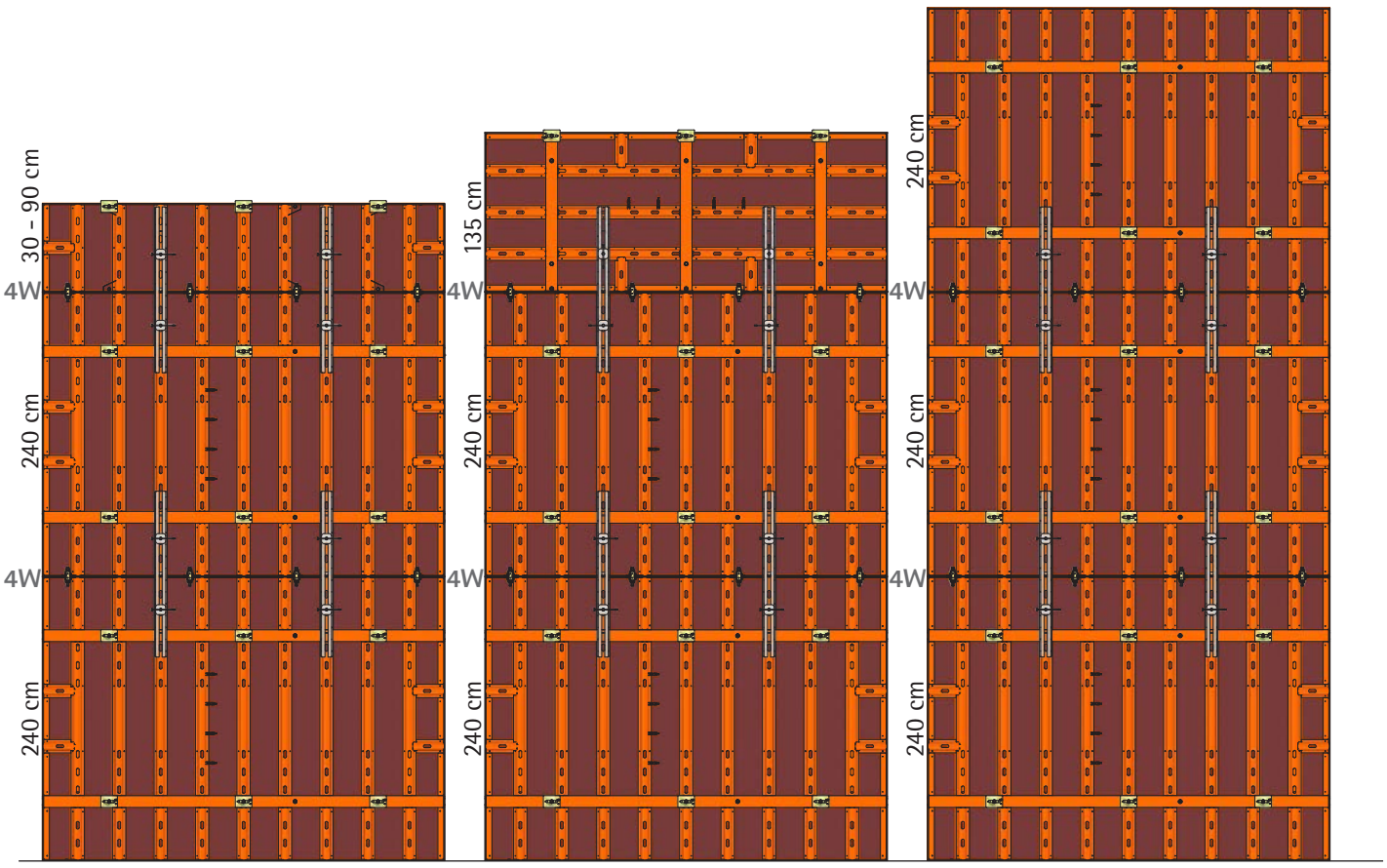
T02.324.08

Alternative:

like T02.324.08

Two multi-walers at the joint and no lower ties in the extension panel.

Extension heights, base panel 340 x 240 cm



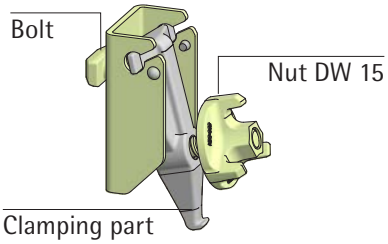
Foundations

In order to use the LOGO formwork also as foundation formwork for small concreting heights, narrow, storey-high panels can be used horizontally. In the area of corners, residual compensations or block foundations, these can be supplemented by a panel height of 90 cm. There are several variants for the arrangement of ties or the tensioning of opposing formwork panels.

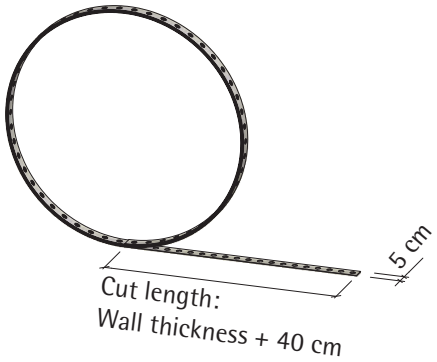
Perforated foundation tie / foundation tie clamp:
The perforated foundation tie is installed as a lost tie under the formwork panels up to a maximum concreting height of 90 cm. The required foundation tie length for different foundation widths can be cut from the 25m roll. The holes have a spacing of 5 cm. The permissible load of the perforated foundation tie is 10 kN.

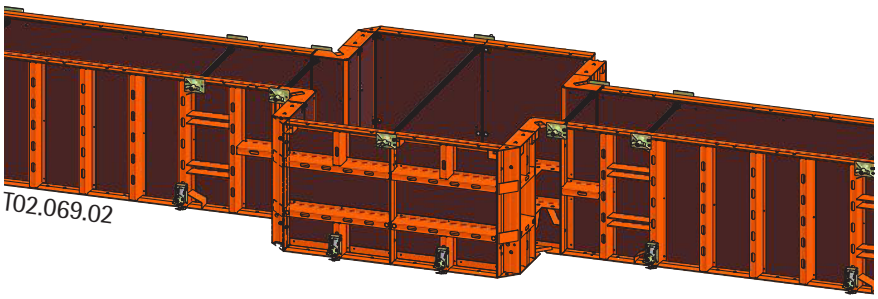
The connection to the formwork panels is made via the foundation tie clamp in the oblong holes of the functional strips (cross profiles). For horizontally employed panels, use the profile that is closest to the usual tie hole. In the case of vertical compensation panels, the foundation tie clamp is fixed in the centre of the panel in the vertical profile between the panel frame and the first cross profile.

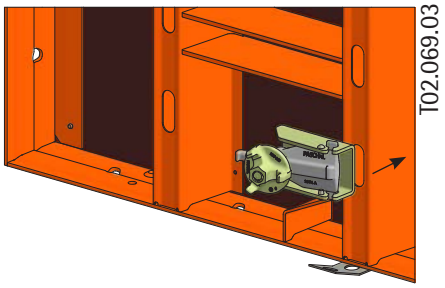
Foundation tie clamp for L/N
Art. no.: 187.500.0125
Weight: 2.15 kg



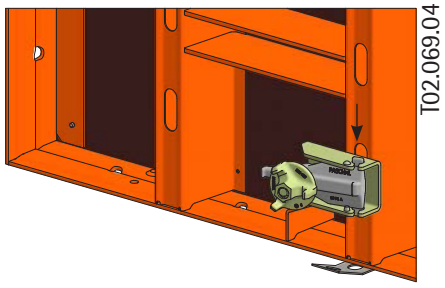
Perforated foundation tie 50 x 2 roll 25 m
Art. no.: 940.100.0000
Weight: 16.70 kg



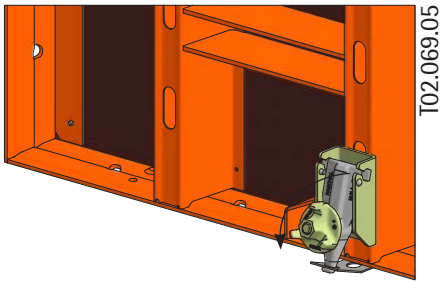




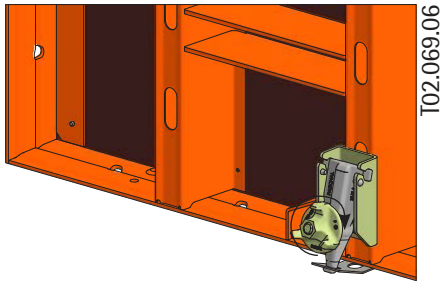
1. Hold the foundation tie clamp horizontal



2. Insert the pin into the oblong hole of the LOGO profile until the foundation tie clamp touches the profile.

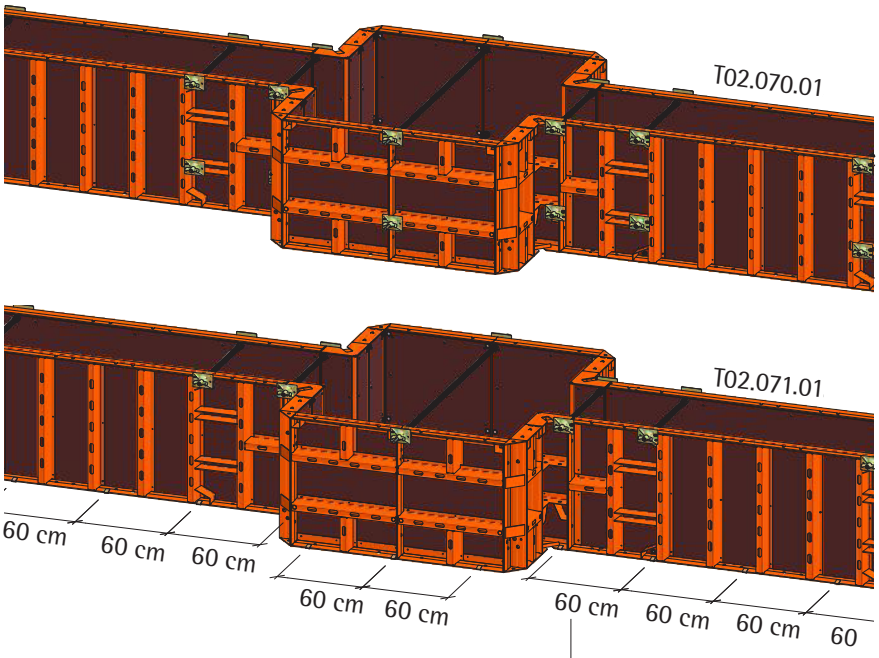


3. Turn the foundation tie clamp and guide it downwards



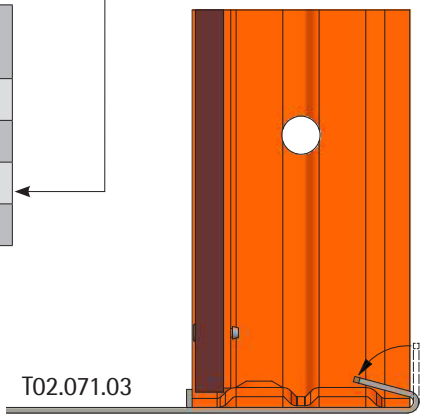
4. Bend the perforated foundation tie upwards until the clamping part is in the hole. Turn the nut until the clamping part rests against the edge of the hole and the perforated foundation tie is taut.

Foundations



Concreting height	Max. clamp width
50 cm	100 cm
60 cm	90 cm
75 cm	75 cm
90 cm	60 cm

LOGO foundation strap 15 - 100 cm
Art. no.: 187.501.0150 - 1000



Fold over outer upstand

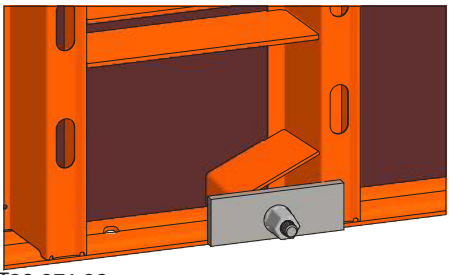
Panel 270 x 90 cm with 8 tie points + panel height 90 cm:
With the 270 x 90 cm panel, there are four additional tie points in the panel in addition to the usual tie holes on the panel frame. This means that the lower tie can also be set at a distance of 27.5 cm relative to the assembly surface. The top tie is directly under the panel frame. The ties for the panel height of 90 cm are required to the right or left of the panel joint, at the same heights as for the 270 x 90 cm panel.

Foundation strap:
The foundation strap as a lost anchor is supplied to fit the foundation width. The LOGO panel fits between the smaller, inner upstand and the larger, outer upstand in the foundation strap.

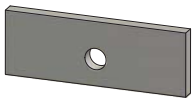
Attention:
The outer upstands must be folded inwards onto the panel frame to absorb the forces.

The distance between the two inner upstands corresponds to the foundation width.
The maximum distance of the foundation straps depending on the concreting height is shown in the table.
On the upper panel frame, tensioning is carried out using a tie rod, plate with ball-and-socket joint and sheathing tube.

With external tie:

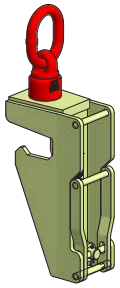


T02.071.02

	187.500.0166	LOGO plate 60 x 170 x 12
	189.001.0002	Hexagon nut DW15, malleable cast iron
	189.006.xxxx	Tie rod DW15 x xxx cm

Crane lifting clamp

LOGO.3 crane lifting clamp KLHD
Art. no.: 187.500.0160
Weight: 7.40 kg



The following crane lifting clamps are used for moving single panels or pre-assembled panel units of LOGO.3 formwork.

Page: 32:

KLH**D** and KLH**F**
KL**D** 3D and KL**F** 3D

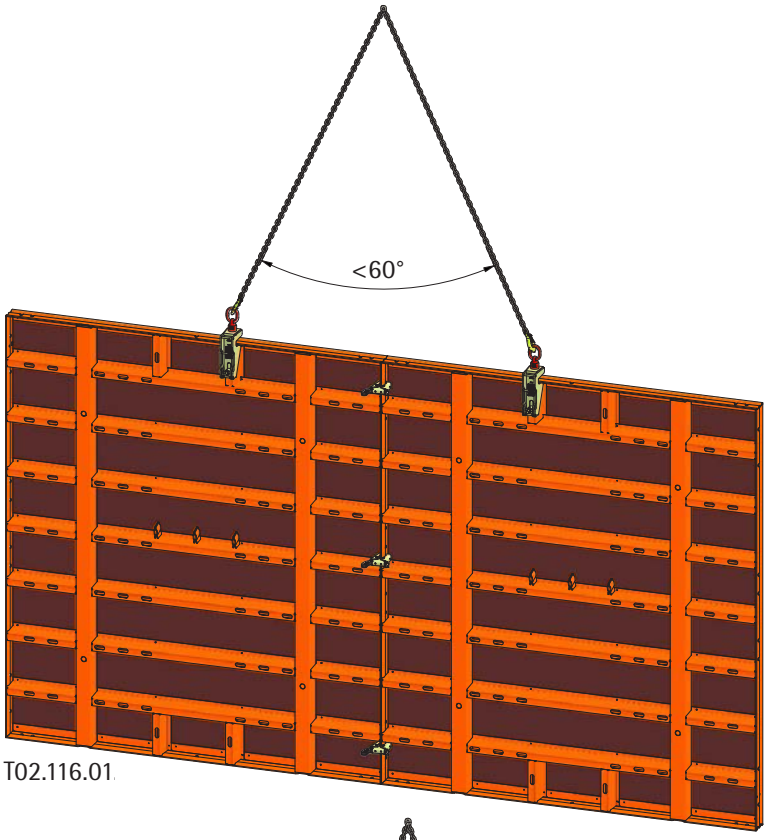
Letter **D**:
For use when moving formwork with light working platforms, such as platform brackets with on-site platform and lateral protection.

Letter **F**:
For use when moving formwork with heavy working platforms, such as Multip.

