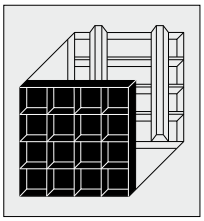

Modular column formwork adjustable

Technical Information

PASCHAL

Service in Formwork + Shoring

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Important information regarding the intended use and safe application of formwork and falsework
Version 08.2009

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

• Risk 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 have possibly 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 well as 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 condition and function correctly. Changes to the formwork materials are not permitted.

• Spare Parts and Repairs
Only original components may be used as spare parts. Repairs are to be carried out by the manufacturer or authorized repair facilities only.

• Use of Other Products
Combining formwork components from different manufacturers carries certain risks. They are to be individually verified and can result in the compilation of a separate set of 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 site personnel(alsolife)


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 application and 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.

Table of content

02.2015
N953.002.161

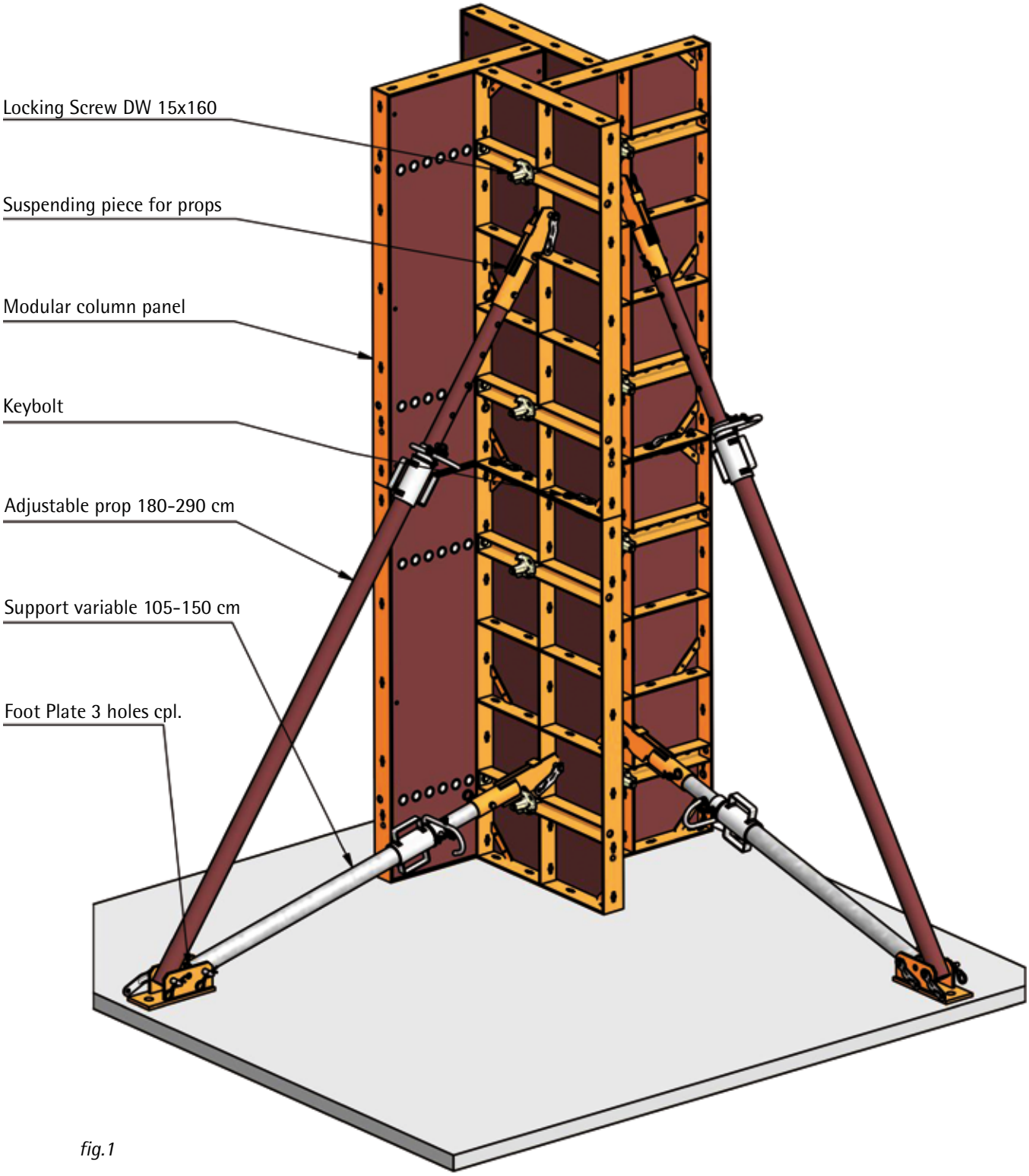


fig.1

4 Modular column formwork adjustable

- The adjustable modular column formwork by PASCHAL is a steel frame formwork whose elements are assembled according to the so-called windmill principle (fig. 2 - 4).
- With four elements each square and rectangular column cross-sections can be formed in the adjustment range of 20 cm to 50 cm in increments of 5 cm.
- Available are element heights of 150 cm; 125 cm and 100 cm, which will be assembled depending on the height of columns to be concreted.
- As formwork facing a 15 mm thick, phenolic resin coated plywood is mounted in the elements.
- There is a maximum concrete pressure of 60 kN / m² according to DIN 18218 admissible. In assembled formwork with different element heights the smaller heights have to be used on bottom.
- Mounting options for accessories such as props, plattform brackets or crane lifting clamps are available in the elements.
- With increased demands on the concrete surface (edges) at the panel joints, a glazing tape or chamfer strip can be mounted.

