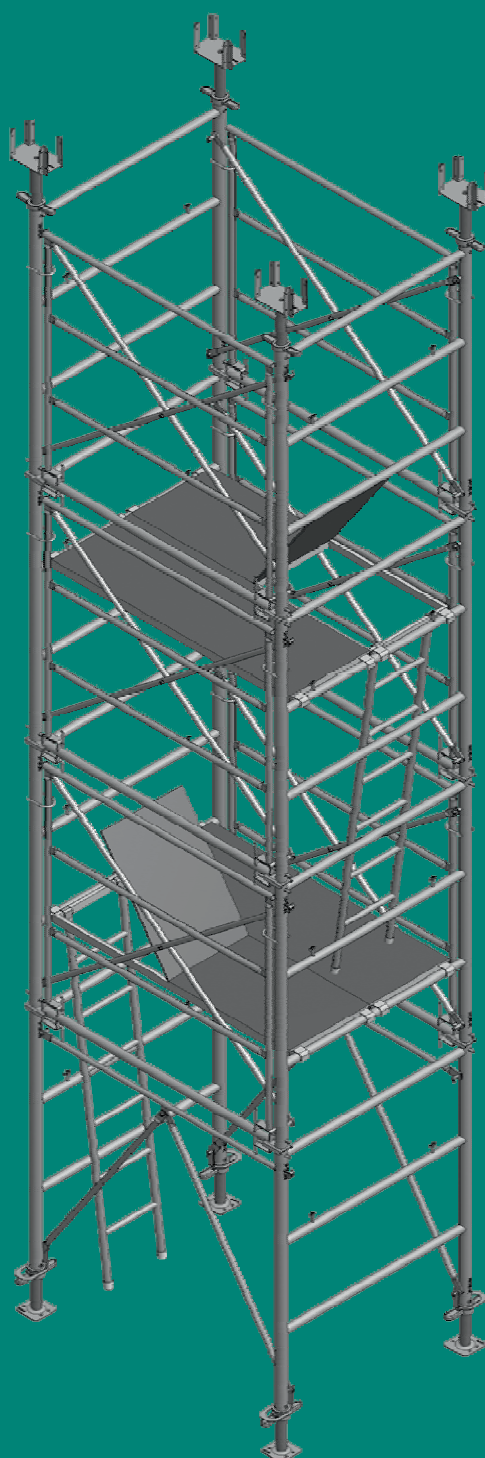




# NOE<sup>®</sup> tower

Dated: 06.2018

Assembly and  
Operating Manual



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# 1. GSV guidelines, safety advice

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

**The contractor is responsible for drawing up a comprehensive risk assessment and a set of installation instructions. The 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 basis 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 to materials or risk to the health of site personnel (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 safety-related 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.

© Güteschutzverband Betonschalungen e. V.  
P.O.Box 104160, 40852 Ratingen, Germany  
[info@www.gsv-betonschalungen.de](mailto:info@www.gsv-betonschalungen.de)  
[www.gsv-betonschalungen.de](http://www.gsv-betonschalungen.de)

Version: 08.2009

## 2. Assembly Instructions



The individual steps for assembly and erection are shown diagrammatically in the following pages.



Before using the formwork, read through the assembly and operating manual and observe the safety advice given in each chapter at all times!

Everyone who works with the product must receive instruction from a suitably qualified member of the site supervisory staff.



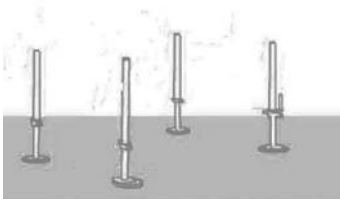
A risk analysis covering all situations on site must be carried out by a responsible person.

Components must be free of defects. Therefore visual inspection and/or testing of each component are essential at all stages of the work!