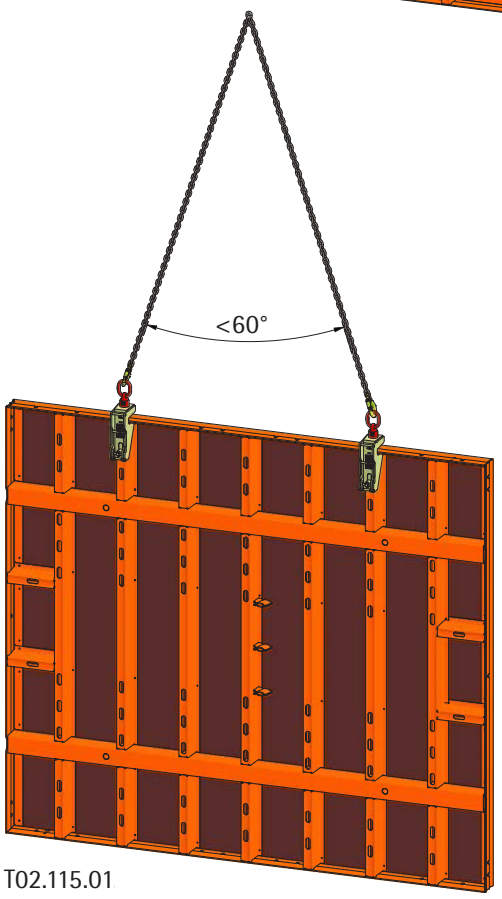
Refer to the original operating instructions for the following points:

- Structure
- Intended use
- Load capacity
- Attachment points
- Assembly
- Tests, safety
- Work requests

QR code page 32

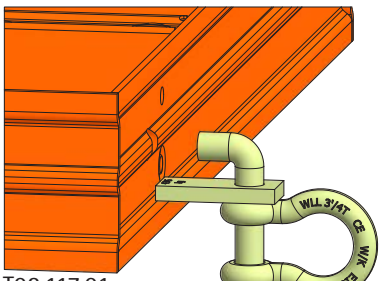


T02.116.01

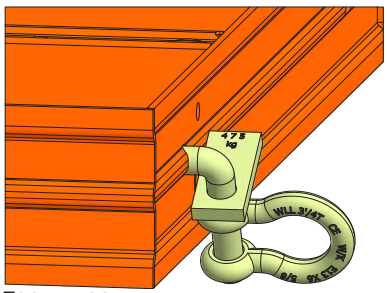


T02.115.01

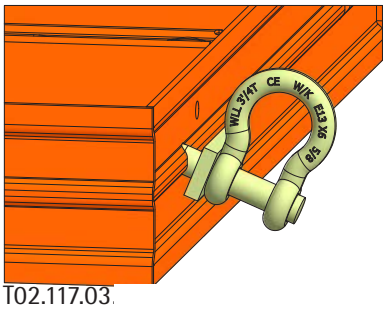
Loading auxiliary



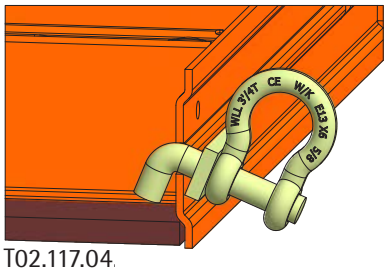
T02.117.01.



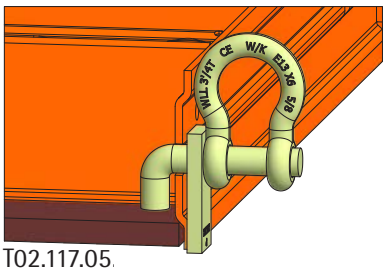
T02.117.02.



T02.117.03.

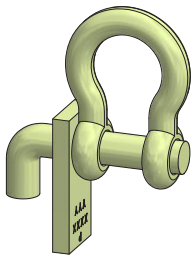


T02.117.04.



T02.117.05.

Loading auxiliary
Art. no.: 187.500.0019
Weight: 0.85 kg



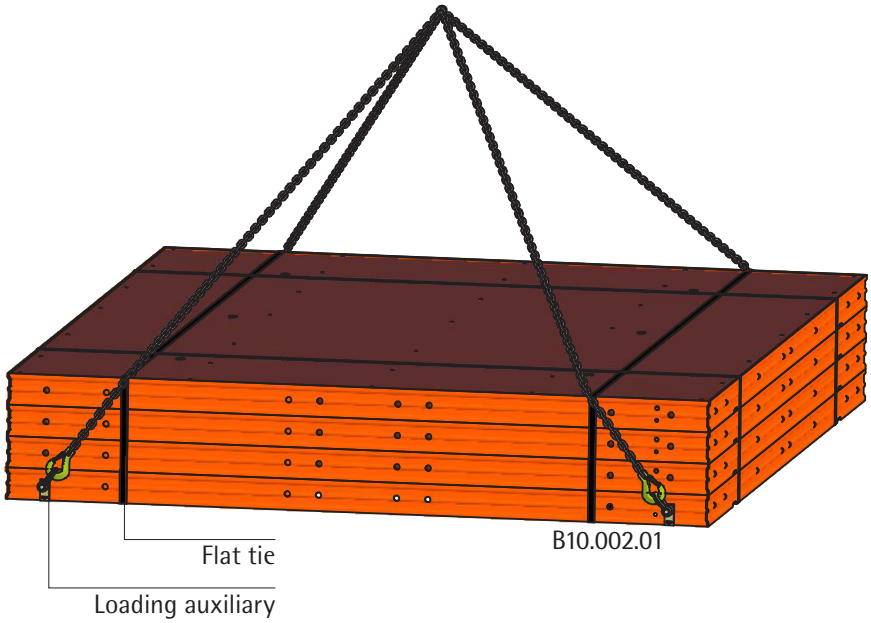
Loading auxiliaries are used for moving or loading panel stacks of LOGO.3 formwork.

Refer to the original operating instructions for the following points:

- Structure
- Intended use
- Load capacity
- Attachment points
- Assembly
- Tests, safety
- Work requests

QR code page 32

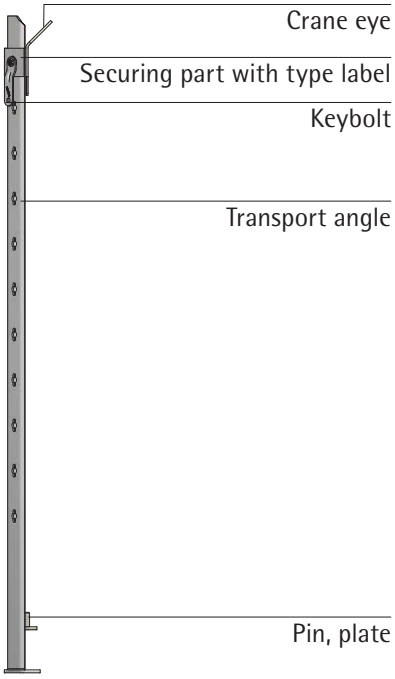
max. 4 large-size panels 340 x 270 cm (1.9 t)

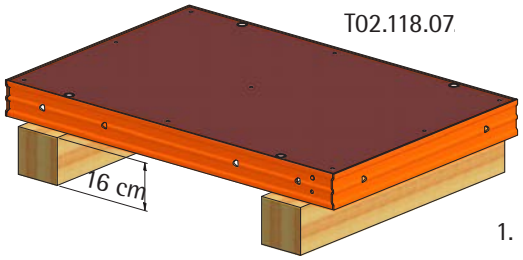


B10.002.01

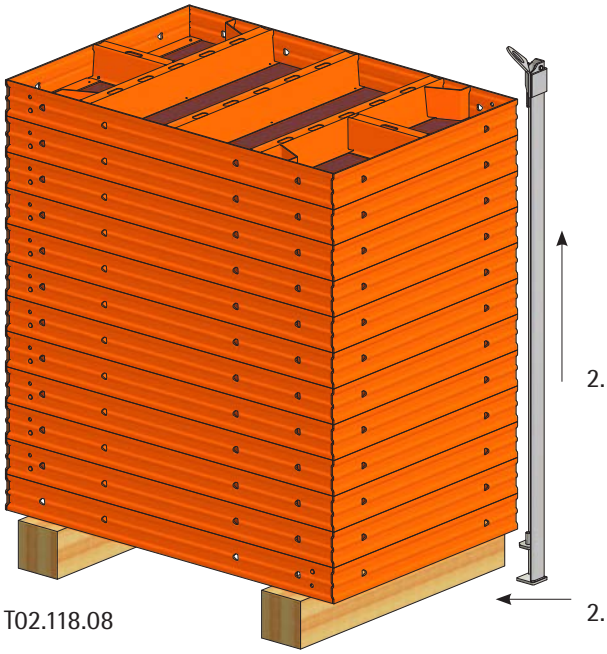
Transport angle

LOGO Transport angle
Art. no.: 287.500.0032
Weight: 11.40 kg
Load capacity: 500.00 kg

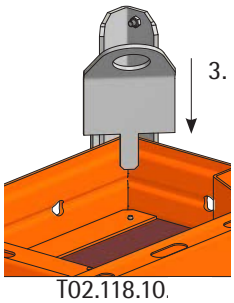




T02.118.07
1.



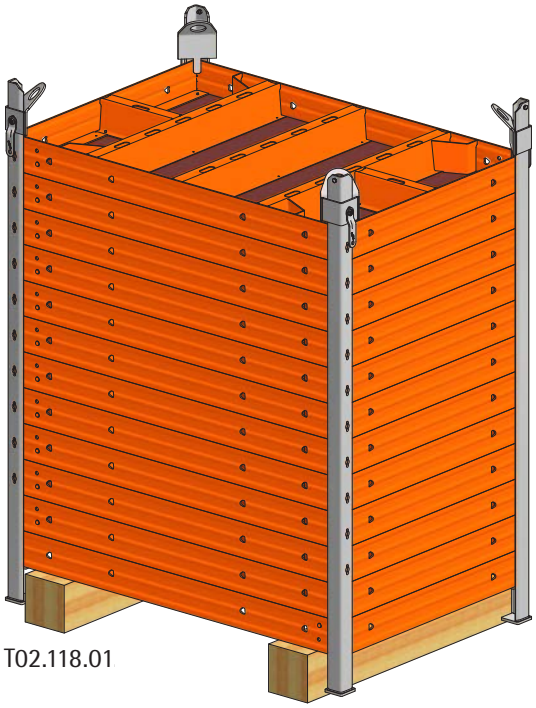
T02.118.08

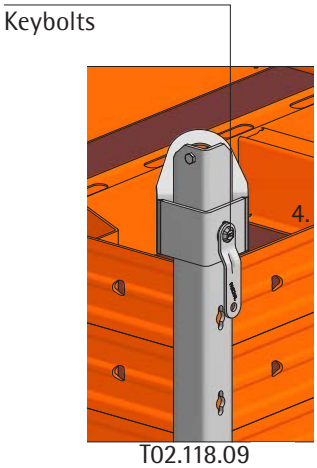


T02.118.10

With 4 transport angles, up to 12 compensation panels with dimensions of 90 x 340 cm or smaller can be transported.

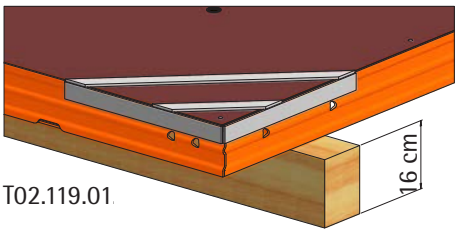
1. Place the panels on two square timbers with the plywood facing upwards, the top panel with the frame facing upwards.
2. Push on the transport angle in the corners of the stack until the suspension pin (plate) touches the lowest panel.
3. Slide on the securing part from above.
4. Fit the keybolt to secure the load.


T02.118.01



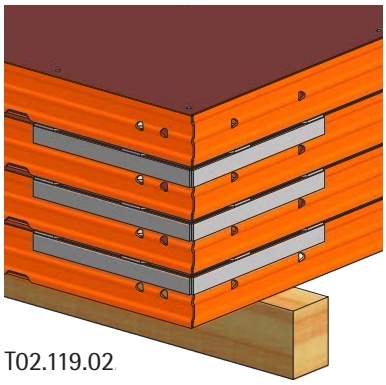
T02.118.09

Stacking angle



T02.119.01

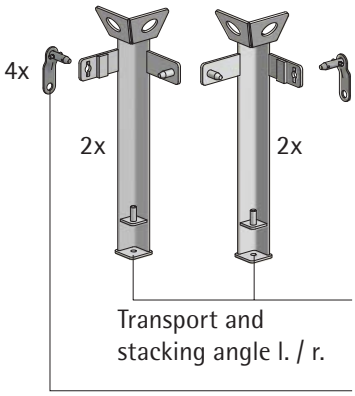
1. Place corner brackets on all four panel corners. The panels lie with the plywood facing upwards on a support that is at least 16 cm thick.



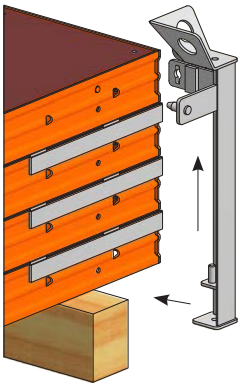
T02.119.02

2. Stack four panels of the same size on top of each other using the LOGO loading auxiliary. Provide four corner brackets between each panel.

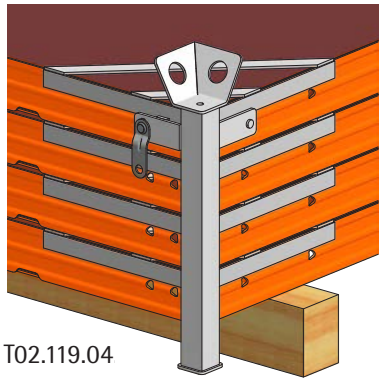
Transport and stacking angle cpl.
Art. no.: 287.500.0045
Weight: 67.00 kg



T02.119.03

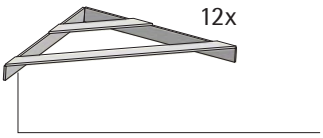


3. Push the transport and stacking angles into the corners of the stack until the suspension pin (plate) touches the lowest panel and the upper pin is inserted in the outer panel hole.

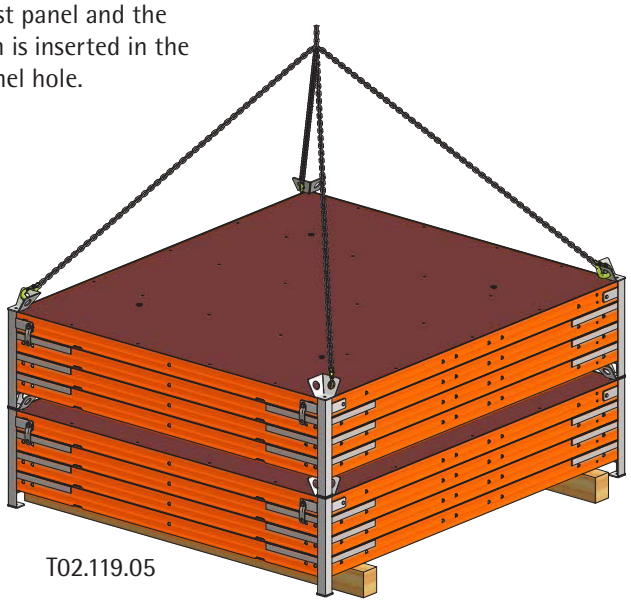


T02.119.04

4. Insert the safety bolt at the top and turn it.



For safe transport and space-saving storage, four panels of the LOGO.3 formwork can be bundled together with the transport and stacking angle.
A corner bracket is inserted between the panels to protect the formwork facing (plywood panel).

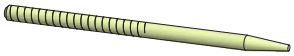


T02.119.05

Note:
The safety bolt is bulky, which can lead to space problems on the loading area. The left and right-hand versions of the transport and stacking angle can therefore be used in such a way that the safety bolt sits on the narrow panel side, for example.

Centering piece

LOGO centering piece
Art. no.: 187.500.0026
Weight: 0.98 kg

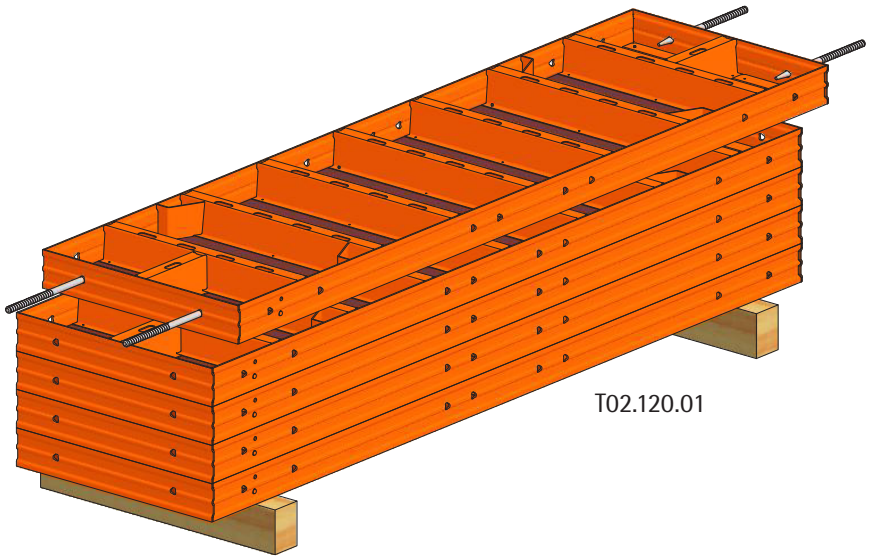


When using locking screws as panel connections or to achieve a perfect frame impression in the concrete even at the panel joints, the formwork panels must be centred.
This is achieved with the aid of the centering piece, which is inserted with its tip through the holes in the panel frame, achieving a centring effect through leverage.