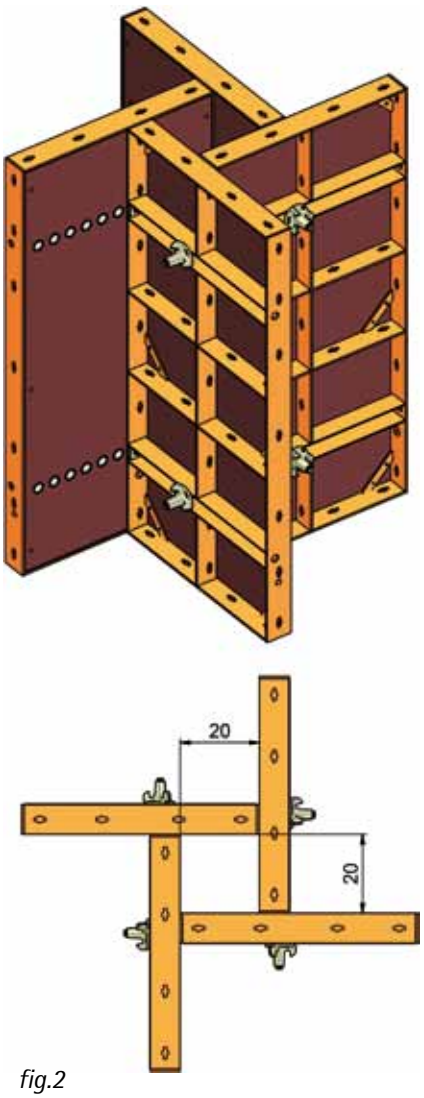


fig.2

fig.3

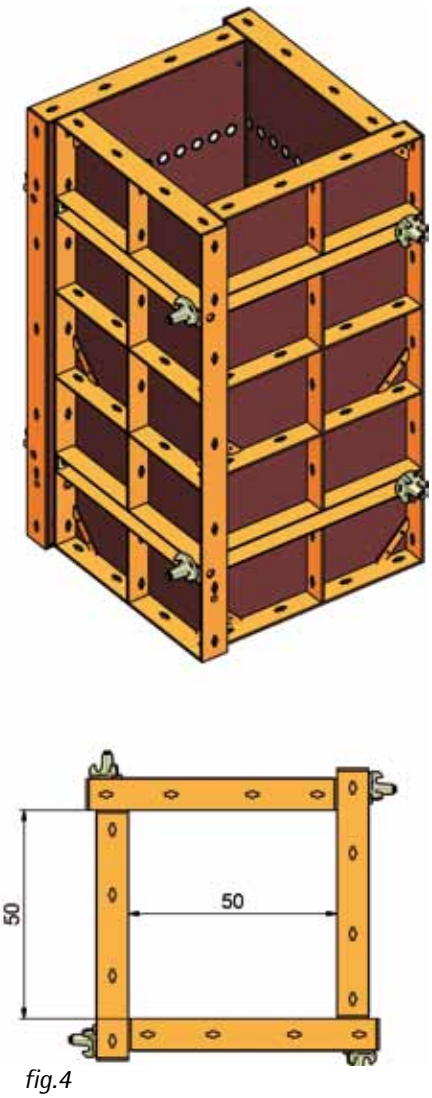
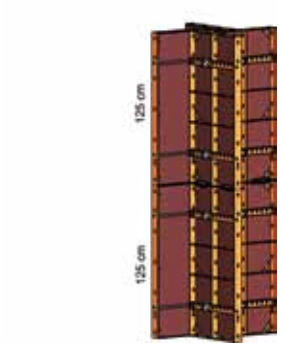
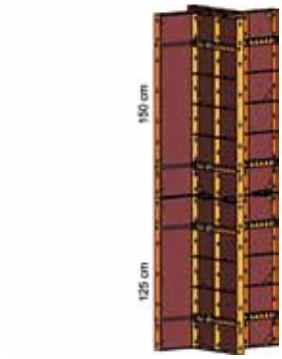
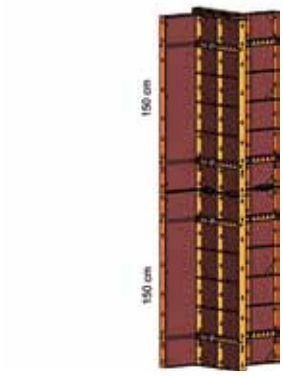
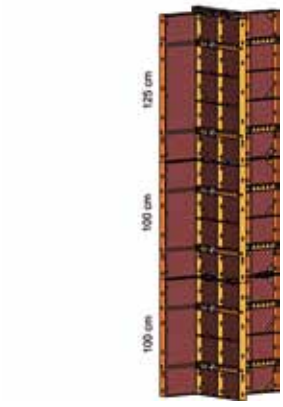
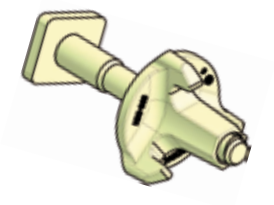


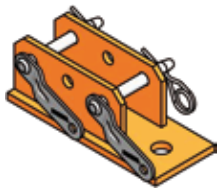
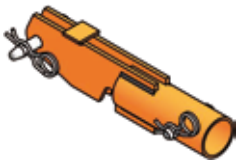
fig.4

	Art.-N°	Item	Weight [kg]
	170.008.1000	**Modular Column Formwork adjustable** 20-50x250cm cpl.	282,40
	170.008.1001	**Modular Column Formwork adjustable** 20-50x275cm cpl.	304,80
	170.008.1002	**Modular Column Formwork adjustable** 20-50x300cm cpl.	327,20
	170.008.1003	**Modular Column Formwork adjustable** 20-50x325cm cpl.	380,32