### 2.1 Erecting the tower

#### Notes on use:

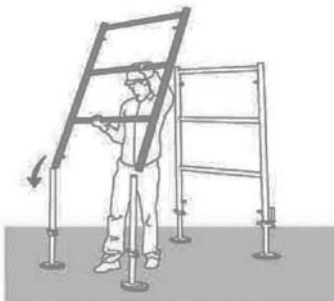
- Only use the NOEturm on ground where there is no settlement.
- Jacks should only be subject to compressive loads.
- Do not apply any horizontal forces.
- When erecting or dismantling, parts must be passed one at a time to ensure that no person standing below is in danger from any parts breaking loose.
- When moving by crane, the towers may be attached at the top frame if the foot jacks are secure and all pins are in place. Always check this on each occasion before moving.
- Observe permissible loads.



- ◆ Set up the base jacks.



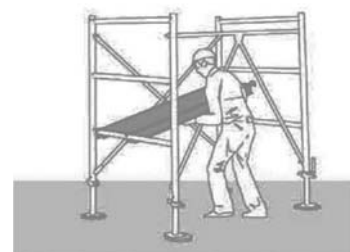
If the tower is free-standing and wind loads are likely, always secure it so that the wind cannot cause it to topple over.



- ◆ Fit base frames to the jacks.



- ◆ Attach a diagonal and K-diagonal to the long sides, securing them to the base jack.

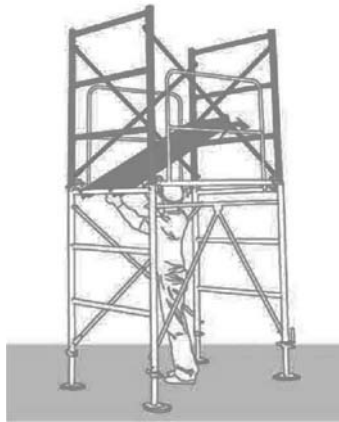


- ◆ Hang platform 1600 in the bottom tube of the base frame

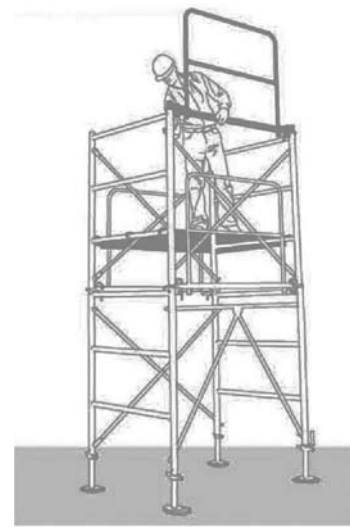
## 2. Assembly Instructions



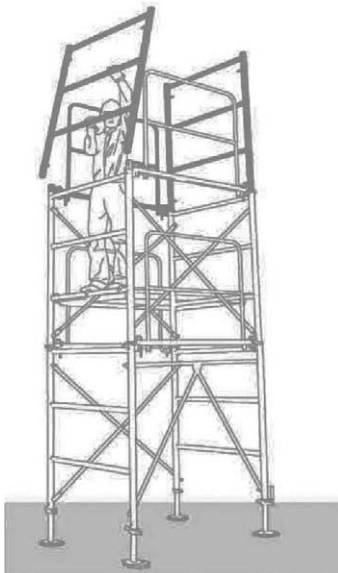
- ◆ Fit cross connections with or without guardrails and secure with pins.



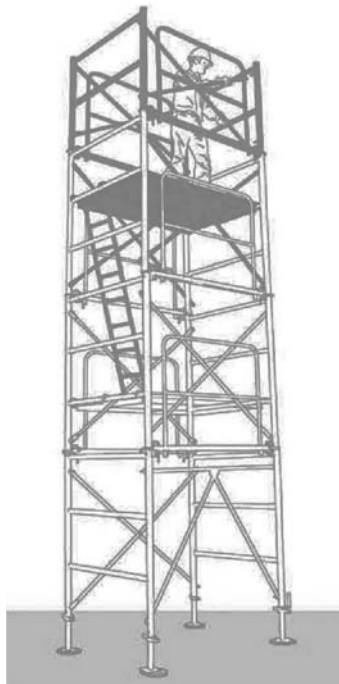
- ◆ Insert frames and secure with pins, attach 2 diagonals, and hang the platform with trapdoor and platform that were in the bottom frame in the second frame.