T02.120.02

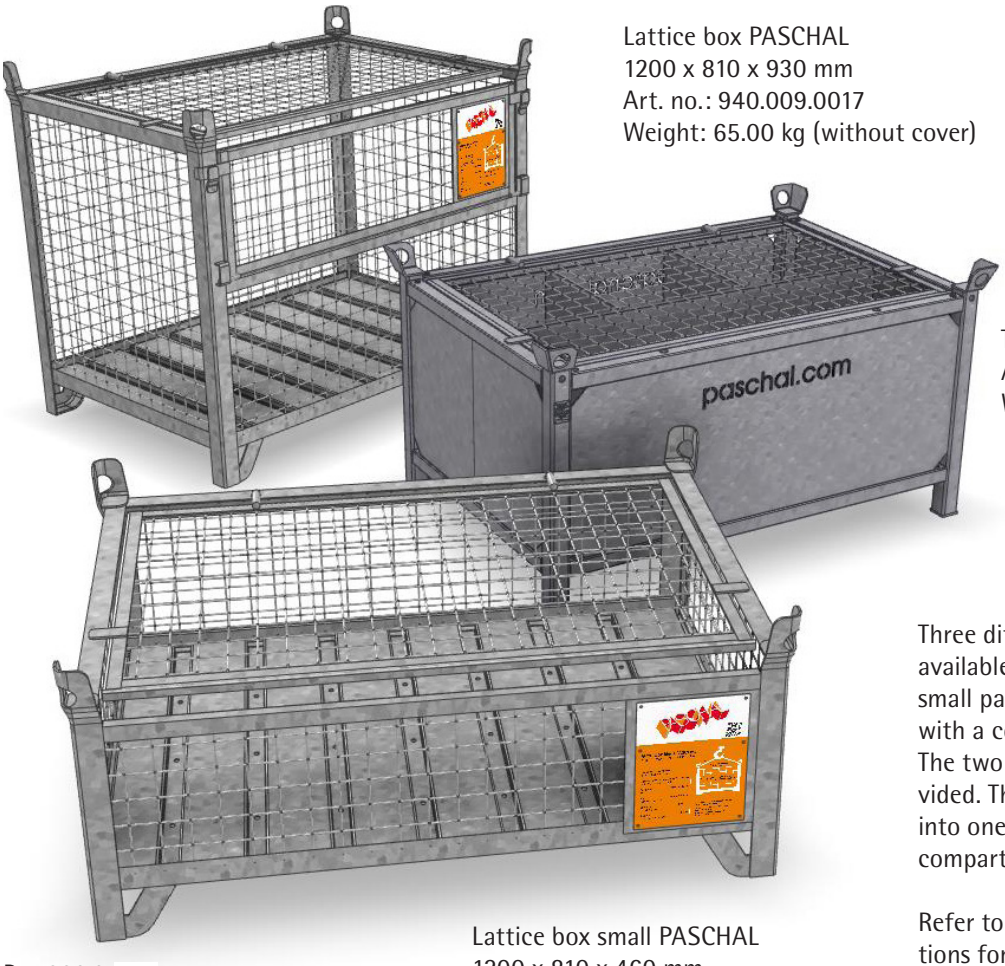
The centering piece can also be used to move smaller panel sizes with lower weights by hand.

Two centering pieces on each side are inserted into the outer holes in the panel frame, which subsequently serve as handles.



T02.120.01

Lattice and transportation boxes



B15.000.01

Lattice box PASCHAL
1200 x 810 x 930 mm
Art. no.: 940.009.0017
Weight: 65.00 kg (without cover)

Transportation box
Art. no.: 189.002.0003
Weight: 82.00 kg (without cover)

Lattice box small PASCHAL
1200 x 810 x 460 mm
Art. no.: 940.009.0018
Weight: 50.00 kg (without cover)

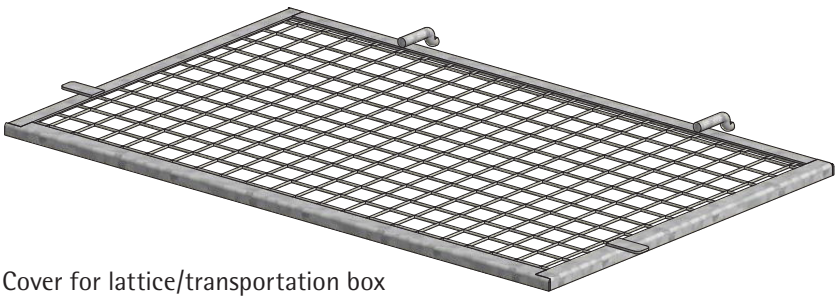
Three different steel (lattice) boxes are available for storing or transporting small parts, each of which can be fitted with a cover.
The two lattice boxes are not subdivided. The transportation box is divided into one large and three smaller compartments.

Refer to the original operating instructions for the following points:

- Structure
- Use
- Load capacity
- Stackability
- Moving
- Tests, safety
- Work requests

This document can be downloaded via the QR code on the type label.

QR code page 33



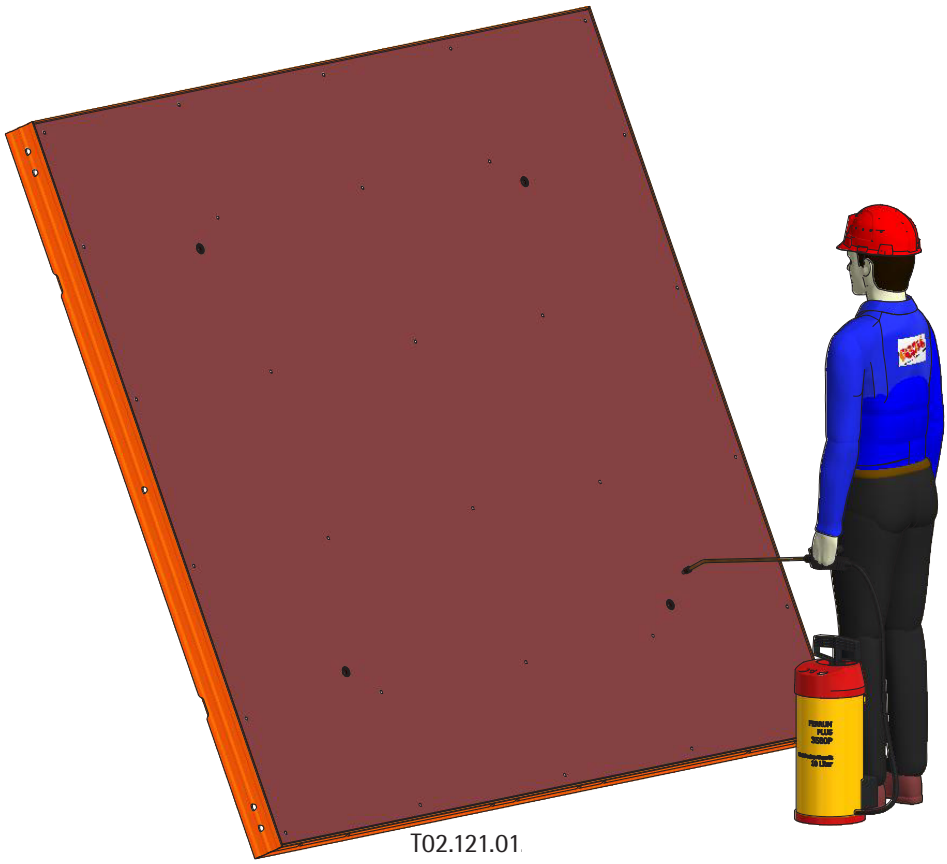
Cover for lattice/transportation box
Art. no.: 940.009.0019
Weight: 6.70 kg

Concrete parting compound

Parting
compound pistol

Canister

See page 34, Parts list

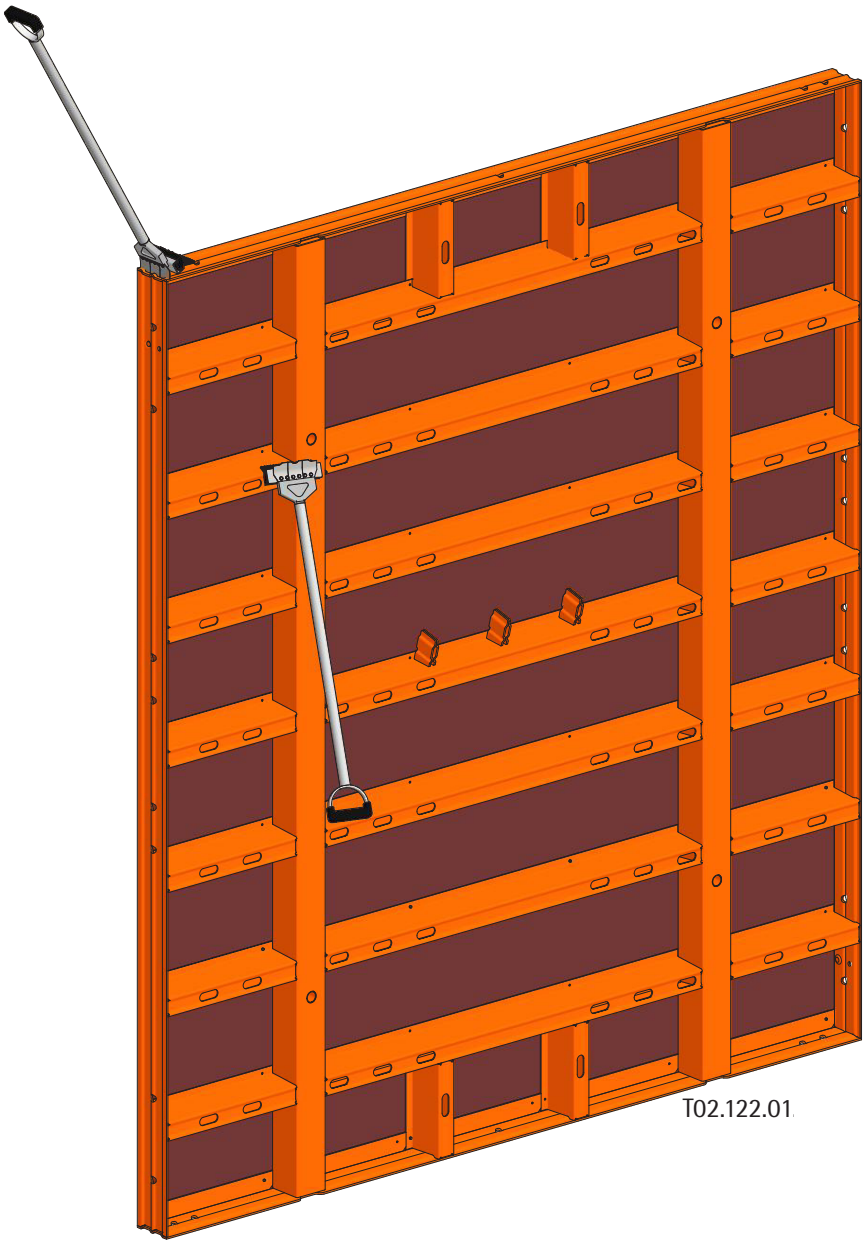


T02.121.01

- PASCHAL parting compounds ensure the easy release of the formwork from the concrete.
- The parting compounds are supplied ready to use and are weather-resistant for use on all absorbent and non-absorbent surfaces.
- All concrete surfaces, not only exposed concrete, can be released cleanly and without defects.
- If the application instructions are observed, there is no negative effect on the plaster and paint adhesion.
- The use of parting compounds is also necessary in sensitive areas such as openings, edges and undercuts.
- The regular use of parting compounds not only prolongs the life of the plywood, but also that of the entire formwork by protecting against corrosion.
- A well-maintained formwork treated with parting compound lasts longer and guarantees the satisfaction of the quality requirements of the concrete parts or surfaces to be produced.
- Apply parting compound thinly and evenly to the clean, dry formwork using a flat spray nozzle and finish with a rubber lip.
- When using the formwork for the first time, spray all sides with parting compound.
- If the formwork is heavily soiled, clean the back of the formwork immediately after concreting by spraying a water jet.
- After dismantling the formwork, clean the plywood and the front parts of the formwork, then spray a thin layer of parting compound.
- Always carry out trials for special applications.

For further information on the product properties, please refer to the technical information "Concrete parting compound".

Uni carbide scraper



T02.122.01

Uni carbide scraper
Art. no.: 187.500.0023
Weight: 1.20 kg

The uni carbide scraper is available for cleaning concrete residues off of formwork panels.

The brush strip can be used to clean the entire steel frame.

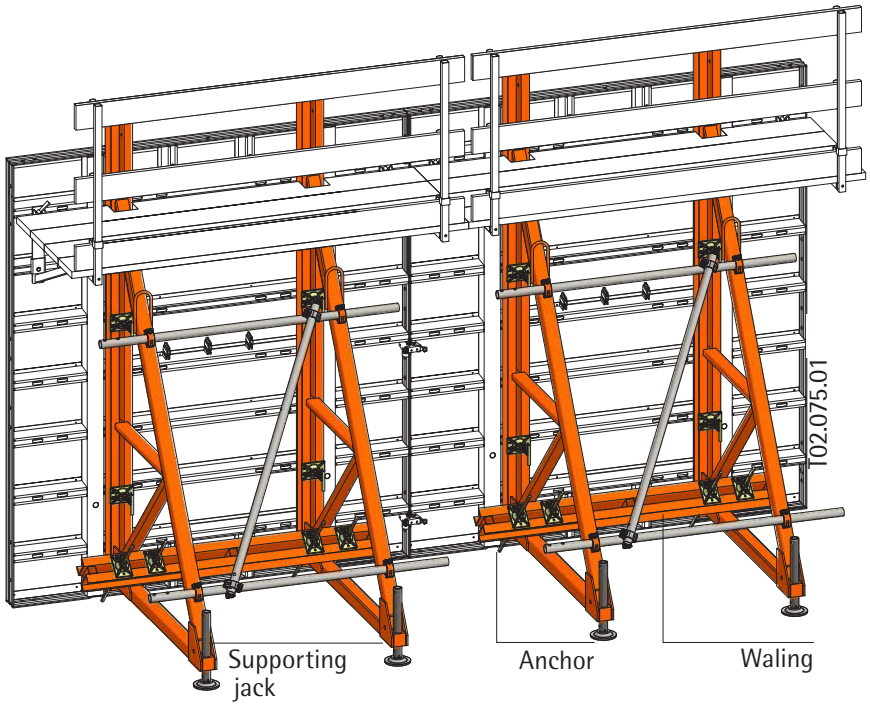
For the profiled flat steel frame, matching scraper blades are screwed on the opposite side and fit the profile shape exactly.
The scraper blades can be replaced when worn.

Cleaning or detaching the concrete is made much easier if the steel frames are also treated with parting compound (page 120).

Supporting jacks, single-sided forming

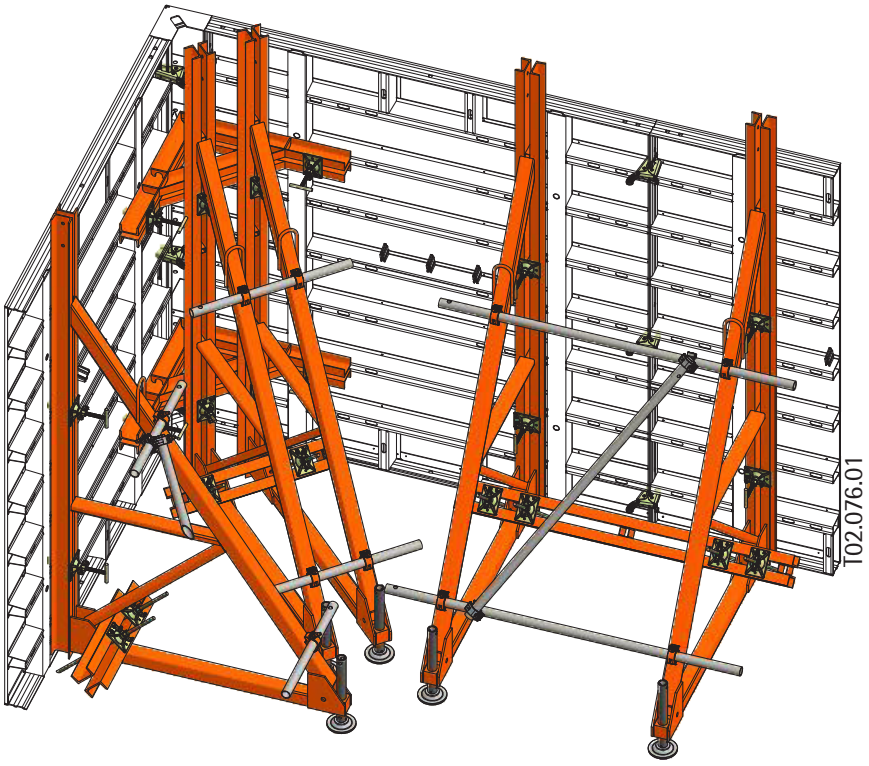
The Logo.3 panels can also be used as single-sided formwork together with supporting jacks.
If there is no way to tie the single-sided formwork back into an existing component or shear wall, supporting jacks are placed in front of the formwork panels. These transfer the forces from the fresh concrete pressure via anchors into the component below.