6 Modular column formwork adjustable

Parts list

	Art.-N°	Item	Weight [kg]
	170.008.0001	**Modular column panel 60x100cm**	27,60
	170.008.0002	**Modular column panel 60x125cm**	33,20
	170.008.0003	**Modular column panel 60x150cm**	38,80
	170.008.0010	**Locking screw DW15x160** for Modular column formwork	0,86
	189.001.0100	**Keybolt**	0,19

	Art.-N°	Item	Weight [kg]
	189.002.0008	**Crane lifting clamp KA** Admissible capacity 600 kg	4,00
	189.005.0006	**Adjustable prop 180-290cm**	11,00
	189.005.0001	**Support 105-150cm**	9,50
	189.005.0023	**Foot plate 3-holes cpl.**	3,60
	180.000.0025	**Suspending piece for props** cpl. Modular Formwork	2,65
	189.006.0650 189.006.1000	**Tie rod DW15 x 65cm** **Tie rod DW15 x 100cm**	0,90 1,40
	189.001.0001	**Wingnut DW15** triple wing	0,46

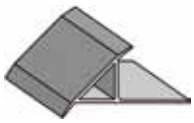
	Art.-N°	Item	Weight [kg]
		**PVC-tube Ø22 mm with covers**	
	189.011.0200	20,0cm	% 5,20
	189.011.0250	25,0cm	% 6,00
	189.011.0300	30,0cm	% 6,80
	189.011.0350	35,0cm	% 7,70
	189.011.0400	40,0cm	% 8,50
	189.011.0450	45,0cm	% 9,30
	189.011.0500	50,0cm	% 10,20
	189.010.3000	**length 300 cm** without covers	0,5
	189.014.0001	**PVC-cover Ø22 mm**	% 1,10
	189.014.0009	**PVC plug Ø22 mm**	% 0,40
	680.000.0150	**PVC countersink plug** Ø 21	% 0,20
		**PVC chamfer strip**	
	189.015.0000	2,3x2,3x250cm	0,35
	189.015.0002	1,2x1,2x250cm	0,16
	949.000.0013	**Sealing tape 12x3mm** 10m	0,03

fig.7

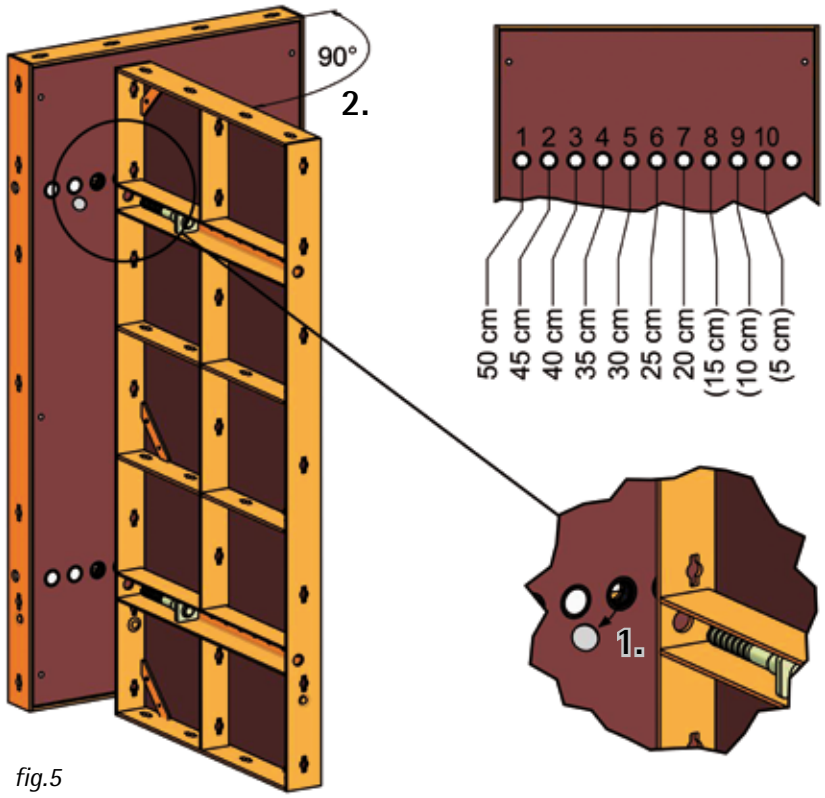


fig.5

In order to connect two elements of the column formwork together or assemble a complete formwork, the following steps must be observed:

1. Remove PVC plugs Ø21 (a) from the holes in the panels (plywood), to pass through the locking screw. (fig. 7) shows which cross section can be done by using which hole.
2. Put flush together the panels at a 90° angle (fig. 5).
3. Put the locking screw DW15x160 (b) as shown in (fig. 6) in all perforated strips.
4. From the opposite side, turn up the wing nut and tighten with a hammer blow.

(a)

PVC countersink plug
Art.-N°: 680.000.0150

(b)

Locking screw DW15x160
Art.-N°: 170.008.0010

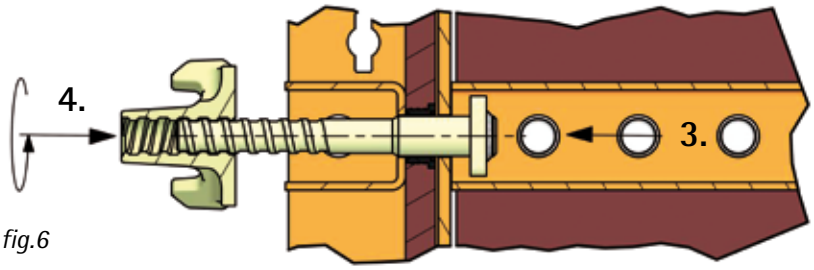


fig.6

If the concrete column should have chamfered edges, a chamfer strip can be mounted at the joint between plywood and panel frame (fig. 9). For sharp edges a sealing tape (d) is available (fig. 8).