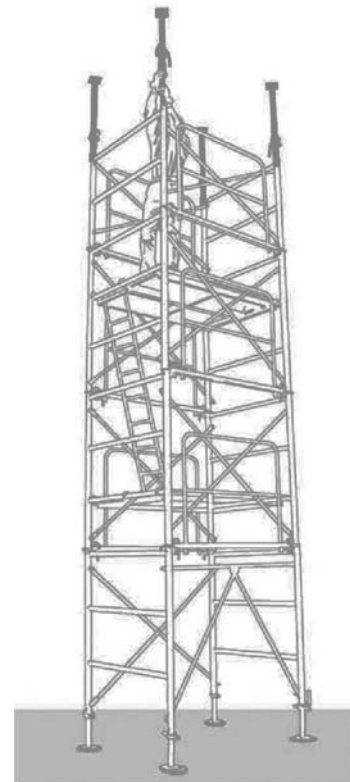
- ◆ Fit cross connections with or without guardrails and secure with pins.



- ◆ Insert base frame and secure with pins.



- ◆ Attach diagonals, hang platform and platform with trapdoor, attach ladder. For the top end, stand on the platform and fit another 2 cross-connectors with/without guardrails, frames, 2 diagonals and secure with pins.



- ◆ Insert fork head with jack and secure, alternatively the head/base jack can be installed.
- ◆ Place formwork construction, see 8.

- ◆ After the erection of a tower, diagonals 1050x1600 Part No. 880240 can be installed horizontally (not shown here) for alignment instead of the platforms. The platforms and ladders are now removed in reverse order to their installation.

# 3. Connecting the tower elements



## 2.2 Concreting



Before concreting, check that the towers are correctly locked.  
Do not exceed the permissible loads during concreting (see Table).

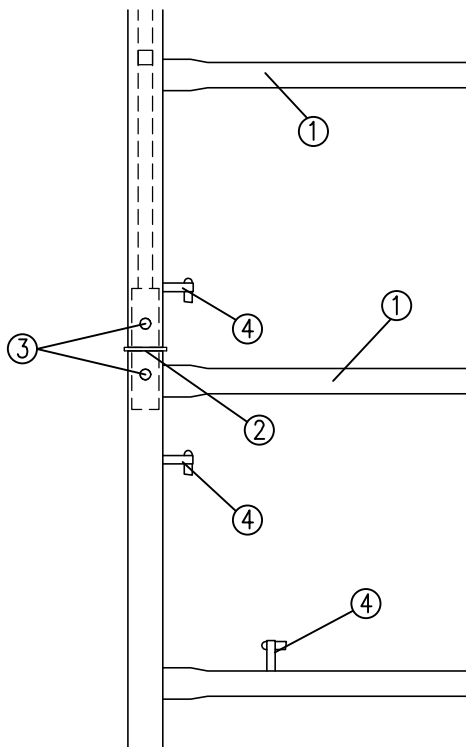
## 2.3 Dismantling the tower



Before stripping check:  
– Minimum stripping time!  
– Concrete compressive strength!

- ◆ By turning the jacks lower the tower and remove the formwork construction.
- ◆ To dismantle the tower, carry out the steps of 2.1 in the reverse order.
- ◆ Clean the individual parts as necessary and bundle into units suitable for transporting

## 3. Connecting the tower elements



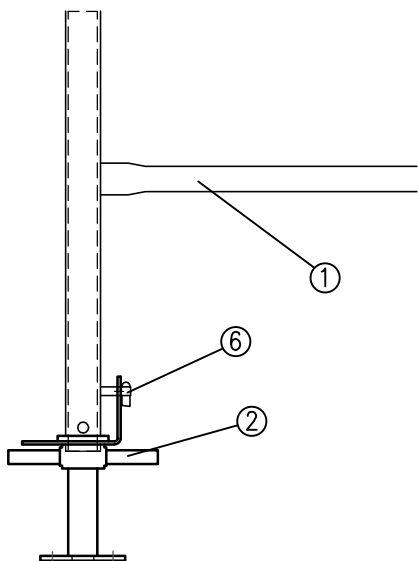
- ◆ The cross connections are inserted into the base frames and secured with pins.
- ◆ The diagonals are attached to the hooks of the base frames: hold the keeper horizontal, thread through the diagonal and let the keeper fall again so that it is in the secured position.