Note:
To transfer the forces, anchors must already be concreted into the base slab (foundation + base slab).

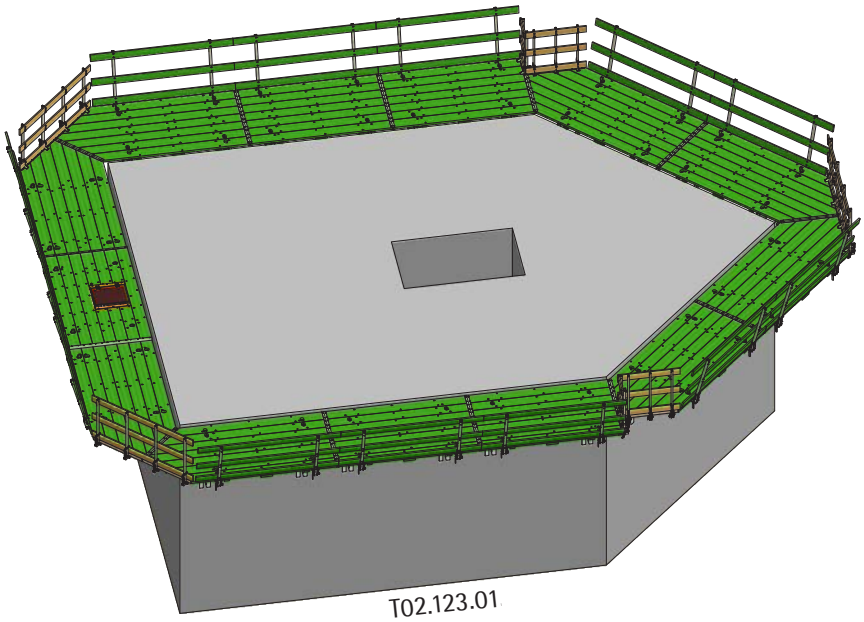


Attention:
As this is a building construction in progress, the responsible structural engineer must be consulted about the required anchoring depth of the anchors or possibly additional reinforcement to dissipate the forces. The size of the supporting jacks depends on the formwork height and the distances between the supporting jacks depend on the width of the formwork panels used.

For this special application, the regulations of the separate technical information “Single-sided walls” apply.



Working and protection scaffold

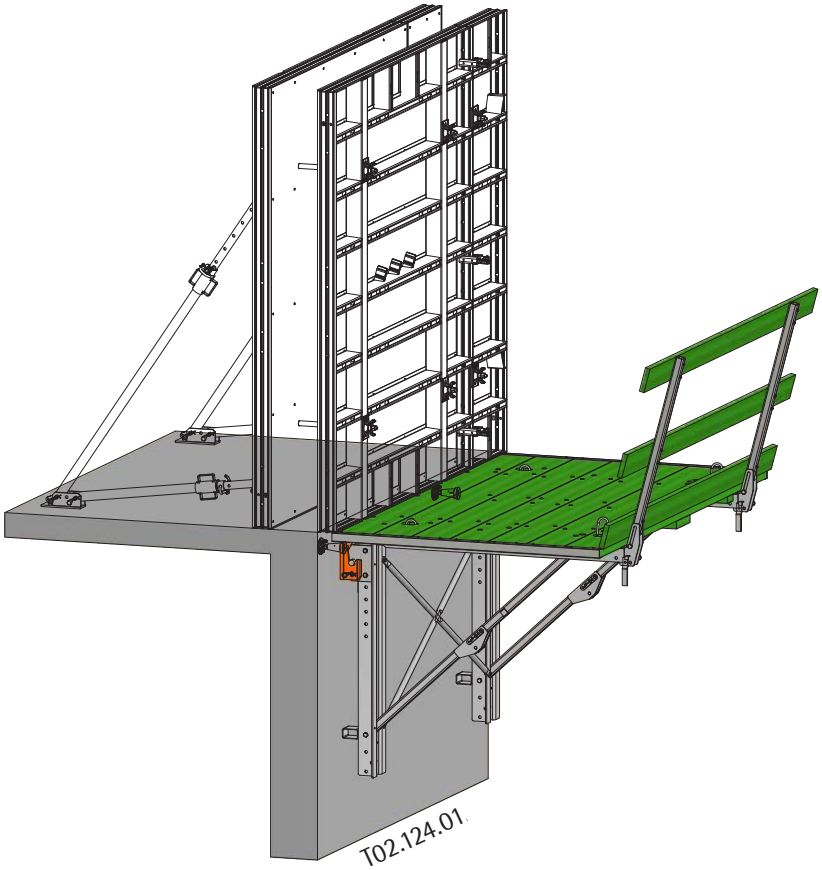


T02.123.01

Lateral protection is required at free slab edges to meet occupational safety requirements.
If a platform is also required, e.g. to set up and use external formwork, the area to be formed is scaffolded with folding KBK 180 platforms and the LOGO.3 panels are placed on top. The platforms thereby form a working and protection scaffold that can be adapted to any ground plan in the system with standard and corner platforms.

The required application engineering information, including the permissible loads and anchoring regulations for the platforms, can be found in the technical information "KBK-180".

Art. no.: 953.002.0310

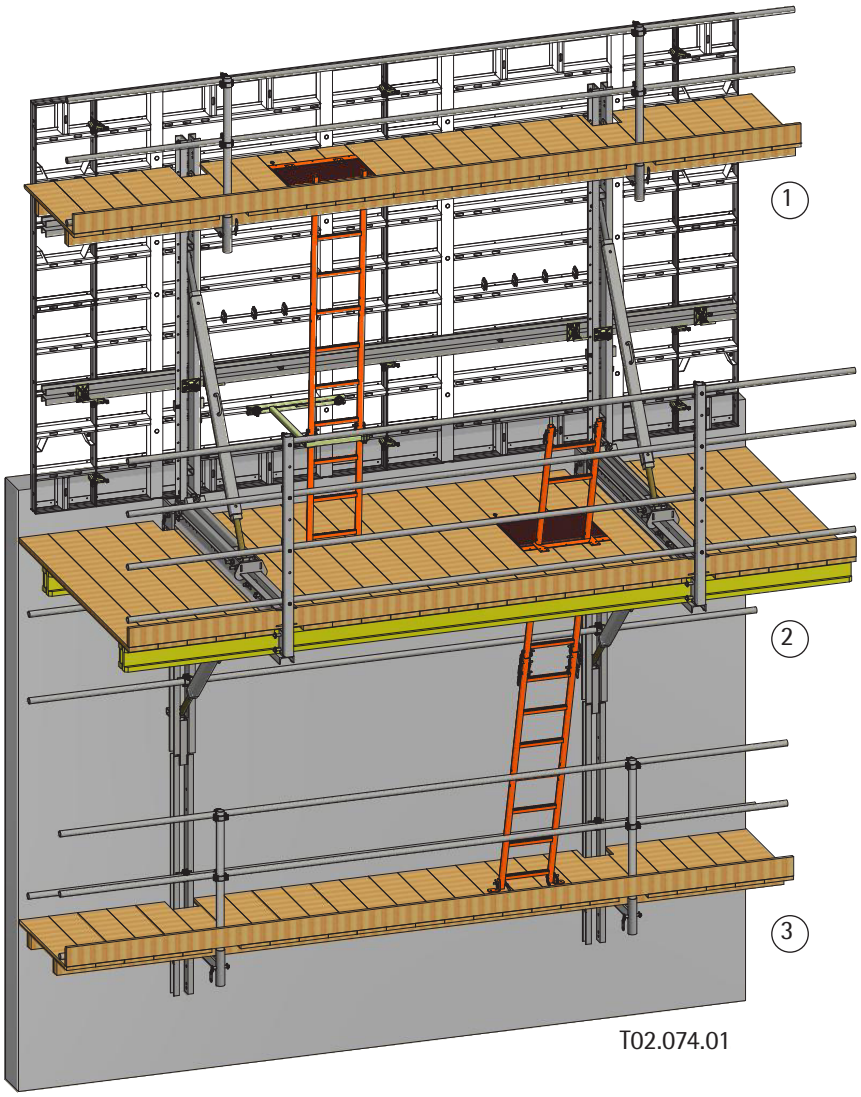


T02.124.01

Climbing formwork

With the 240 cm climbing system, the Logo.3 panels can also be used as climbing formwork. This is necessary if structures must be erected upwards in several cycles and no other scaffolding is available as an assembly area for the formwork and as a working platform. A complete climbing unit consists of the working platform (climbing brackets + platform), the formwork, the concreting platform and the suspended scaffold. All components are force-fit connected to each other and they are moved upwards in cycles with only one crane cycle. This can be done on one side or on both sides of a component to be built.

Note:
In this application, supplementary load assumptions must often be made and the anchoring of the platforms via standard anchors in the concrete must be verified on a building-specific basis. Therefore, contact with the manufacturer's application engineering department is required.



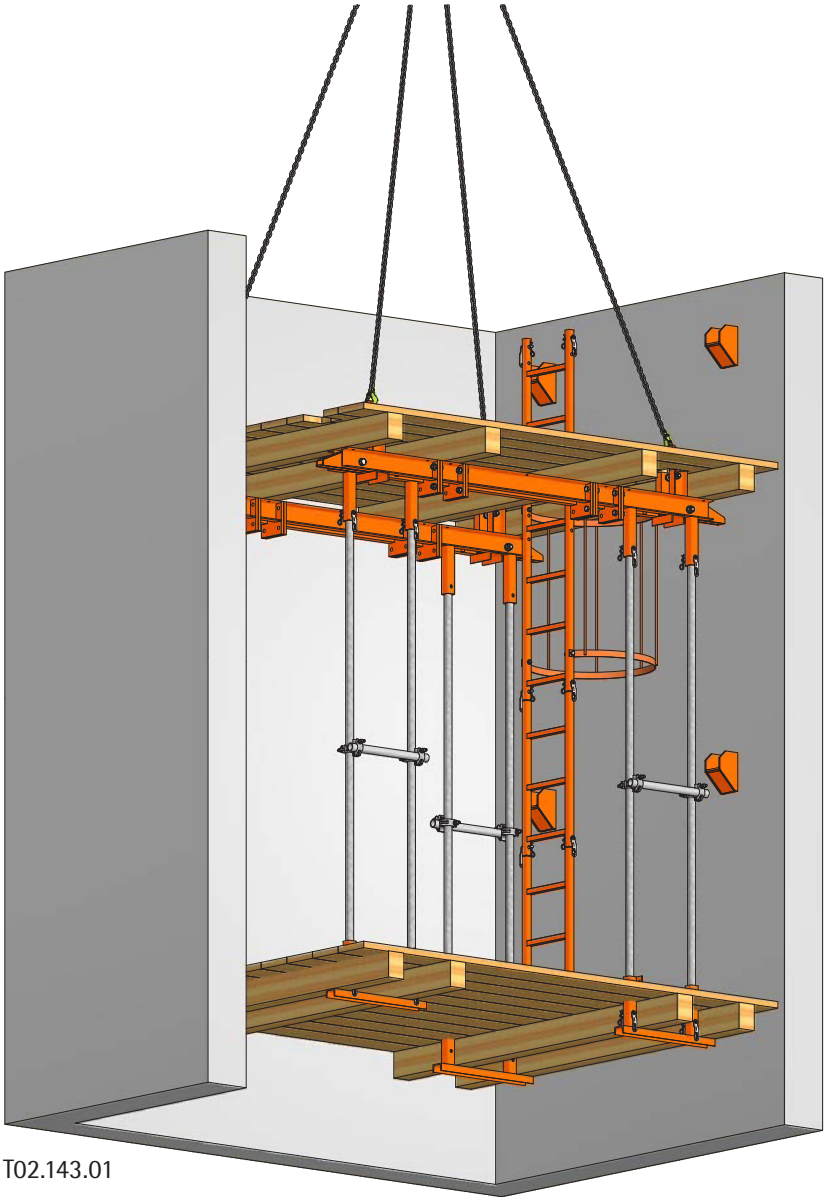
T02.074.01

(1) Concreting platform

(2) Working platform

(3) Suspended scaffold

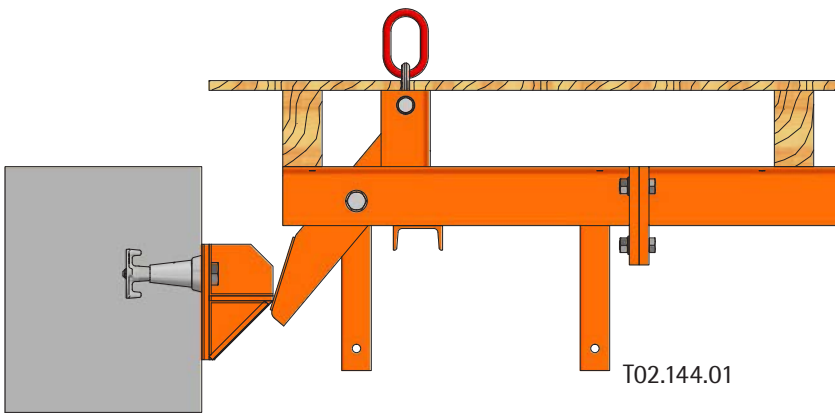
Klik-klak beam



T02.143.01

When forming shaft-like components, the inner shaft formwork requires a continuous platform as an assembly and operating surface. This platform itself consists of a platform on load-dissipating girders, which are assembled from components of different lengths and articulated end pieces up to a maximum span of 5.00 m. The platform can be pulled separately or together with the formwork when moving.
The permissible influence widths (distances) of the lifting platform girders depending on the formwork height and the span width are based on the technical information “Lifting platforms”, which also describes the moving procedure and the girder support.

Art. no.: 953.002.0012

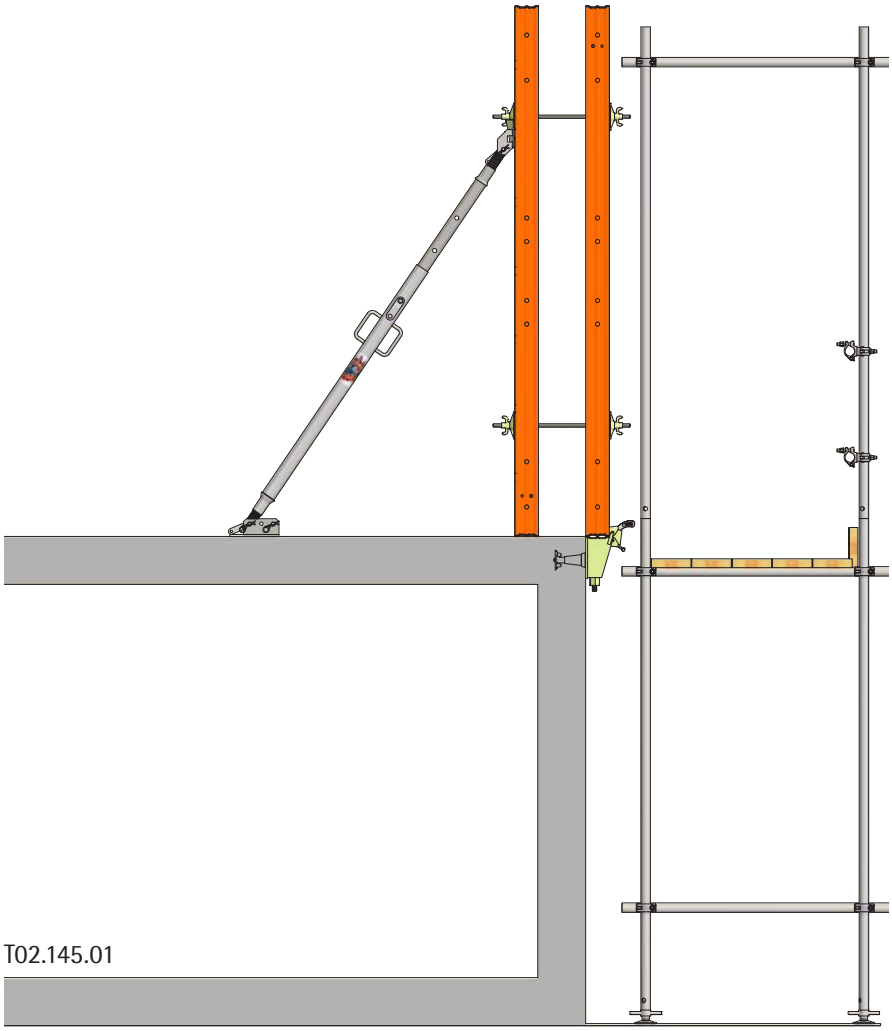


T02.144.01

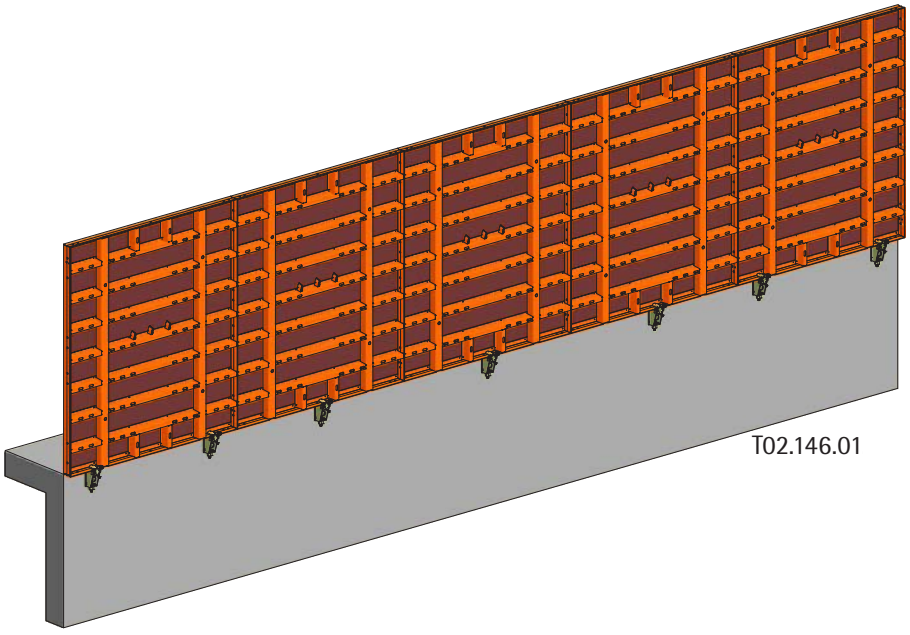
LOGO support bracket adjustable

Scaffolding is required for multi-storey structures, e.g. to clad the façade.
If this scaffolding is already available for the forming work, the formwork can be used at the individual levels of the scaffolding during dismantling and mounting.
For setting up the outside formwork, the LOGO adjustable support bracket is also used, which is anchored back into the component below.
The permissible influence widths (distances) of the support brackets depending on the formwork height and the height above ground as well as further technical details can be found in the technical information “LOGO support bracket adjustable”.