(c)

Chamfer strip
Art.-N°: 189.015.0000
189.015.0002

(d)

sealing tape 12x3mm
Art.-N°: 949.000.0013

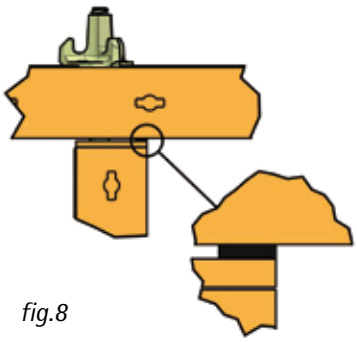


fig.8

Installation of a sealing tape for sharp edges. (d)

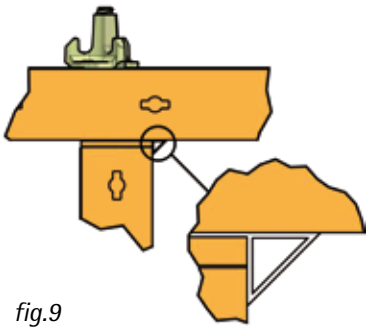


fig.9

Installation of a chamfer strip for chamfered edges. (c)

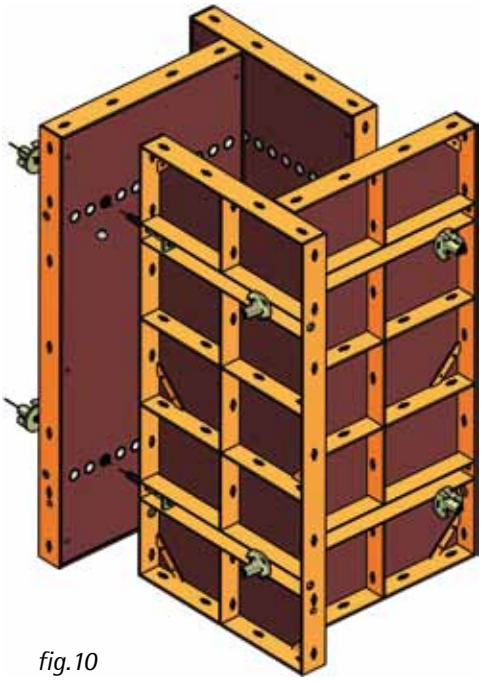


fig.10

For a complete formwork assemble repeat the steps 1 to 4 at all remaining corners. (fig. 10)

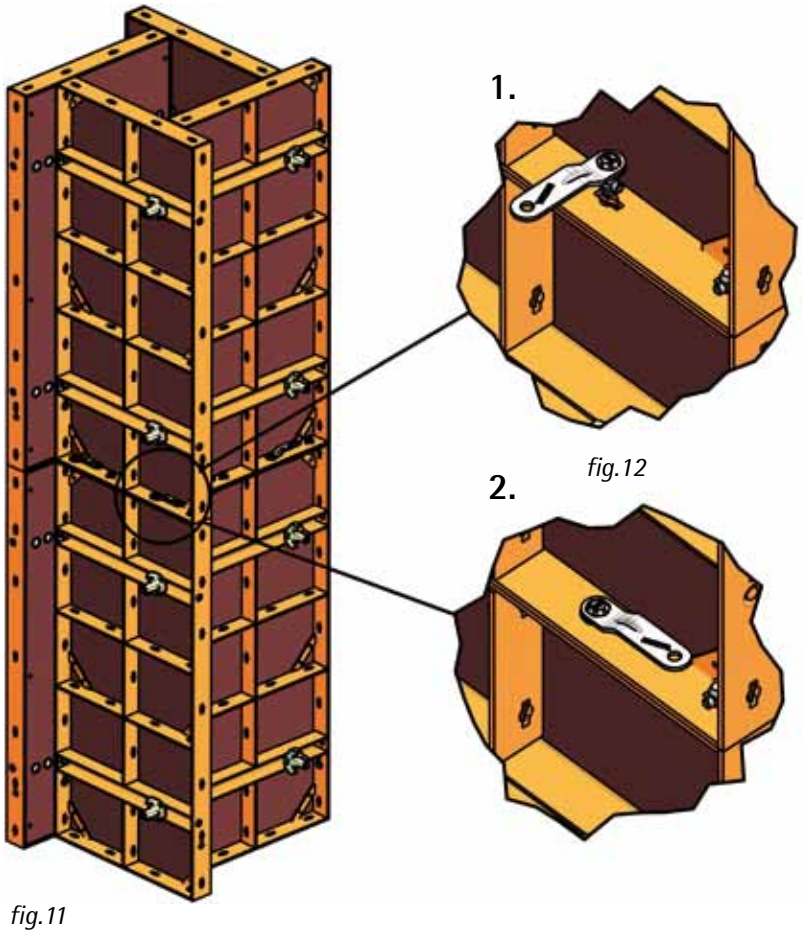


fig.11

fig.12

For height adjustment of the formwork to the required concrete height, the three panel heights 150 cm; 125 cm and 100 cm can be assembled. The panels will be connected at the horizontal joints with keybolts:

1. Put the keybolts (a) from above or below through the four bolt-holes of each panel.
2. Turn inwards the keybolt handle by 90° with a hammer blow. (fig. 11 + 12)

For every height assembly 4x4 = 16 key-bolts are required.