- 1 Frame Part No. 880200 or 880210
- 2 Cross-connector Part No. 880221 or Cross-connector with guard rail Part No. 880220 (covered)
- 3 Pin to secure
- 4 Holder for diagonals

## 4. Top / base jack



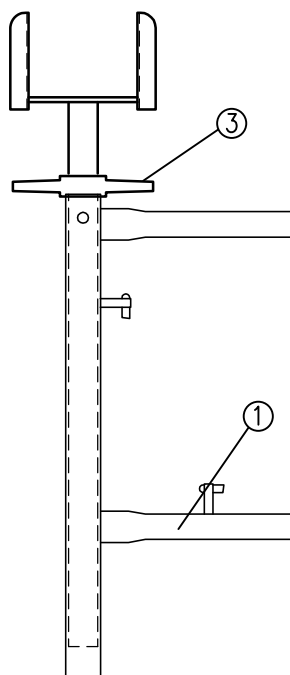
- ◆ Top / base jack with lock  
from 60 – 600 mm  
without stripping play



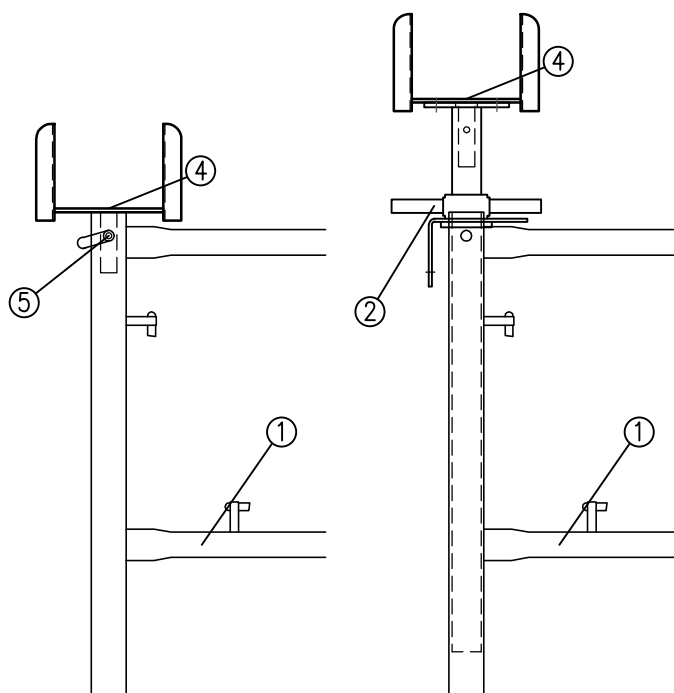
- 1 Frame  
Part No. 880200 or 880210
- 2 Head/base jack Part No. 880300
- 3 Fork head with jack Part No. 880340
- 4 Fork head Part No. 880380
- 5 Pin Part No. 880280
- 6 Locking hooks for securing jack