Art. no.: 953.002.0351

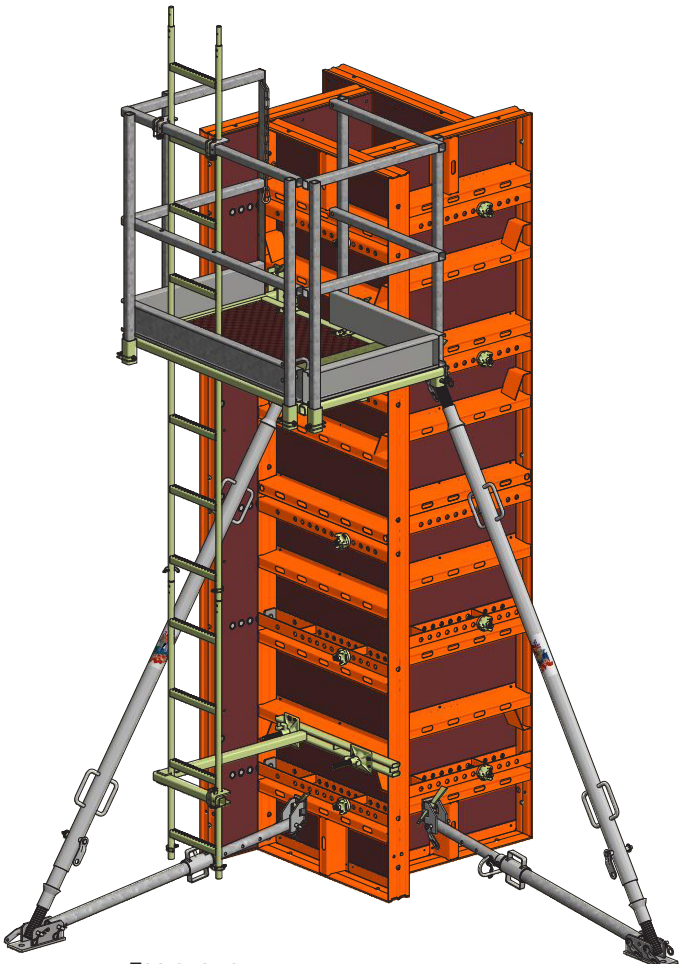


T02.145.01



T02.146.01

Columns

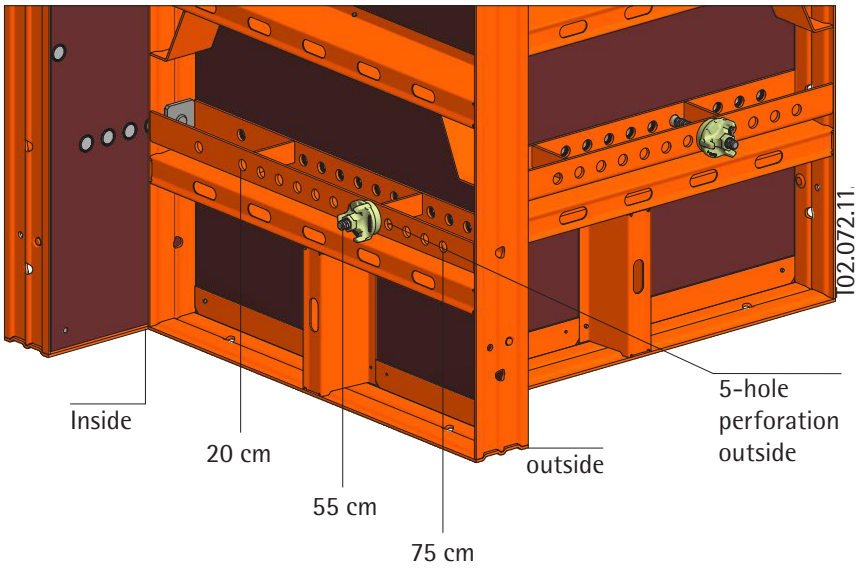


T02.072.10

With four multi-panels, columns can also be formed. The panels are erected according to the "windmill wing principle" and connected with locking screws.
Column cross-sections between 20 cm and 75 cm are possible. The increment is 5 cm.

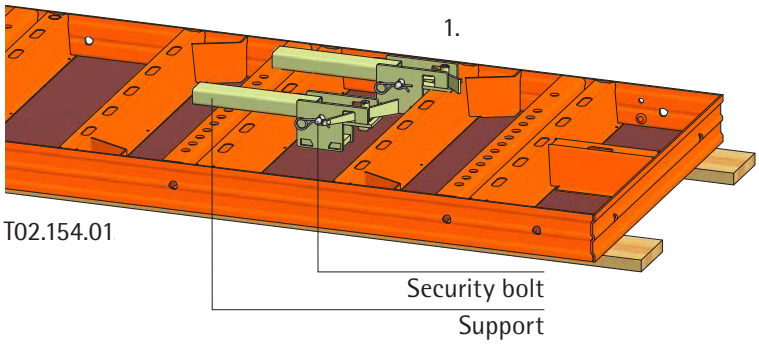
Note:
No crane attachment can be mounted on 90 cm high multi-panels. These must therefore be used at the bottom for extensions.

Panel height	Number of locking screws	
	per connection	per cpl. column
0.90 m	2	8
1.35 m	2	8
2.40 m	4	16
2.70 m	4	16
3.40 m	5	20



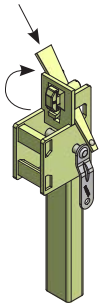
Columns

1. Fix the supports in the outer holes on the cross profiles, under which there is no perforated strip. To do this, insert the hook head into the oblong hole, turn it 90° and hammer the wedge tight.



T02.154.01

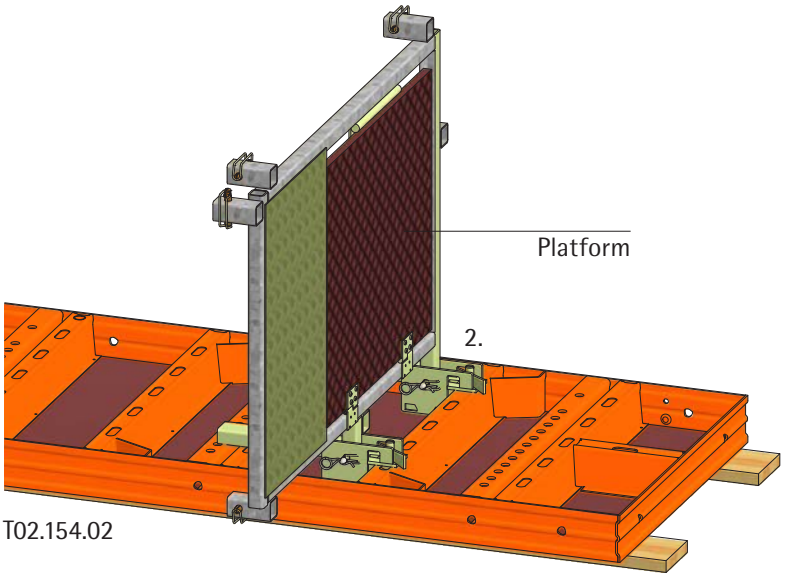
Support for grip working platform
Art. no.: 170.006.0241
Weight: 4.80 kg



Note:
The supports must be positioned as far inside as possible in order to be able to pin the platform.

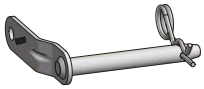
Attention:
Working with this platform is not possible with column widths of 65 cm and 70 cm, as the right-hand support collides with the locking screw needed for the panel connection.

2. Slide the working platform into the brackets and secure it with a security bolt and retaining pin.

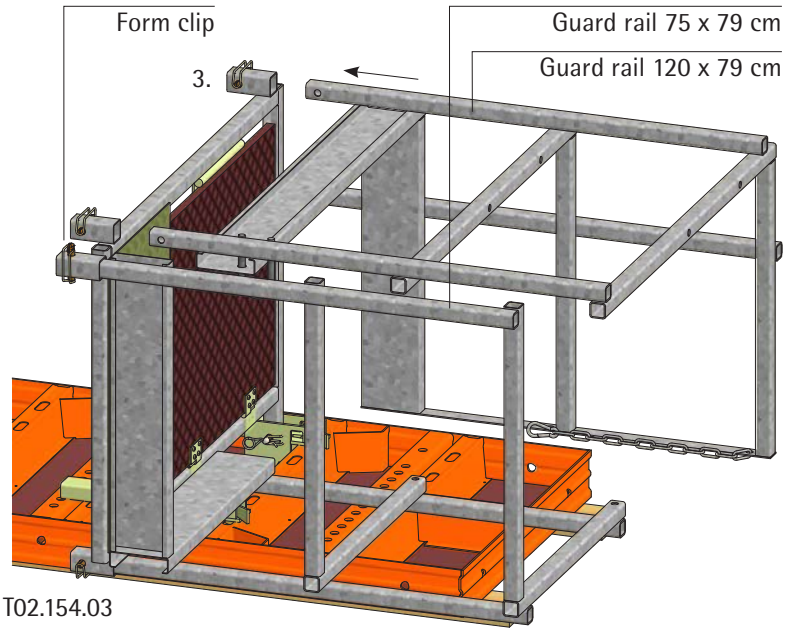


T02.154.02

Security bolt 130 cpl.
Art. no.: 189.001.0069
Weight: 0.35 kg

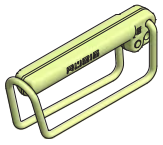


3. Insert the two guard rail frames into the brackets of the platform and secure them everywhere with form clips.

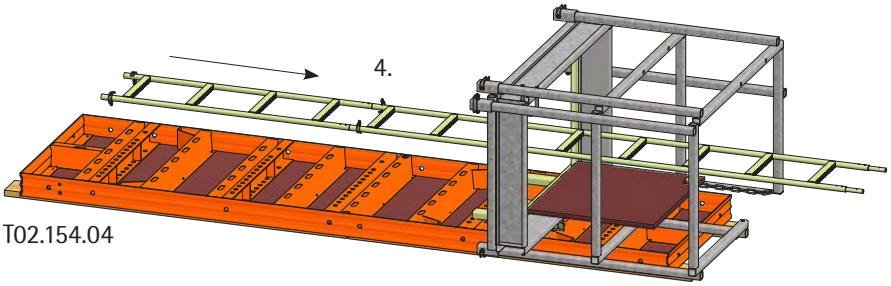


T02.154.03

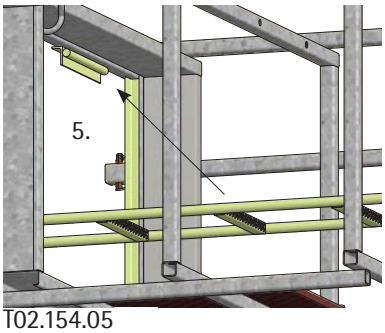
Form clip 60 x 60/17 x 75
Art. no.: 930.007.0031
Weight: 0.16 kg



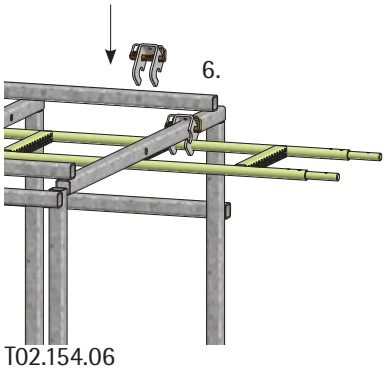
Columns



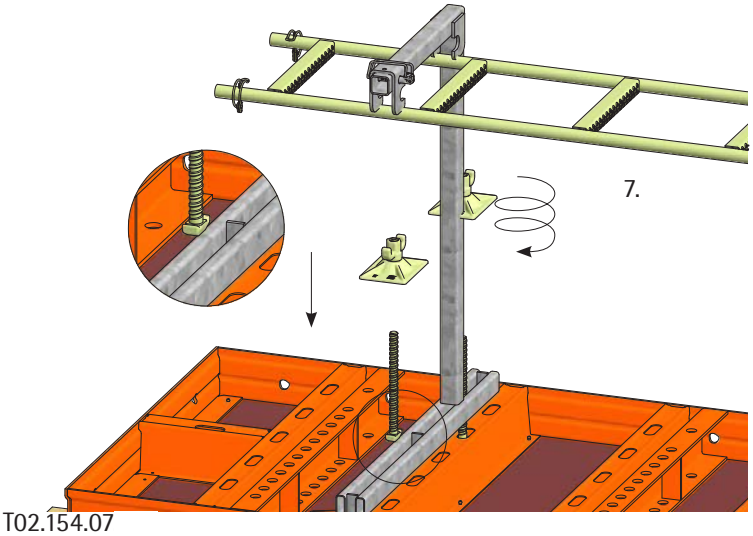
T02.154.04



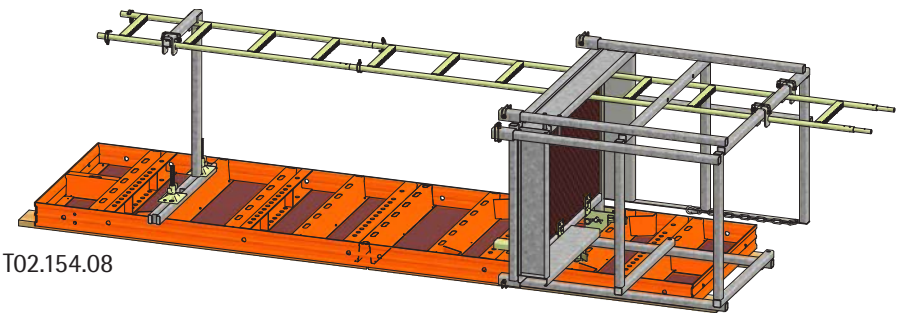
T02.154.05



T02.154.06



T02.154.07



T02.154.08

Access is possible by combining 260 cm and 130 cm ladders to fit the required height. Connections are made via tube locking pins.

Tube locking pin 5.5/35
Art. no.: 930.007.0033
Weight: 0.13 kg

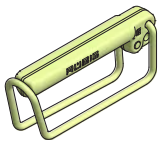
Note:
For the total length of the ladder, note that it requires a small distance to the formwork assembly surface and must be simultaneously attached to the 120 x 79 cm guard rail.

4. Couple the overall length of the ladder.

5. Hinge the ladder into the ladder holder in the platform.

6. Secure the ladder to the 120 x 79 cm guard rail with two ladder attachments and a form clip.

Form clip 60 x 60/17 x 75
Art. no.: 930.007.0031
Weight: 0.16 kg



7. Hold the ladder at the bottom with the ladder fastening for Multip trapezoidal girders and hook-headed bolts with plates with ball-and-socket joint (with no screws fitted).