(a)

Keybolt
Art.-N°: 189.001.0100

Two adjustable props respectively supports are mounted at right angles to keep and to align the column formwork during working operations. At the upper end the props will be fixed to the panel with the suspending piece for props. At the lower end they are fixed to the foot plate which will forward the resulting forces into the installation area. (fig. 13)

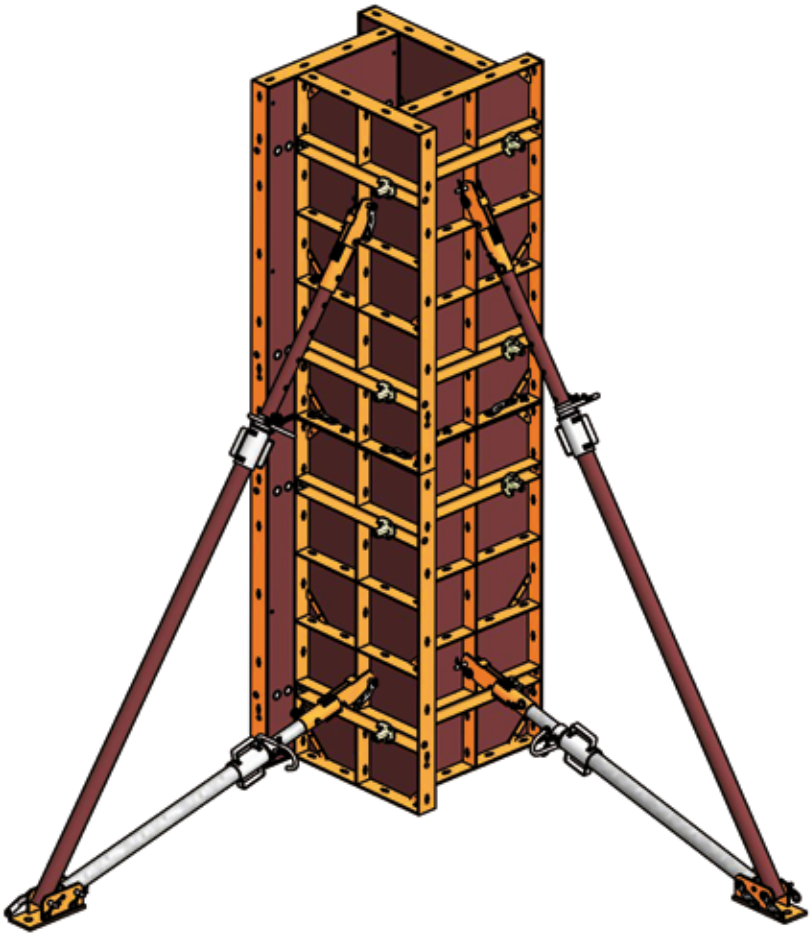


fig.13

To keep the column formwork fixed to the bottom a support-board may be placed around the panels and attached to the soil.
(fig. 14)

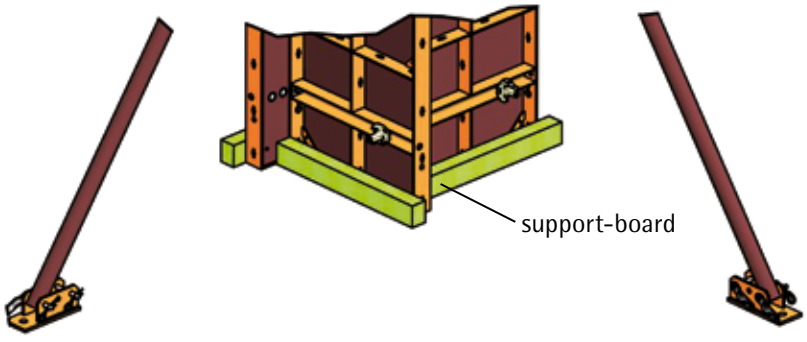


fig.14

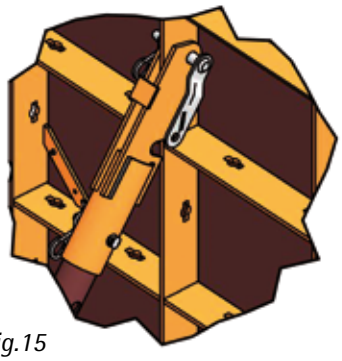


fig.15

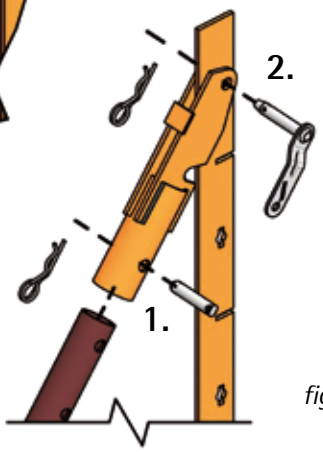


fig.16

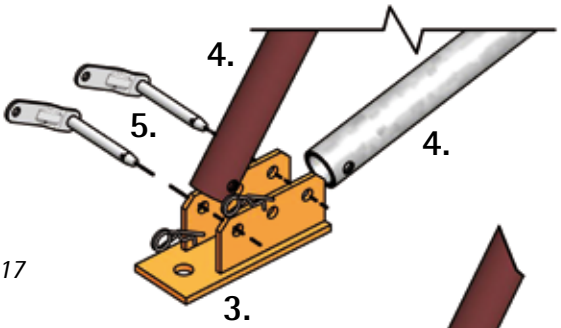


fig.17

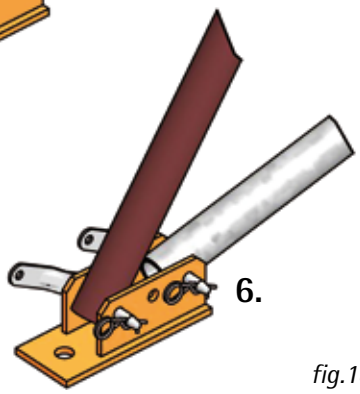


fig.18

Mounting on the element:

1. Mount the suspending piece for props (a) with the bolt (b) onto the prop and secure with the retaining pin (e).
2. Connect the suspending piece for props at the inner vertical grid of the column formwork with the security bolt (d).