## 5. Jacks and forkhead

- ◆ Forkhead with jack  
from 60 – 600 mm  
without stripping play



- ◆ Forkhead



## 6. Tower heights and permissible loads



Structure			Parts of the tower										Loads			
Arrangement	Number of vertical frames	Tower height Min. / Max. [mm]	880200 Base frame 1500/1200	880210 Base frame 1050/1200	880250	880230	880240	880220 (880221)	880300 Top / base jack	880340 Forkhead with jack	880350 Platform 1600 mm	880360 Platform 1600 mm with hatch	880370 Ladder	Permissible vertical load per post [KN] *		
														V1 Tower held at top **	V2 Tower unrestrained at top ***	V3 Tower with bracing
A	1	0,5	1820/2250	2	1	1	1	1	4	4	1	1	1	36,0	36,0	36,0
	2	1,0	1820/2700	2	2	1	1	1	4	4	1	1	1	36,0	36,0	36,0
	3	1,5	2675/3755	2	2	1	1	3	2	4	2	2	1	36,0	36,0	36,0
	4	2,0	3125/4205	4	1	1	3	1	2	4	2	2	2	36,0	36,0	36,0
B	5	2,5	4180/5260	4	2	1	3	4	4	4	3	3	2	36,0	36,0	36,0
	6	3,0	4630/5710	6	1	5	2	4	4	4	3	3	3	36,0	36,0	36,0
	7	3,5	5685/6765	6	2	1	5	4	6	4	4	4	3	36,0	36,0	36,0
C	8	4,0	6135/7215	8	1	7	3	6	4	4	4	4	4	36,0	36,0	36,0
	9	4,5	7190/8270	8	2	1	7	5	8	4	5	5	4	36,0	36,0	36,0

Platforms and ladders have to be used only for erecting the towers. Alignment is by horizontally installed diagonals 1050x1600 (Part No. 880240).

### Remarks:

\* In the case where the tower is not standing on the level, the values V1, V2 and V3 must be reduced by 2 kN for each cm difference in level up to a maximum difference of 5 cm. Differences in level greater than 5 cm require a separate structural engineering check.

\*\* Column V1 applies only if no horizontal loads act upon the tower, i.e. if the tower is held at the top.

\*\*\* For columns V2 and V3, any acting horizontal loads must be transferred by other bracing and detailed in the design/check documentation.

### Bracing

A. For heights up to 4.20 m no bracing between the towers is required, unless there is a departure from application of the rules.

B. For heights from 4.20 – 6.00 m there must be at least one brace present between 2 towers. The bracing can be done with tubes and tube couplers crossed at 45°. The distance between the couplers must be < 3.00 m.

C. At heights > 6.05 m the bracing requires a separate structural check.

### Other:

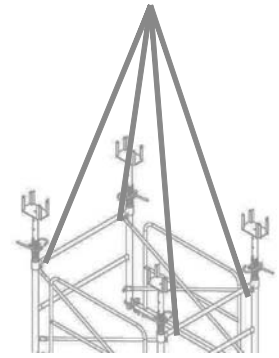
The heights given above take no account of stripping clearance.

Platforms and ladders are optional.  
The towers are adequately stiff without platforms and horizontal diagonals.