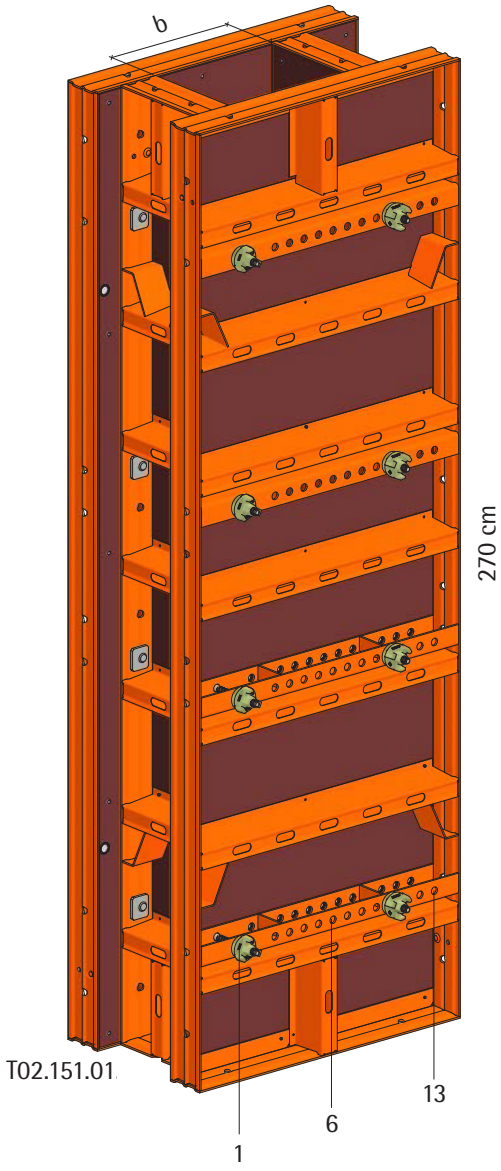
Columns

In addition to the variant with four multi-panels, columns can also be formed using other methods.

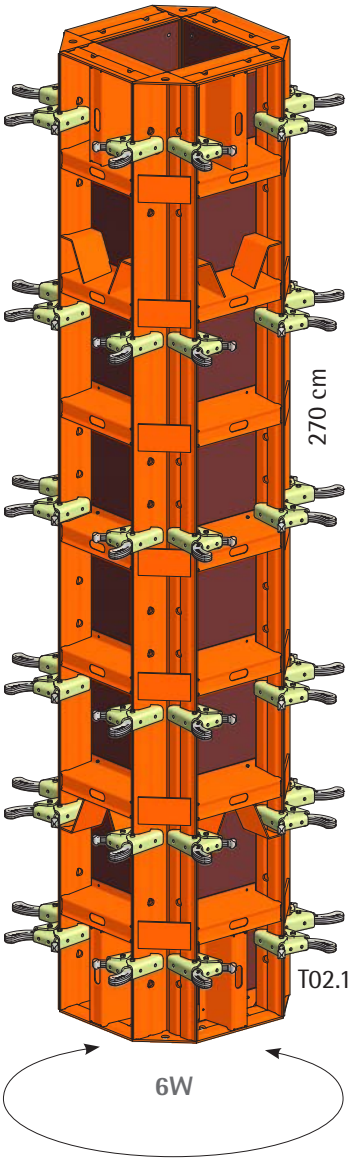
Attention:
Only the required panels and accessories are shown in the adjacent illustrations. Adjustable props for aligning the formwork and platforms must be added.

Column with two parallel multi-panels and two compensation panels:
Two opposing multi-panels are screwed together with internal compensation panels.
The width of the compensation panels depends on the column cross-section.
The multi-panels can be used to set different dimensions.
For the number of locking screws required, see chapter 90° corner (multi-panel), page 52f.

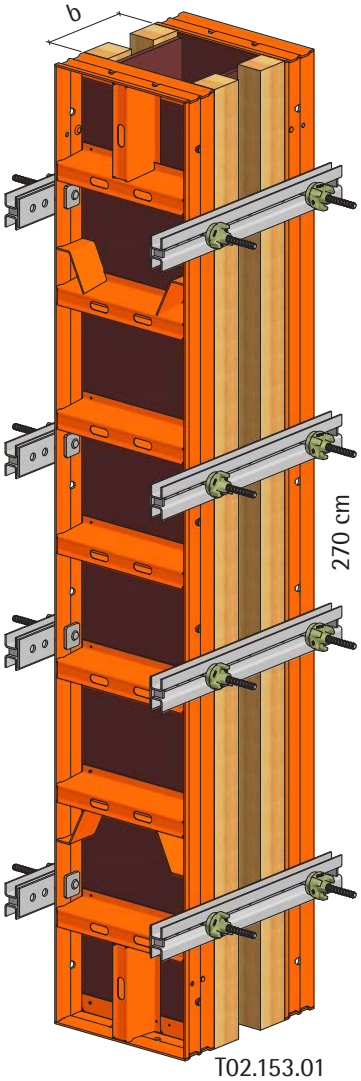
b [cm]	Connecting hole
15	1-5
18	2-8
20	1-6
23	2-9
25	1-7
28	2-10
30	1-8
33	2-11
35	1-9
38	2-12
40	1-10
43	2-13
45	1-11
50	1-12
55	1-13
Hole spacing = b + 12 cm	



Columns

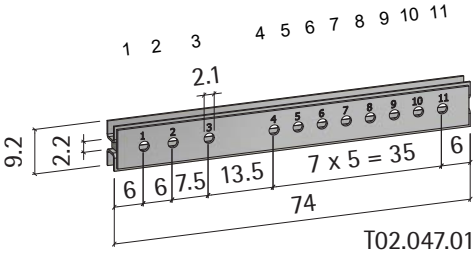


Column with four panels and outside corners:
The number of wedge clamps required depends on the panel height. See chapter 90° corner (outside corner), page 54f.



Column with two compensation panels and stop end on both sides:
Two panels are connected with spacer channels and locking screws. At the front parts, a stop is provided on site with square timbers and plywood. For the number of spacer channels and locking screws required, see chapter (Stop end), page 66f.

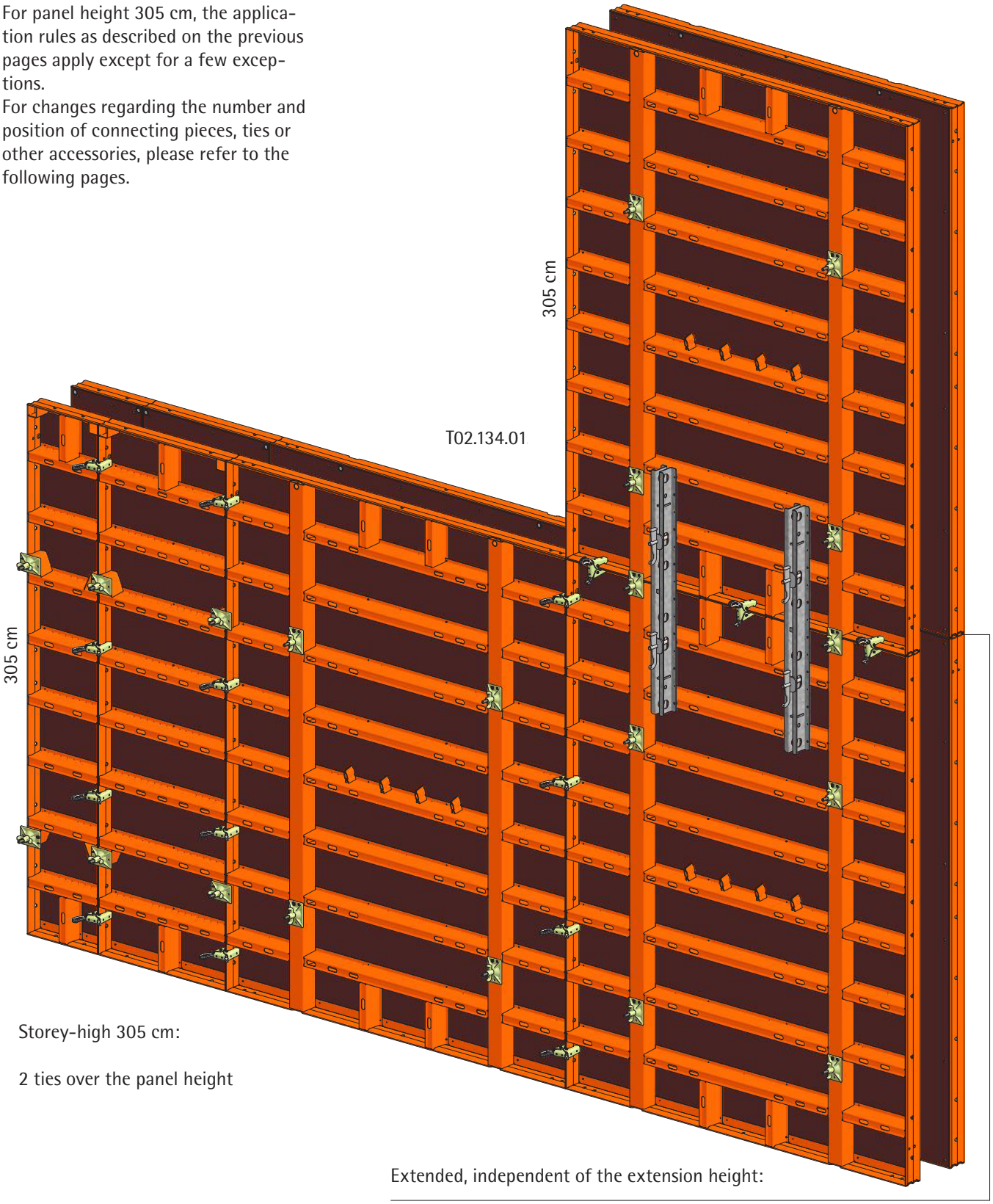
b [cm]	Connecting hole
15	1-4
20	1-5
24	2-7
25	1-6
30	1-7
35	1-8
40	1-9
45	1-10
50	1-11



Distance rail 15 - 50 cm
Art. no.: 187.500.0006
Weight: 7.10 kg

Panel height 305 cm, ties

For panel height 305 cm, the application rules as described on the previous pages apply except for a few exceptions.
For changes regarding the number and position of connecting pieces, ties or other accessories, please refer to the following pages.



Storey-high 305 cm:

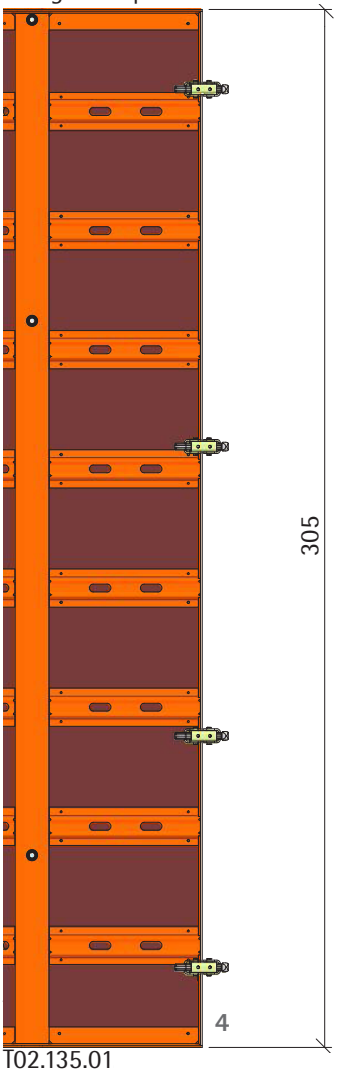
2 ties over the panel height

Extended, independent of the extension height:

As on the left, but additional ties at the horizontal panel joint for all panel widths

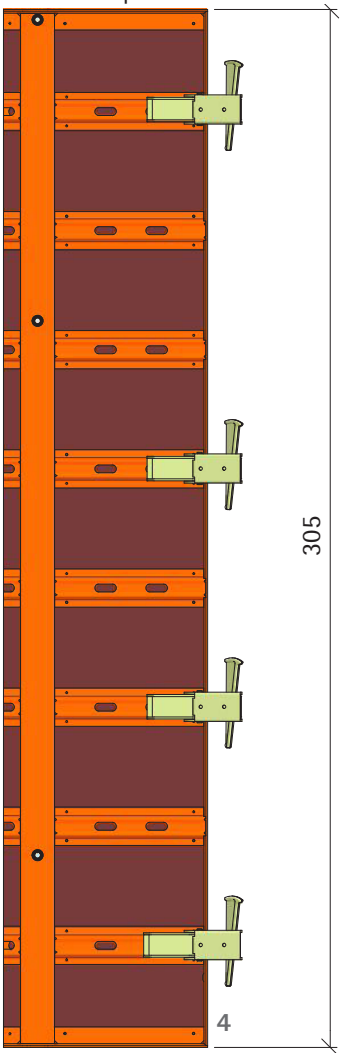
Panel height 305 cm, connecting pieces

Wedge clamp:

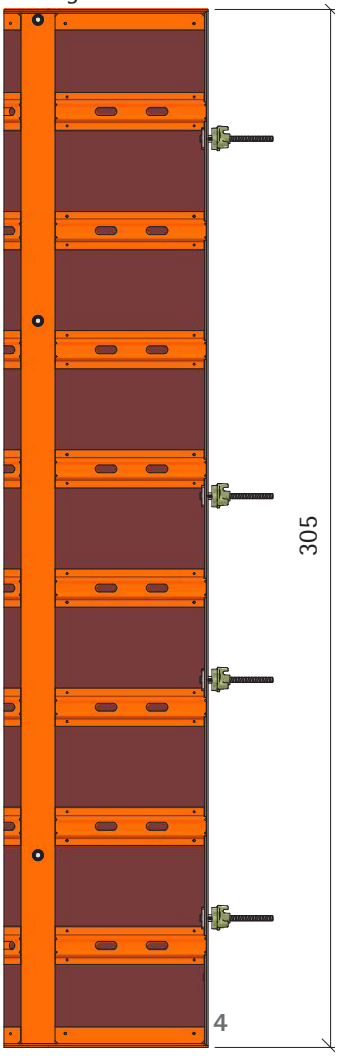


T02.135.01

Multi-clamp:



Locking screw:

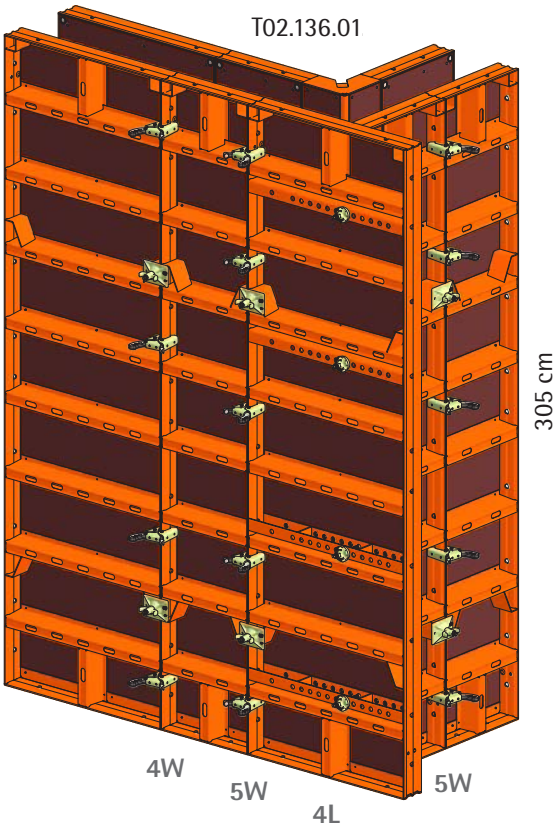


Attention:
An increased number of wedge clamps is required in the following areas:

- Corners (p. 134)
- Last joint before stop end (p. 135)

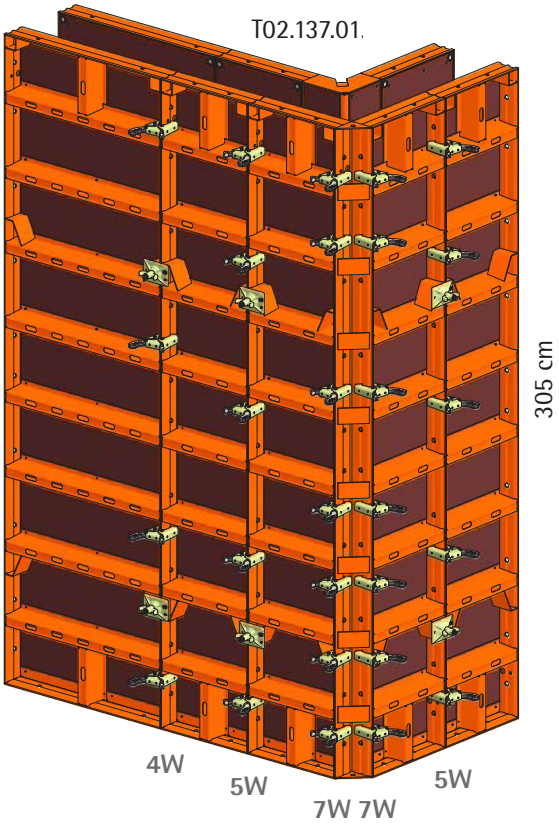
Panel height 305 cm, 90° corner

Multi-panel:



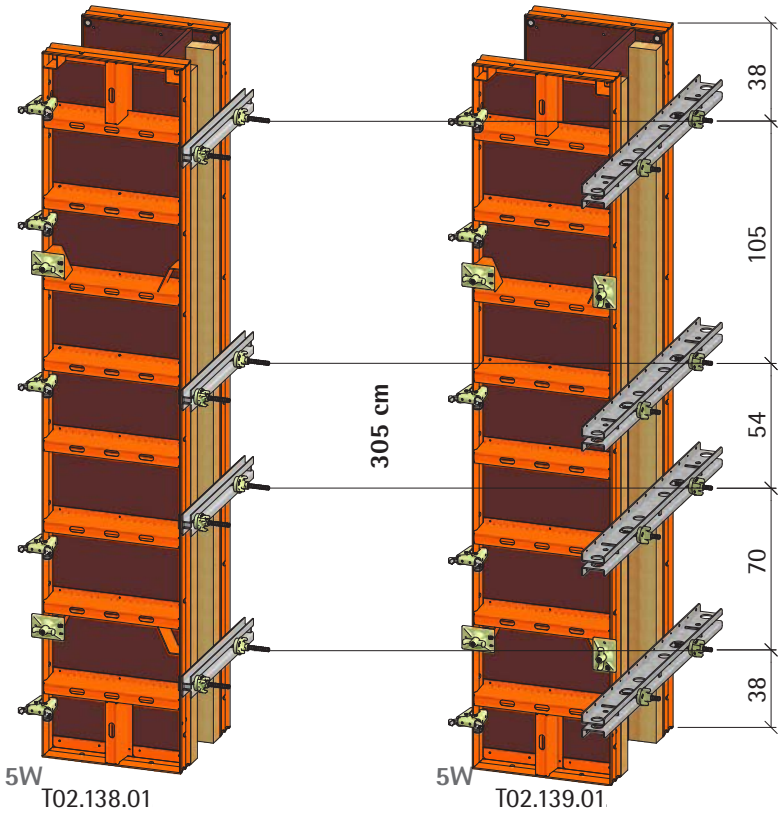
The number and position of connecting pieces for 90° corners can be seen in the adjacent illustrations.