(a)

Suspending piece for props cpl.
Art.-N°: 180.000.0025

(b)

Bolt d.16x78 galvanized
Art.-N°: 180.000.0003

(c)

Foot plate 3-holes cpl.
Art.-N°: 189.005.0023

Mounting on the foot plate:

3. Fix the footplate (c) on the installation surface.
4. Insert the prop(s) into the foot plate (c).
5. Stake the prop(s) with the security bolt (d).
6. Lock the security bolt (d) with the retaining pin (e).

(d)

Security bolt 130 cpl. Art.-N°: 189.001.0069
Security bolt 100 cpl. Art.-N°: 189.001.0070

(e)

Retaining pin D.4 galvanized
Art.-N°: 911.024.0004 DIN 11024

To move Modular panels or Modular column units the crane lifting clamp KA must be used. The crane lifting clamp has a carrying capacity of 600 kg. The spread angle should not exceed 60 °. (fig.19)

Detailed information on the crane lifting clamp KA are to be taken from the Technical Information Universal formwork Modular / GE page 56-59.

Assembly sequence:

1. To fix the crane lifting clamp pull the bolt.
2. Put the crane lifting clamp on the vertical bar.
3. Push the bolt through the bolt hole of the Modular column panels bar and turn 90 ° downward to lock it. (fig. 20)

Crane lifting clamp KA
Admissible capactiy 600 kg
Art.-N°: 189.002.0008

fig.19

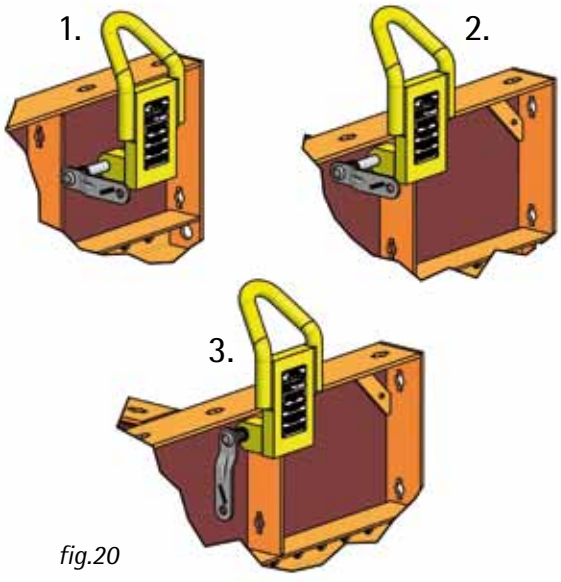


fig.20

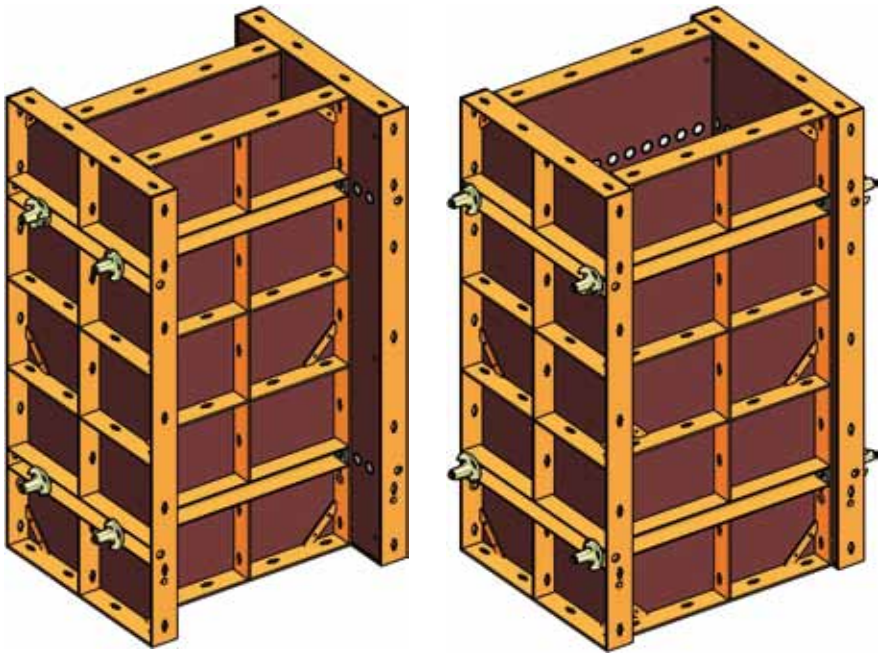


fig.21

Contrary to the usual assembly after a windmill principle two elements can also be placed accurately vis-à-vis and linked together. (Fig. 21 and 22)
In one direction, there is a constant value of 60 cm for the columns width (= element width).
In the other direction, the openings in the hole profile can be used again for forming different sections, in increments of 5 cm up to a maximum value of 40 cm. (Fig. 22)