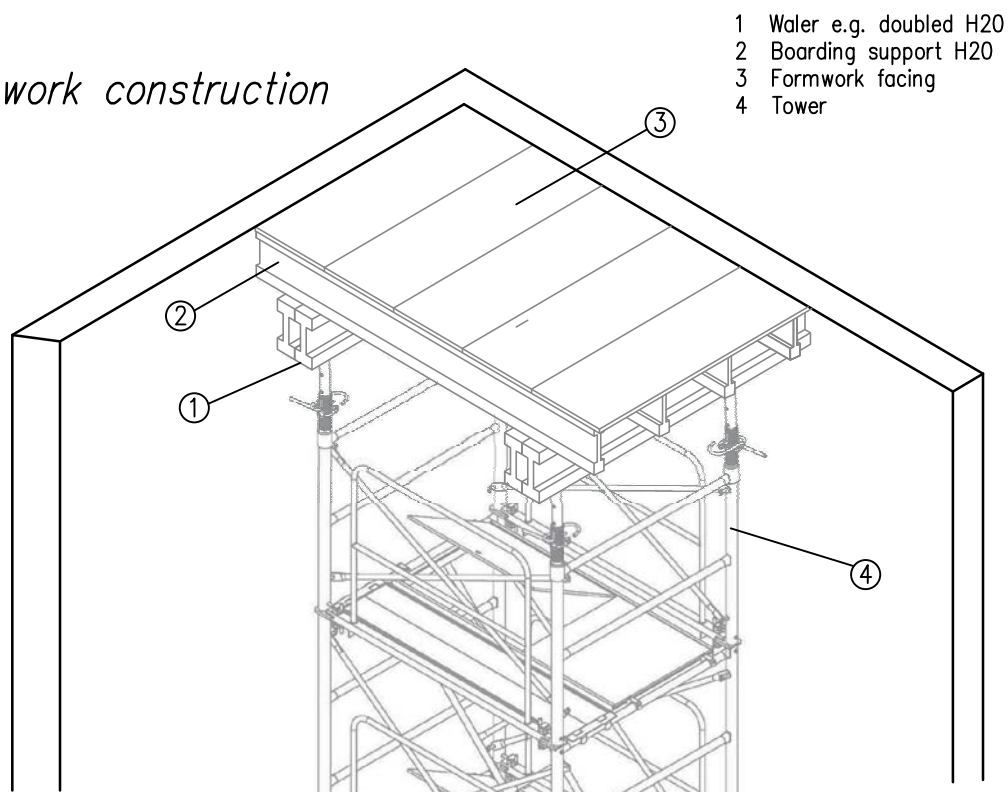
## 7. Moving by crane

- ◆ The towers may be moved by crane. The following points should be observed:
  - all safety devices are fitted and correctly closed
  - the crane is attached at the topmost base frame
  - only single towers are moved, with no formwork structure!



- ◆ If the towers are to be moved in the same plane, this can be done using the shifting trolley.

## 8. Formwork construction



### Note:

- The tower must never be moved by crane together with the formwork. Attach crane rope to the topmost base frame and check the safety devices before lifting.
- If the stacking tower is free-standing or is in the installed state and wind loads are likely, always secure it so that the wind cannot cause it to topple over.
- The stacking tower must not be subjected systematically to horizontal loads. The structure is to be wedged against existing components, e.g. walls, which must carry the horizontal loads.
- Differences in ground height that cannot be absorbed by the jacks travel must be compensated for by suitable pads.



