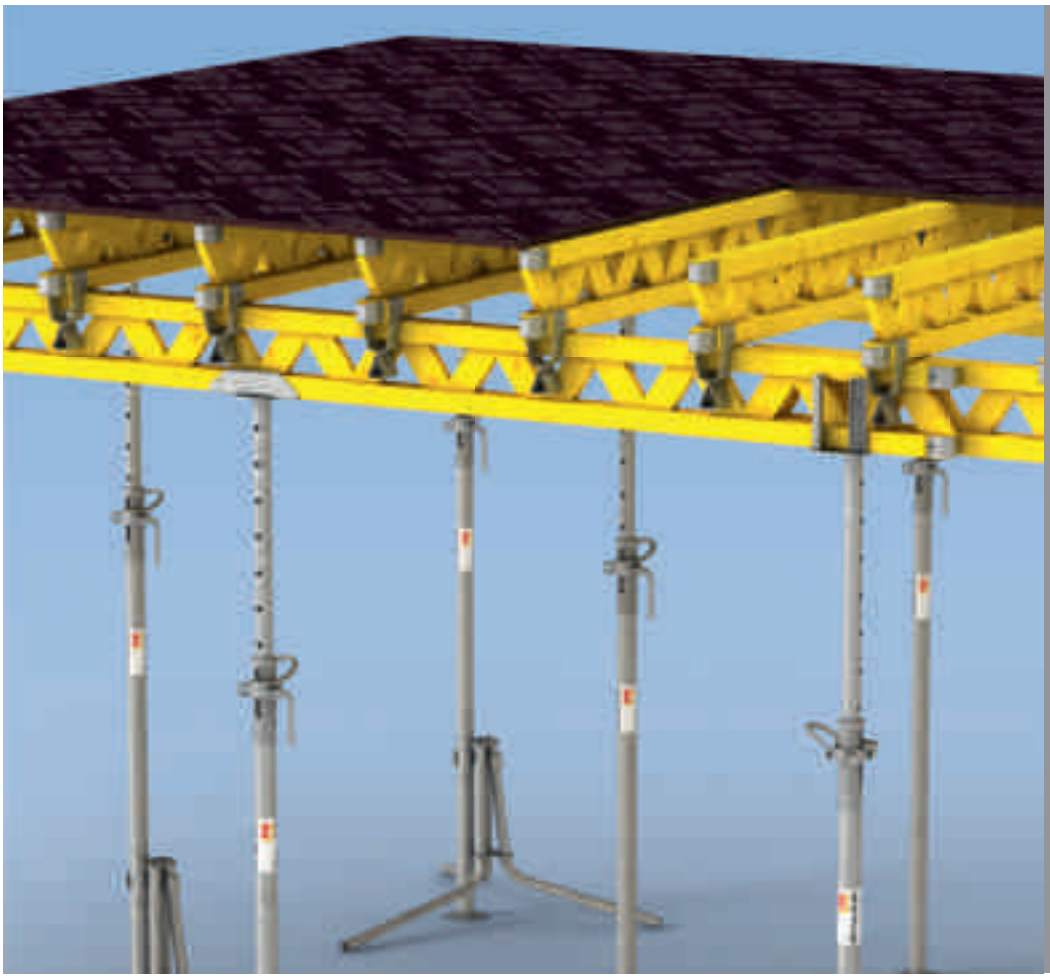
# MULTIFLEX
## Girder Slab Formwork

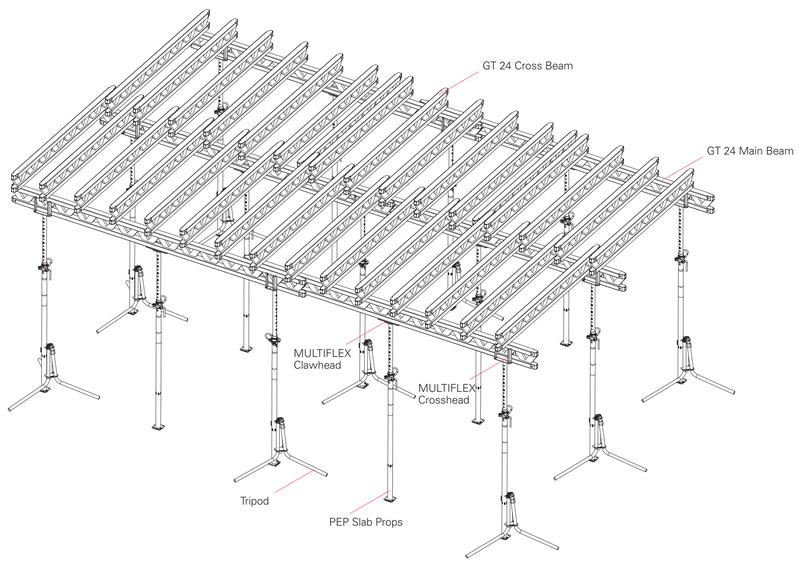
Poster



Edition 10 | 2016

# MULTIFLEX

**The flexible girder slab formwork for all ground plans and slab thicknesses up to 1.00 m**



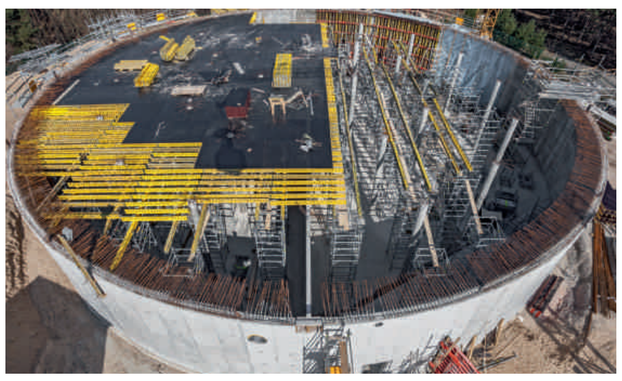

## Important notes

- The slab props must be erected plumb.
- The horizontal fixed position of the MULTIFLEX in the formlining level for carrying the horizontal forces must be assured.