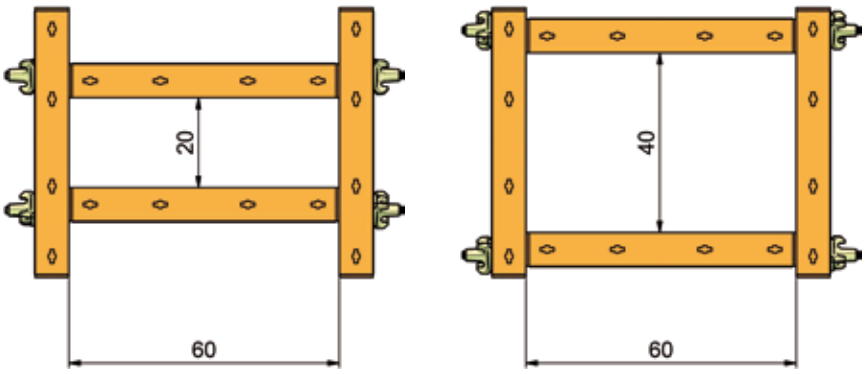


fig.22

To form larger column cross-sections than the maximum dimension of 50cm two panels can be connected together. The keybolt serves as connecting piece. Here, at each hole keybolts have to be placed:
Height 100 cm: 5 piece
Height 125 cm: 7 piece
Height 150 cm: 9 piece

(a)

Tie rod DW15 x 65cm
Art.-N°: 189.006.0650

Tie rod DW15 x 100cm
Art.-N°: 189.006.1000

(b)

Wingnut DW15
Art.-N°: 189.001.0001

(c)

PVC-tube Ø22 mm with covers
Art.-N°: 189.011.0200-0500

length 300 cm
without covers
Art.-N°: 189.010.3000

In addition, tie points (tie rods (a) + wing nuts (b)) are required in this application to absorb the forces from the fresh concrete pressure. The tie rods are inserted into all the perforated strips through the openings, which are otherwise provided for the connections of the elements (fig. 23 + 24).