Outside corner:



W = wedge clamp
L = locking screw

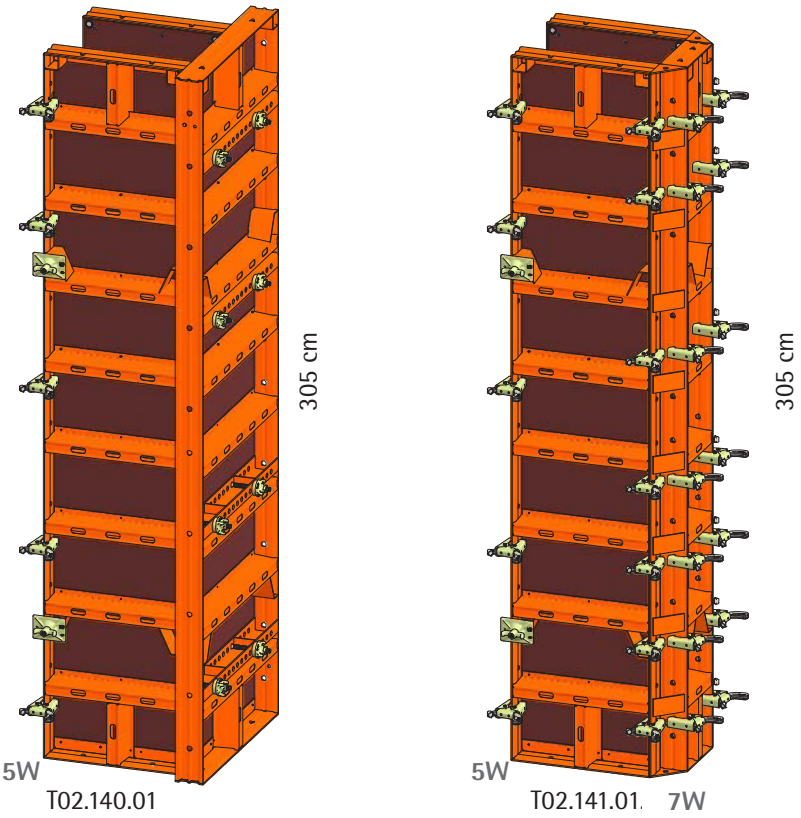
Panel height 305 cm, stop end



Spacer channel

Multi-waler

Different system solutions are described for stop ends and setting frontal stop ends on pages 66f.
The number and position of the required parts for the formwork height 305 cm are shown in the illustrations on the left.



Multi-panel

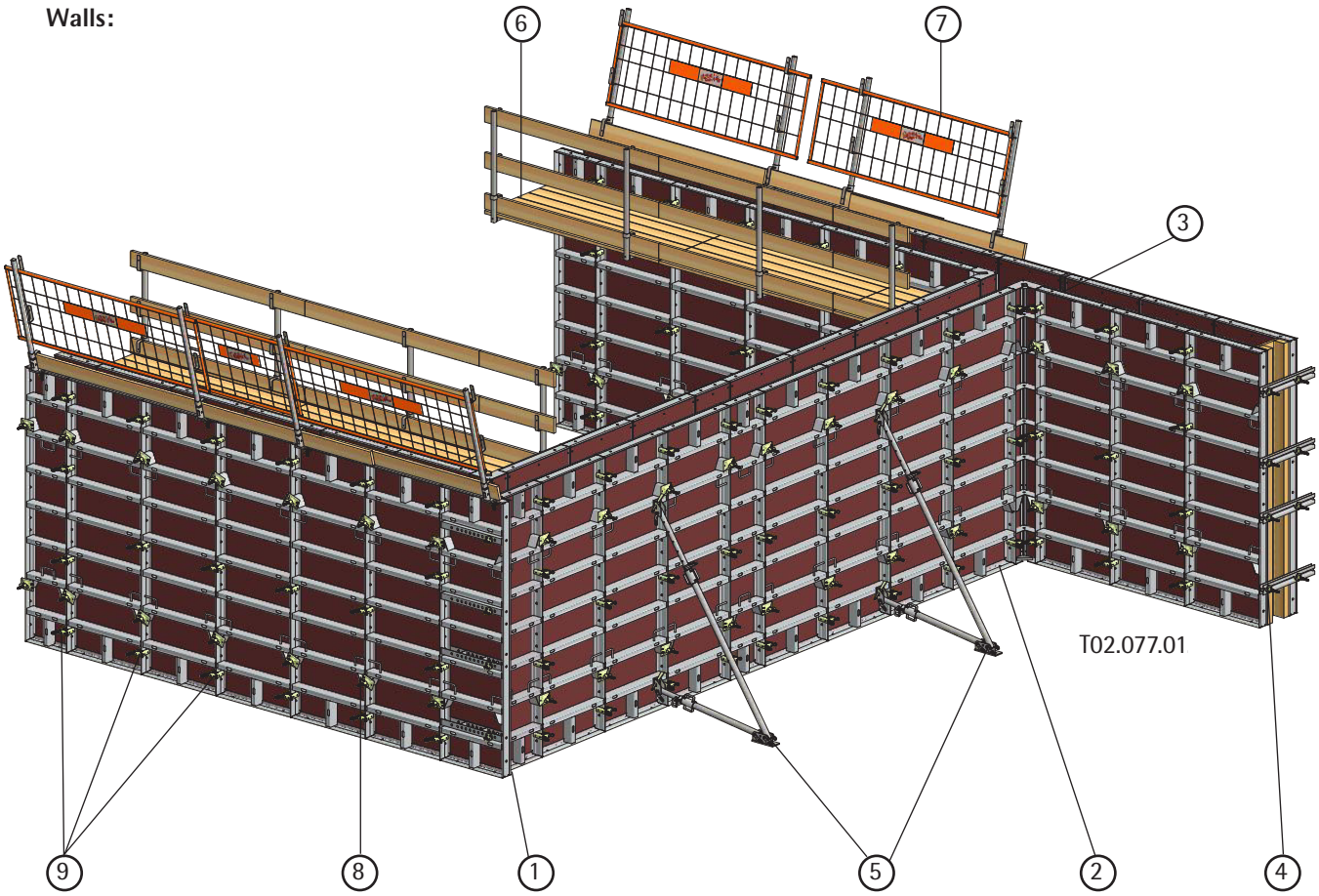
Compensation panel with outside corner

W = wedge clamp
L = locking screw

System description, technical data, alu

- As lightweight formwork, LOGO.alu is preferably used on construction sites where no crane (lifting tool) is available.
- It can be combined with LOGO.3 (steel), with all accessories fitting both versions.
- Available panel heights: 270 cm; 135 cm.
- The powder-coated panel frame has an overall height of 12 cm.
- The maximum permissible fresh concrete pressure is 60 kN/m² according to DIN 18218. The flatness tolerances of DIN 18202, table 3, line 6 are observed.
- Finnish birch plywood panels (16 mm thick, 12-ply) are installed as a standard formwork facing.

Walls:



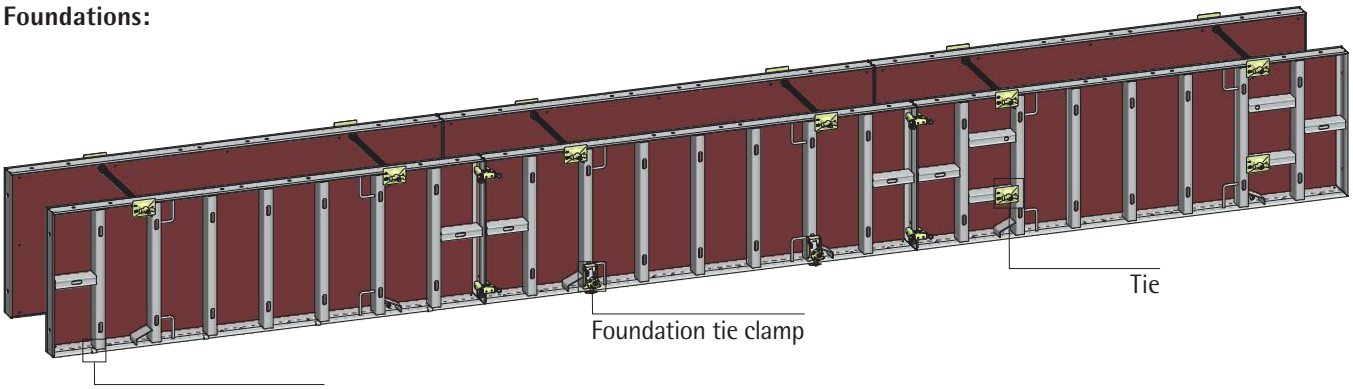
① Corner / right angle
② T-walls
③ Residual compensation
④ Stop end
⑤ Adjustable props
⑥ Platform bracket with facing
⑦ Opposite fall protection
⑧ Tie points
⑨ Connecting pieces

System description, technical data, alu

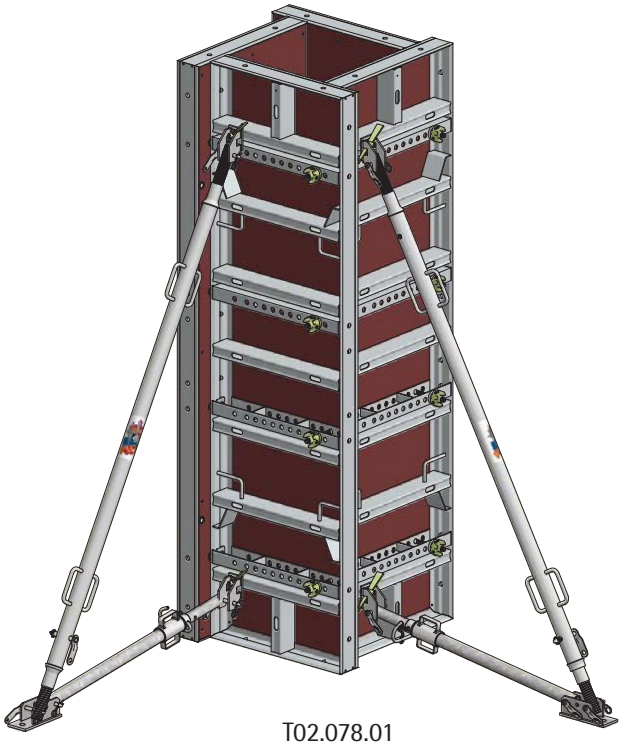
- The maximum panel weight is 60 kg (panel 90 x 270 cm).
- DW15 tie rods are used as formwork anchors.
- The LOGO alu technical information (pages 136 - 141) only shows the applications that differ from those of LOGO.3 (steel). Applications not described separately here can be found in the LOGO.3 technical information.
- For the safety-related application and use of PASCHAL products, the laws, standards and regulations for occupational health and safety and other safety regulations in force at the respective site must be observed in their currently valid version.

Foundations:

T02.079.01



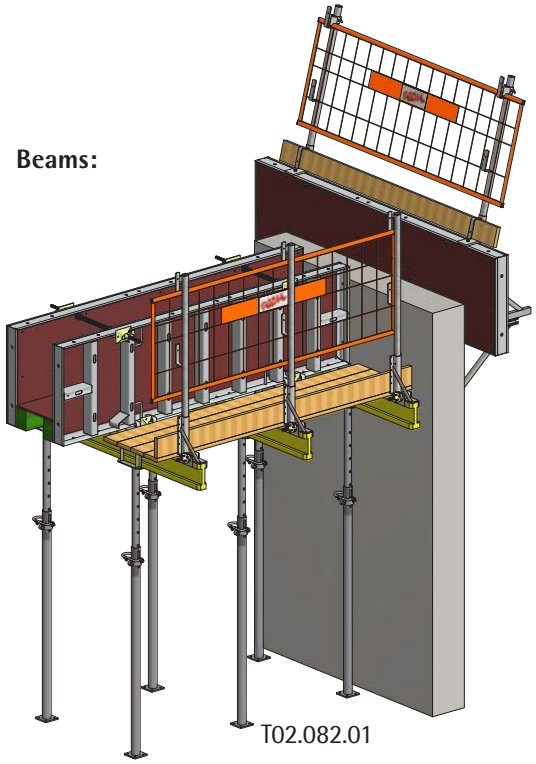
Columns:



T02.078.01

Slab edge:

Beams:



T02.082.01

90° corner (multi-panel) alu

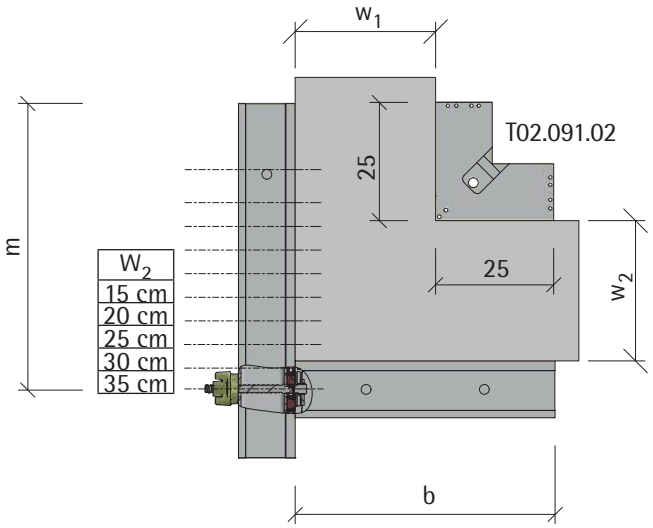
There are two system solutions for forming right angles (90° corners):

Outside corner (page 54 f.)
Multi-panel

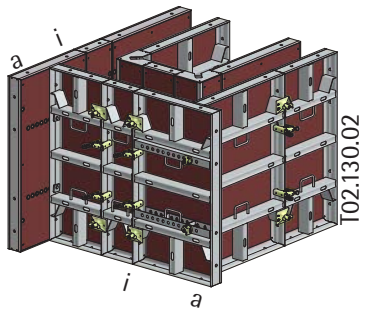
The inside corner and compensation panels are used together with the multi-panel. The width b of the compensation panel depends on the wall thickness w_1.

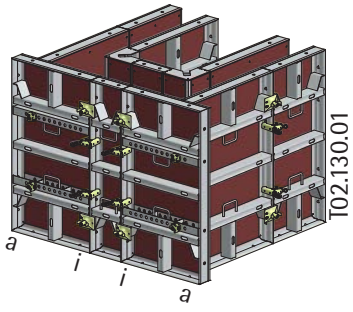
Locking screws are used to connect the multi-panel directly to the compensation panel via integrated hole profiles. The hole pattern in the multi-panel is 5 cm, allowing wall thicknesses w2 to be set there at the same distance from 15 cm to 35 cm.