- Use suitable pallets to ensure safe transportation of MULTIFLEX components.
- More information is available in the MULTIFLEX Instructions for Assembly and Use.

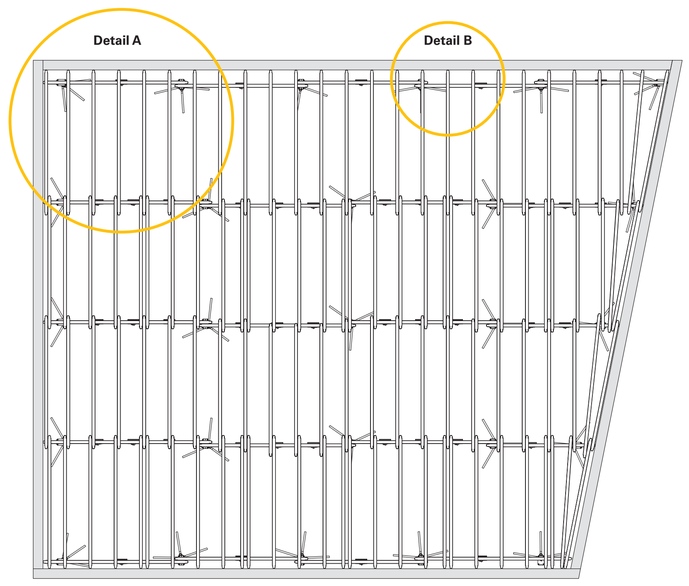
**Tips for ensuring smooth construction progress**

- Spray formwork on all sides with PERI Bio Clean before every use.
- Spray-wash rear of formwork with water immediately after concreting. This reduces the amount of cleaning work.