## 9. Individual parts

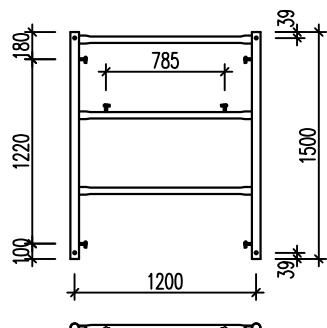


### Base frame

1500/1200

Part No. 880200

Weight 18.6 kg

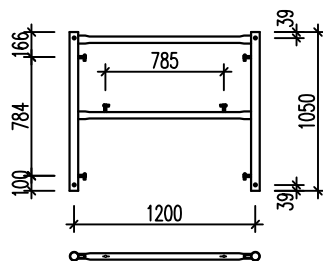


### Base frame

1050/1200

Part No. 880210

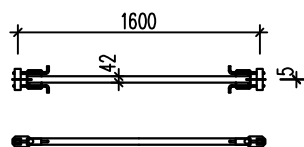
Weight 13,0 kg



### Cross connection 1600

Part No. 880221

Weight 7,6 kg

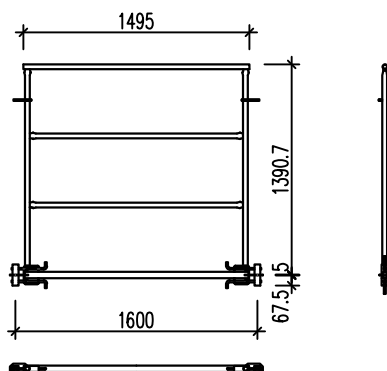


### Cross connection 1600

with guardrails

Part No. 880220

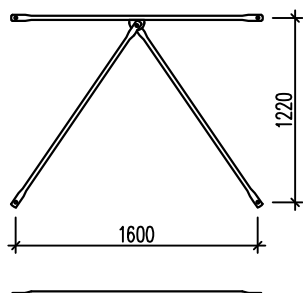
Weight 15,7 kg



### K-diagonal 1500x1600

Part No. 880250

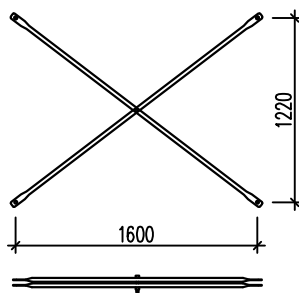
Weight 7,0 kg



### Diagonal 1500x1600

Part No. 880230

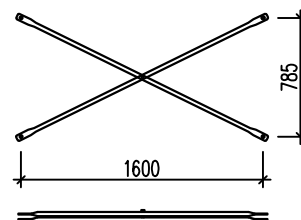
Weight 5,0 kg



### Diagonal 1050x1600

Part No. 880240

Weight 4.5 kg



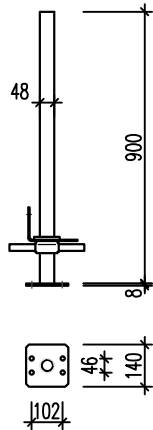
Also for horizontal alignment

## 9. Individual parts



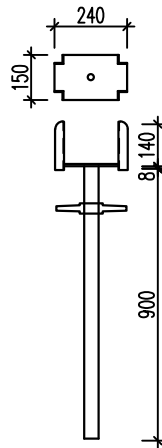
### *Top / base jack*

Part No. 880300  
Weight 7.0 kg  
Length 60–600 mm,  
with lock



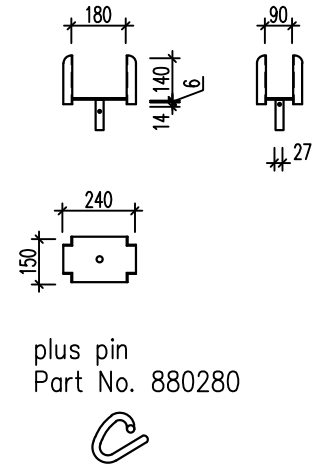
### *Forkhead with jack*

Part No. 880340  
Weight 8.5 kg  
Length 60–600 mm



### *Forkhead*

Part No. 880380  
Weight 2.7 kg



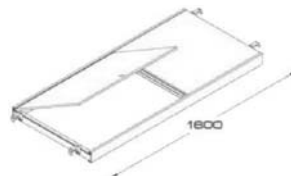
### *Platform 1600*

Part No. 880350  
Weight 10.1 kg



### *Platform 1600 with hatch*

Part No. 880360  
Weight 16.0 kg



### *Ladder*

Part No. 880370  
Weight 7.1 kg





**THE FORMWORK**



## **NOE-Schaltechnik Georg Meyer-Keller GmbH + Co. KG**

Kuntzestr. 72, 73079 Suessen, Germany  
T + 49 7162 13-1  
F + 49 7162 13-288  
info@noe.de  
www.noe.de  
www.noeplast.com

### **Austria**

NOE Schaltechnik  
www.noe-schaltechnik.at  
noe@noe-schaltechnik.at

### **Belgium**

NOE Bekistingtechniek N.V.  
www.noe.be  
info@noe.be

### **Brazil**

Mills do Brasil  
Estruturas e Serviços Ltda.  
www.mills.com.br  
millsbr@cepa.com.br

### **Bulgaria**

NOE Schaltechnik  
www.noebg.com  
noe-bg@netbg.com

### **Croatia**

NOE oplatna tehnika d.o.o.  
www.noe.hr  
noe@noe.hr

### **France**

NOE France  
www.noeFrance.fr  
info@noeFrance.fr

### **Netherlands**

NOE Bekistingtechniek b.v.  
www.noe.nl  
info@noe.nl

### **Poland**

NOE PL Sp Zo.o.  
www.noe.com.pl  
noe@noe.com.pl

### **Russia**

NOE Moscow  
info@noe-moscow.ru

NOE St. Petersburg  
noe@sovintel.ru

### **Saudi Arabia**

NOE Global Trade Est.  
NOE - The Formwork  
www.noe.de  
jeddah@noe.de

### **Serbia**

NOE Sistemske Oplate d.o.o.  
www.noe-scg.com  
noe-scg@eunet.rs

### **Switzerland**

NOE Schaltechnik  
www.noe.ch  
info@noe.ch

### **Turkey**

NOE Beton Kalıpları A.Ş.  
www.noe.com.tr  
info@noe.com.tr