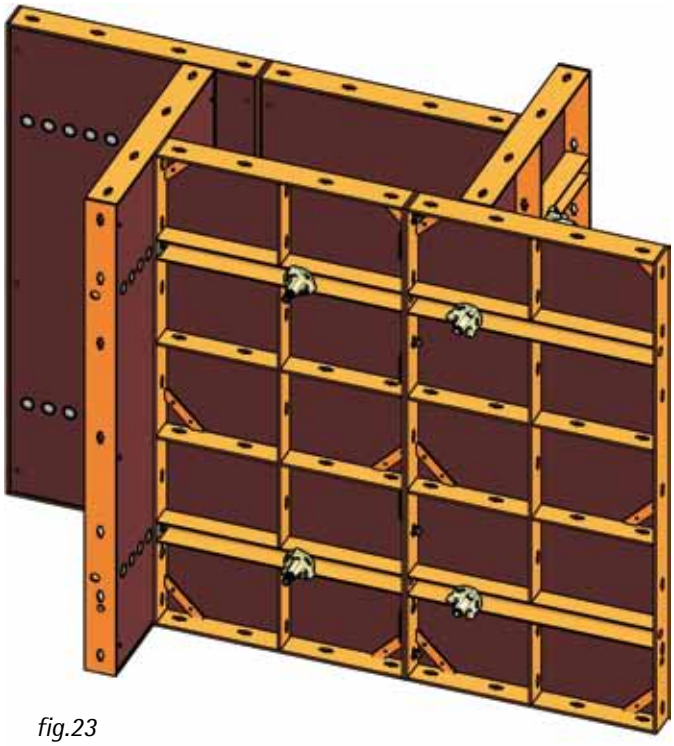


fig.23

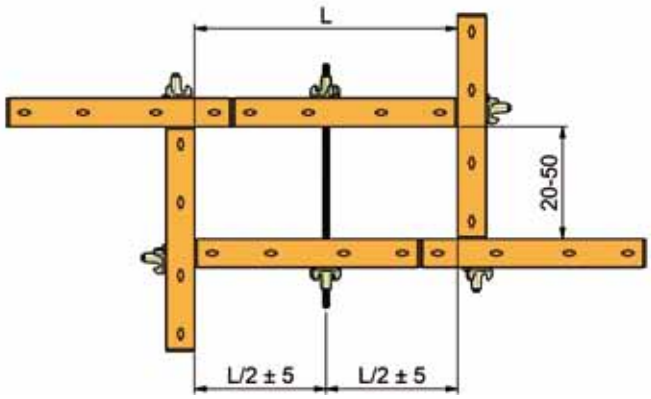
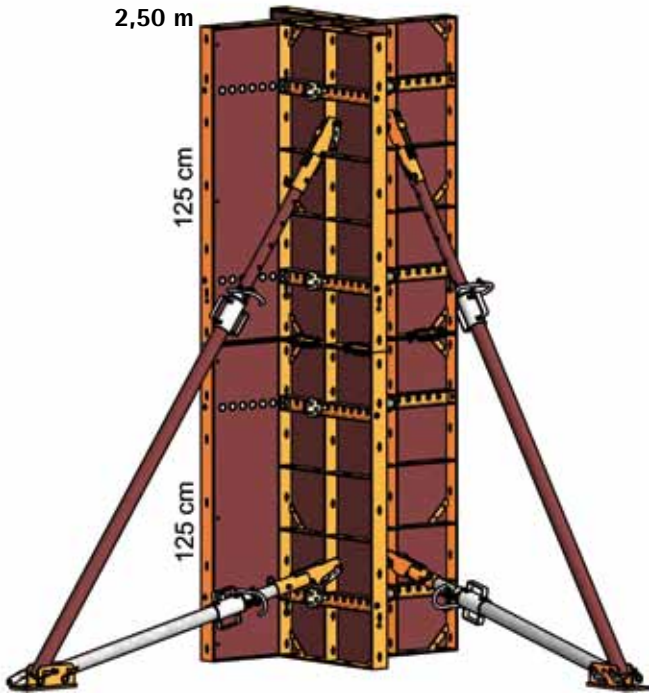
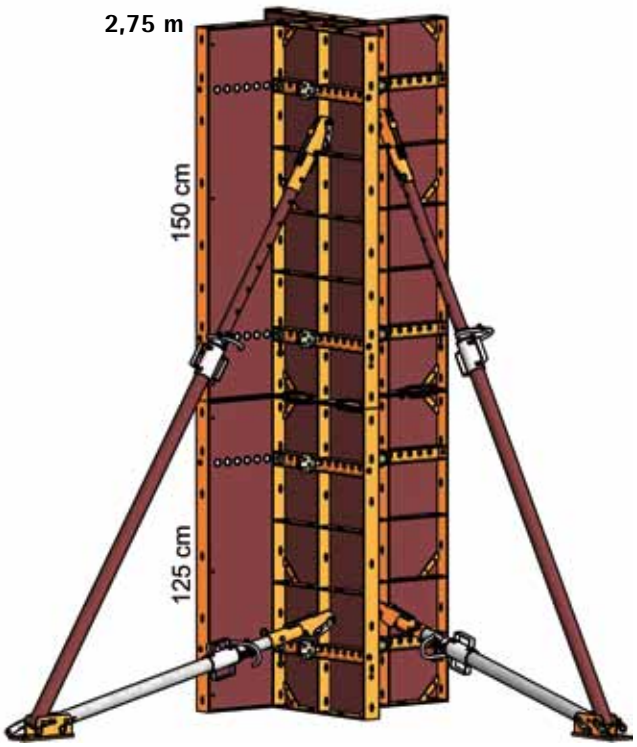
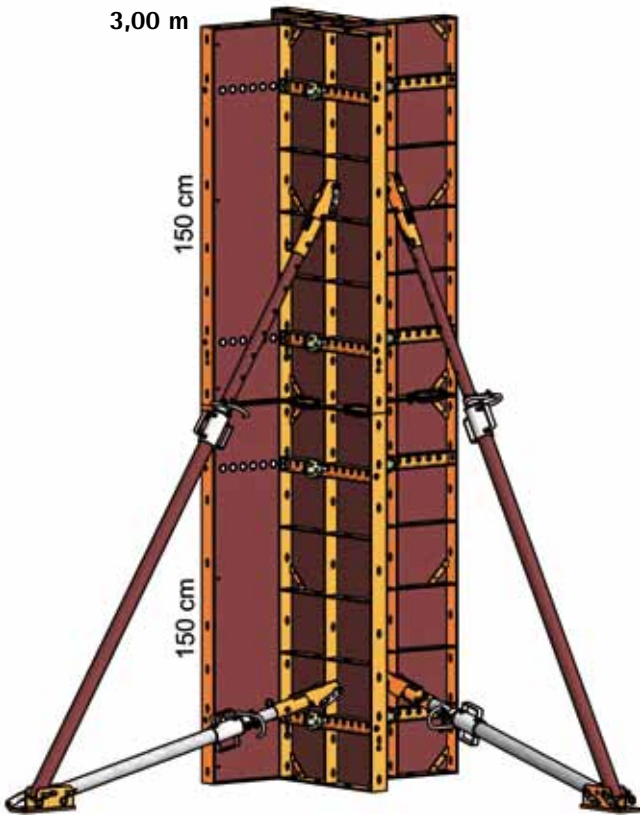


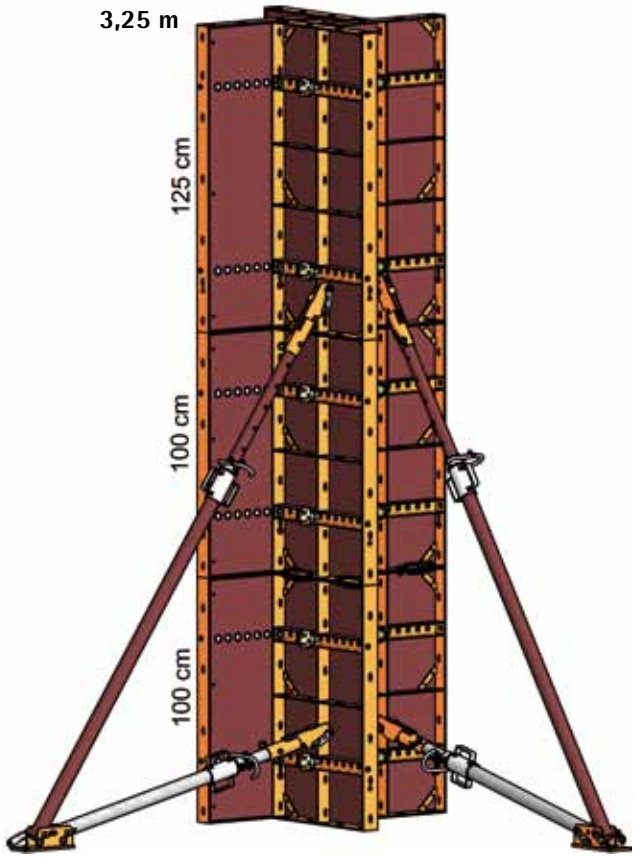
fig.24

Examples formwork height









PARTS LIST

Formwork heights [m]	Modular column panel 60x100cm	Modular column panel 60x125cm	Modular column panel 60x150cm	Locking screw DW15x160	Keybolt
	170.008.0001	170.008.0002	170.008.0003	170.008.0010	189.001.0100
2,00	8			16	16
2,25	4	4		16	16
2,50		8		16	16
2,75		4	4	16	16
3,00			8	16	16
3,25	8	4		24	32
3,50	4	8		24	32
3,75	4	4	4	24	32
4,00	4		8	24	32
4,25		4	8	24	32
4,50			12	24	32
4,75	4	12		32	48
5,00		16		32	48

Table: (only elements and connectors)

Notes

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