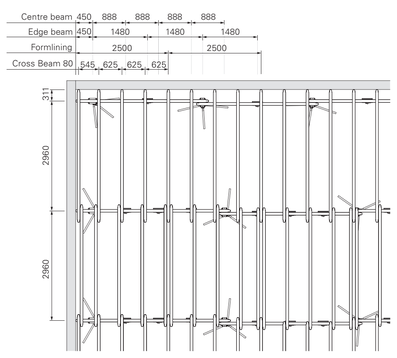
- **This poster presents only part of the intended use of the MULTIFLEX system. The poster may only be used in connection with the corresponding Instructions for Assembly and Use along with the Instructions for Use for this system.**
- **All current laws, guidelines and safety regulations must be observed in those countries where our products are used. If no country-specific regulations are available, it is recommended to proceed according to German rules and regulations.**



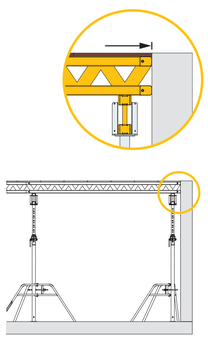
## Example of a ground plan




**Detail A**

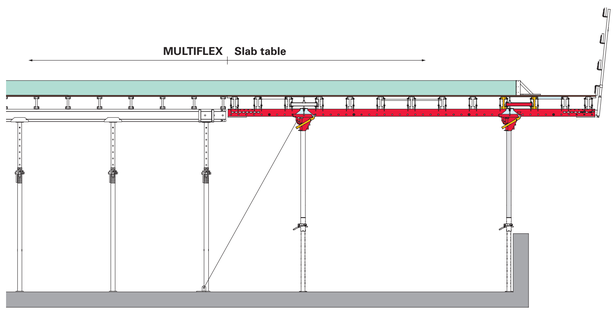



**Detail B**
Formwork connection to the wall or prop.

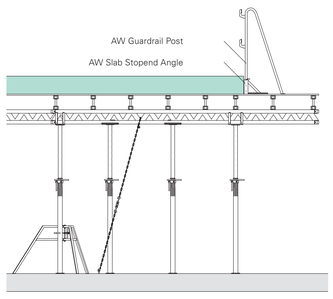


## Guardrails

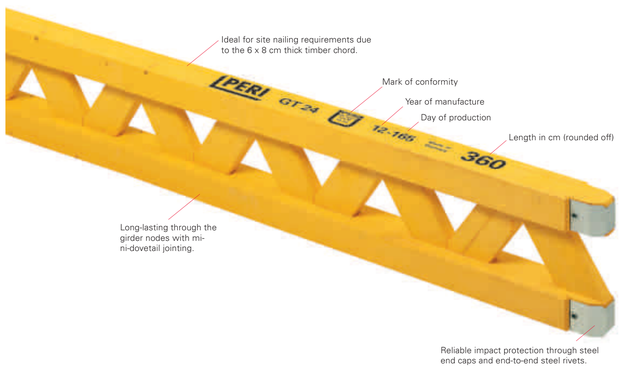
**Guardrails on the slab edge with PERI slab tables**




**Guardrails on the casting segment with PERI AW Slab Stopend Angle and Guardrail Posts.**

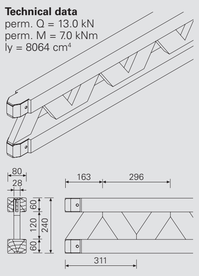



## GT 24 Formwork Girder




**GT 24 Girder**
The girder fulfils all requirements of DIN EN 13377 Class L24 (Declaration of Conformity).
In order to simplify handling, the most common GT 24 Girders are colour-coded for length.

**Technical data**
perm. Q = 13.0 kN
perm. M = 7.0 kNm
Iy = 8064 cm⁴




| | Weight kg | Item no. |
|---|---|---|
| 918 | 5,300 | 075100 |
| 1214 | 7.100 | 075120 |
| 1510 | 8.900 | 075150 |
| 1806 | 10.600 | 075180 |
| 2102 | 12.400 | 075210 |
| 2398 | 14.200 | 075240 |
| 2694 | 15.900 | 075270 |
| 2990 | 17.700 | 075300 |
| 3286 | 19.500 | 075330 |
| 3582 | 21.200 | 075360 |
| 3878 | 23.000 | 075390 |
| 4174 | 24.800 | 075420 |
| 4470 | 26.600 | 075450 |
| 4766 | 28.300 | 075480 |
| 5062 | 30.100 | 075510 |
| 5358 | 31.900 | 075540 |
| 5654 | 33.600 | 075570 |
| 5950 | 35.400 | 075600 |

## PEP Ergo Slab Props

**Assembly of accessories**
Naturally, the use of all PERI prop heads is guaranteed. It is also usable on both sides through the identical end plates on the inner and outer tubes.