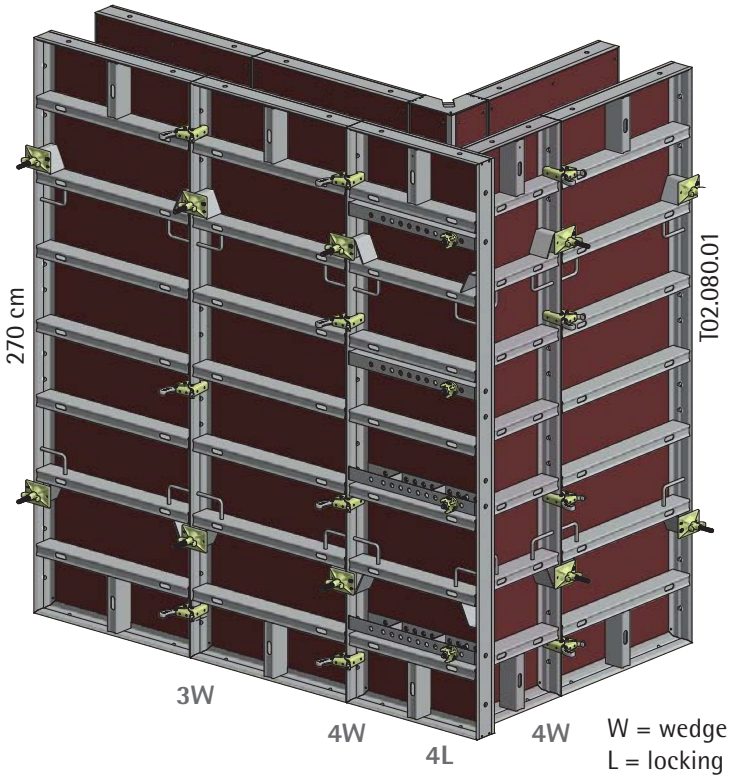
Note:
The multi-panel is not symmetrical. It must be arranged in such a way that the continuous 5-hole perforation is always at the outer side.



Compensation panel width	$b = w_1 + 25$ cm
Distance between frame / screw connection	$m = w_2 + 31$ cm

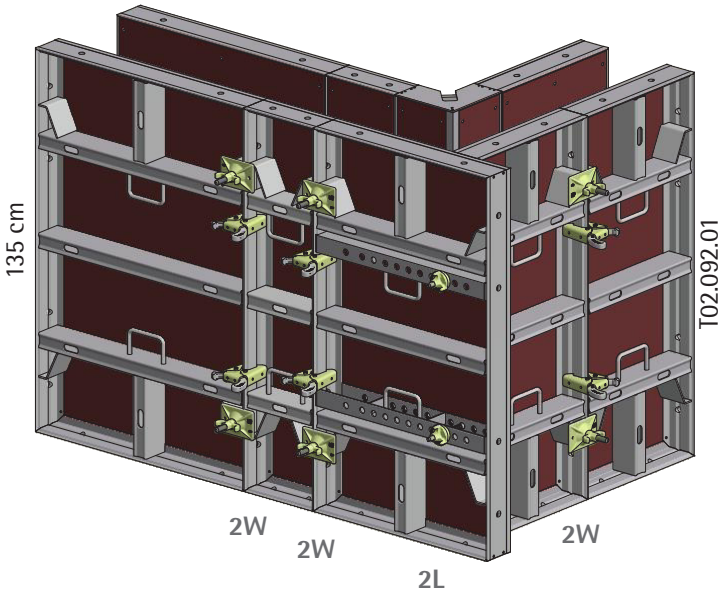






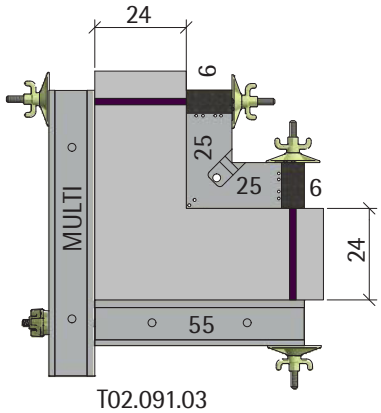
W = wedge clamp
L = locking screw

90° corner (multi-panel) alu



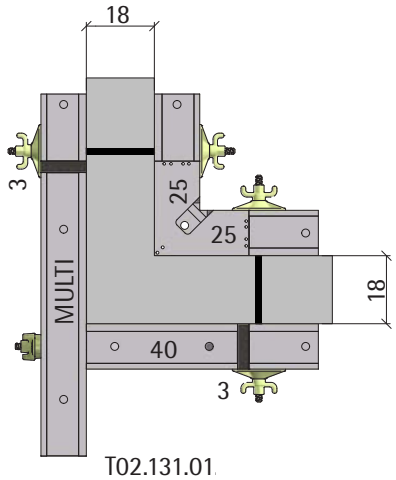
For wall thicknesses outside the 5cm pattern, appropriately wide plastic fillers can be used at the first inside or outside joint to bring the multi-panel into the correct position for the screw connection.

Example 1:
Wall thickness 24 cm



T02.091.03

Example 2:
Wall thickness 18 cm



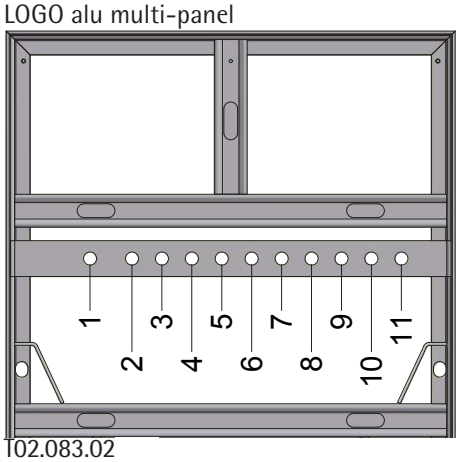
T02.131.01

W = wedge clamp
L = locking screw

Stop end (multi-panel) alu

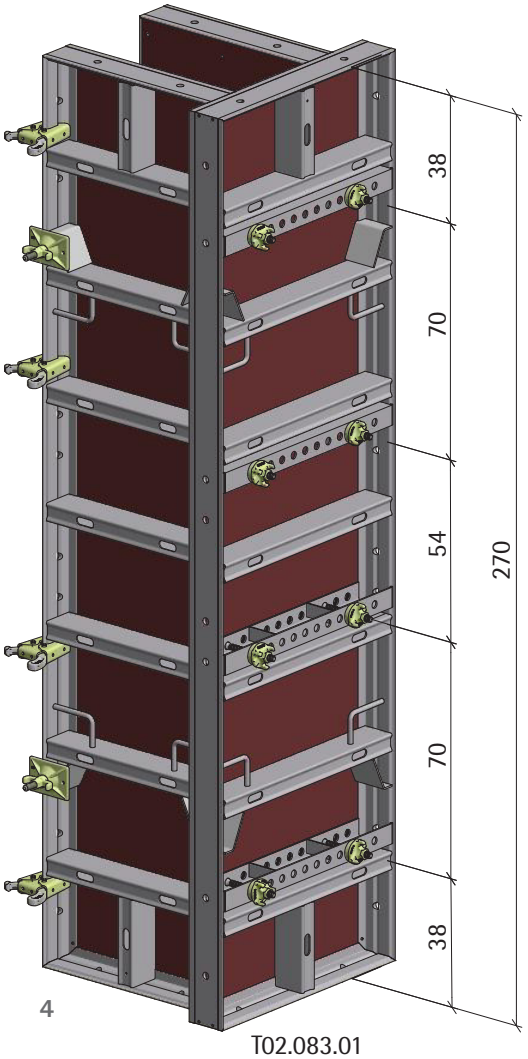
Different system solutions are described for stop ends and setting frontal stop ends on pages 66 f.
These also apply to the aluminium panels with the exception of the multi-panel shown here.

LOGO alu multi-panel

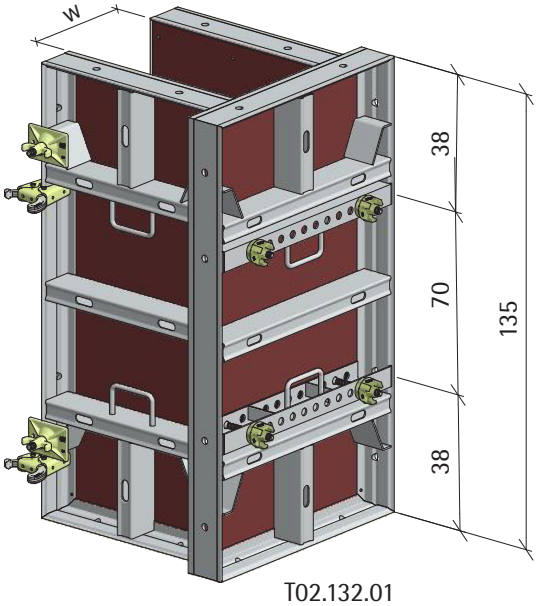


T02.083.02

w [cm]	Connecting hole
15	1-6
18	2-8
20	1-7
23	2-9
25	1-8
28	2-10
30	1-9
33	2-11
35	1-10
Hole spacing = w + 12 cm	

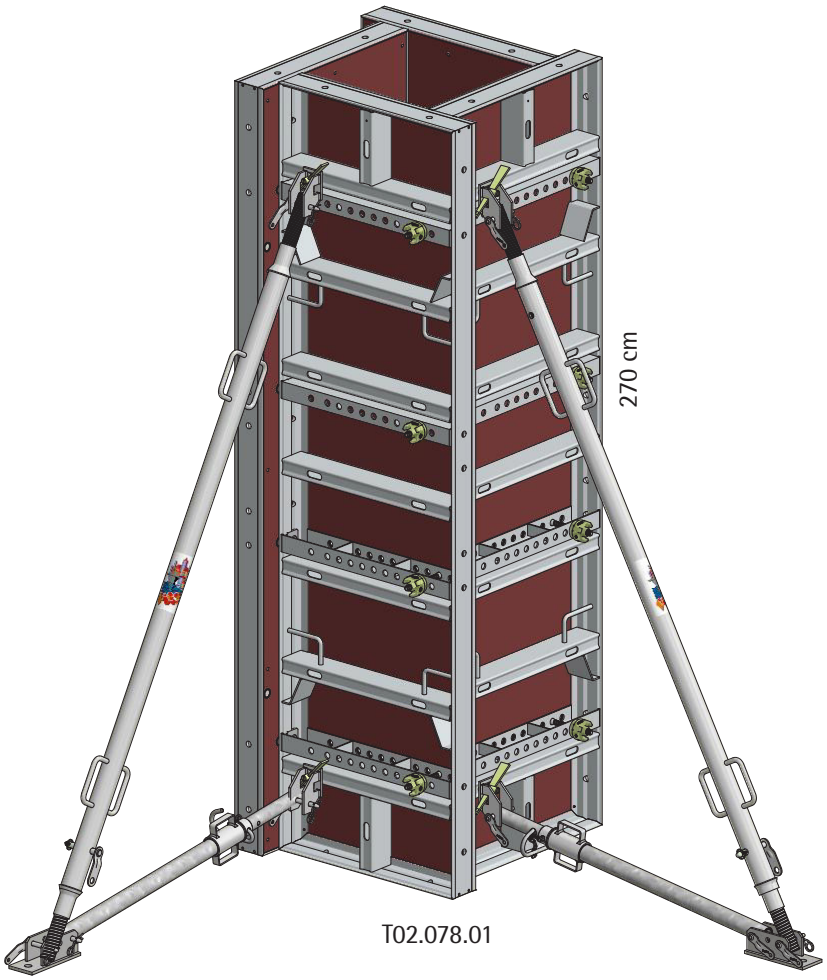


T02.083.01



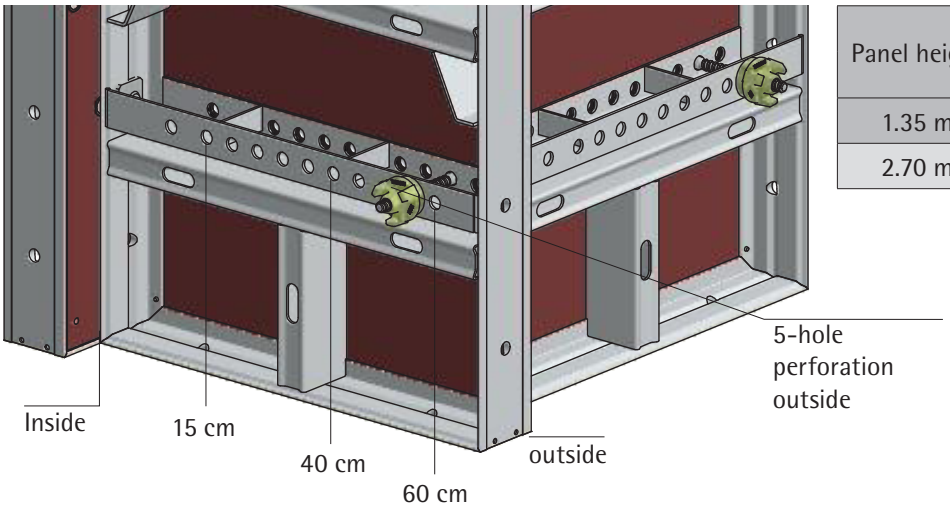
T02.132.01

Columns, alu



With four multi-panels, columns can also be formed. The panels are erected according to the "windmill wing principle" and connected with locking screws.
Column cross-sections between 15 cm and 60 cm are possible. The increment is 5 cm

Work safety:
In the adjacent illustration, no work-places are shown for pouring and compacting the concrete.
Mounted firmly on the panel, the total weight would be too great to be able to move the panels by hand.
Therefore, the use of mobile or rolling scaffolds is recommended.



Panel height	Number of locking screws	
	per connection	per column cpl.
1.35 m	2	8
2.70 m	4	16

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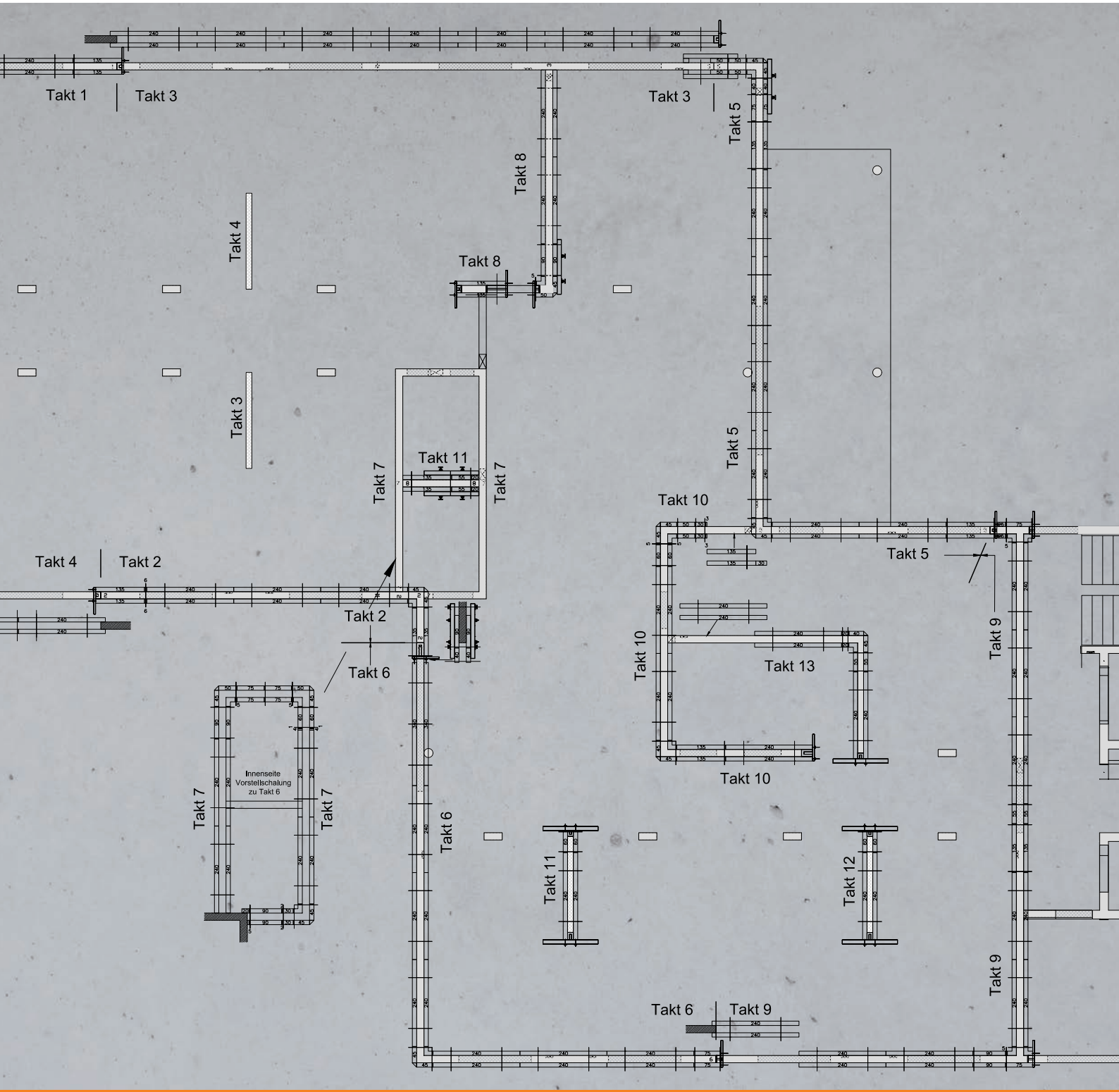
Index

W



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