The PEP Ergo B-300 weighs only 13.9 kg and carries as maximum 30 kN.


The adjusting nut has a generously-sized hammer striking face and determines the impact direction.

PEP Ergo Props can be easily adjusted with the help of the captive handgrip.

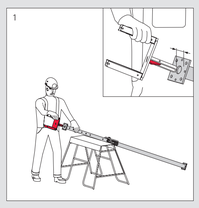
PERI PEP Ergo Props fully comply with Load Class B, D and E of EN 1065. The maximum load-bearing capacity is 50 kN.

**Permissible prop load [kN] according to the type test**

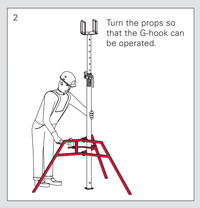
| Extension length [m] | PEP Ergo B-300 L = 1.97 – 3.00 m Outer tube bottom | PEP Ergo B-300 L = 1.97 – 3.00 m Inner tube bottom | PEP Ergo B-350 L = 2.25 – 3.50 m Outer tube bottom | PEP Ergo B-350 L = 2.25 – 3.50 m Inner tube bottom | PEP Ergo D-150 L = 0.98 – 1.50 m Outer tube bottom | PEP Ergo D-150 L = 0.98 – 1.50 m Inner tube bottom | PEP Ergo D-250 L = 1.47 – 2.50 m Outer tube bottom | PEP Ergo D-250 L = 1.47 – 2.50 m Inner tube bottom | PEP Ergo D-350 L = 2.26 – 3.50 m Outer tube bottom | PEP Ergo D-350 L = 2.26 – 3.50 m Inner tube bottom | PEP Ergo D-400 L = 2.51 – 4.00 m Outer tube bottom | PEP Ergo D-400 L = 2.51 – 4.00 m Inner tube bottom | PEP Ergo D-500 L = 3.26 – 5.00 m Outer tube bottom | PEP Ergo D-500 L = 3.26 – 5.00 m Inner tube bottom | PEP Ergo E-300 L = 1.96 – 3.00 m Outer tube bottom | PEP Ergo E-300 L = 1.96 – 3.00 m Inner tube bottom | PEP Ergo E-400 L = 2.51 – 4.00 m Outer tube bottom | PEP Ergo E-400 L = 2.51 – 4.00 m Inner tube bottom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | | | | | 30.8 | 30.8 | | | | | | | | | | | | |
| 1.10 | | | | | 30.8 | 30.8 | | | | | | | | | | | | |
| 1.20 | | | | | 30.8 | 30.8 | | | | | | | | | | | | |
| 1.30 | | | | | 30.8 | 30.8 | | | | | | | | | | | | |
| 1.40 | | | | | 28.5 | 30.8 | | | | | | | | | | | | |
| 1.50 | | | | | 26.4 | 30.8 | 35.0 | 35.0 | | | | | | | | | | |
| 1.60 | | | | | | | 35.0 | 35.0 | | | | | | | | | | |
| 1.70 | | | | | | | 32.9 | 35.0 | | | | | | | | | | |
| 1.80 | | | | | | | 30.7 | 35.0 | | | | | | | | | | |
| 1.90 | | | | | | | 29.1 | 35.0 | | | | | | | | | | |
| 2.00 | 30.8 | 30.8 | | | | | 28.1 | 35.0 | | | | | | | 50.4 | 50.4 | | |
| 2.10 | 29.8 | 30.8 | | | | | 27.3 | 35.0 | | | | | | | 50.4 | 50.4 | | |
| 2.20 | 27.0 | 30.8 | | | | | 26.5 | 34.1 | | | | | | | 50.4 | 50.4 | | |
| 2.30 | 24.6 | 30.8 | 30.8 | 28.6 | | | 25.7 | 32.3 | 40.0 | 40.0 | | | | | 50.4 | 50.4 | | |
| 2.40 | 23.0 | 30.8 | 28.6 | 28.6 | | | 24.3 | 29.4 | 40.0 | 40.0 | | | | | 50.4 | 50.4 | | |
| 2.50 | 21.5 | 30.8 | 25.5 | 28.6 | | | 22.4 | 26.3 | 40.0 | 40.0 | | | | | 48.9 | 50.4 | 50.4 | 50.4 |
| 2.60 | 20.3 | 29.5 | 23.1 | 28.4 | | | | | 38.0 | 40.0 | 40.0 | 40.0 | | | 46.7 | 50.4 | 50.4 | 50.4 |
| 2.70 | 19.3 | 27.5 | 21.3 | 28.0 | | | | | 35.2 | 40.0 | 40.0 | 40.0 | | | 44.7 | 50.4 | 50.4 | 50.4 |
| 2.80 | 18.3 | 24.8 | 19.8 | 27.4 | | | | | 33.1 | 40.0 | 40.0 | 40.0 | | | 43.0 | 50.4 | 50.4 | 50.4 |
| 2.90 | 16.9 | 22.3 | 18.6 | 26.1 | | | | | 31.3 | 40.0 | 40.0 | 40.0 | | | 41.2 | 50.4 | 50.4 | 50.4 |
| 3.00 | 15.6 | 20.2 | 17.5 | 24.4 | | | | | 29.9 | 40.0 | 40.0 | 40.0 | | | 39.1 | 46.3 | 50.4 | 50.4 |
| 3.10 | | | 16.3 | 22.8 | | | | | 28.5 | 39.0 | 37.7 | 40.0 | | | | | 50.4 | 50.4 |
| 3.20 | | | 15.2 | 20.8 | | | | | 27.2 | 35.3 | 35.7 | 40.0 | | | | | 50.4 | 50.4 |
| 3.30 | | | 14.3 | 19.0 | | | | | 25.3 | 32.1 | 33.9 | 40.0 | 40.0 | 40.0 | | | 50.4 | 50.4 |
| 3.40 | | | 13.2 | 17.4 | | | | | 23.5 | 29.2 | 32.5 | 40.0 | 40.0 | 40.0 | | | 48.5 | 50.4 |
| 3.50 | | | 12.4 | 15.7 | | | | | 21.7 | 26.5 | 31.0 | 39.7 | 40.0 | 40.0 | | | 46.0 | 50.4 |
| 3.60 | | | | | | | | | | | 29.0 | 36.4 | 40.0 | 40.0 | | | 42.7 | 48.4 |
| 3.70 | | | | | | | | | | | 27.0 | 33.3 | 40.0 | 40.0 | | | 39.7 | 44.7 |
| 3.80 | | | | | | | | | | | 25.2 | 30.7 | 40.0 | 40.0 | | | 36.9 | 41.1 |
| 3.90 | | | | | | | | | | | 23.5 | 28.2 | 40.0 | 40.0 | | | 34.1 | 37.7 |
| 4.00 | | | | | | | | | | | 21.8 | 26.0 | 40.0 | 40.0 | | | | |
| 4.10 | | | | | | | | | | | | | 39.3 | 40.0 | | | | |
| 4.20 | | | | | | | | | | | | | 36.5 | 40.0 | | | | |
| 4.30 | | | | | | | | | | | | | 34.0 | 39.2 | | | | |
| 4.40 | | | | | | | | | | | | | 31.8 | 37.0 | | | | |
| 4.50 | | | | | | | | | | | | | 29.9 | 34.6 | | | | |
| 4.60 | | | | | | | | | | | | | 28.1 | 32.4 | | | | |
| 4.70 | | | | | | | | | | | | | 26.4 | 30.4 | | | | |
| 4.80 | | | | | | | | | | | | | 24.8 | 28.5 | | | | |
| 4.90 | | | | | | | | | | | | | 23.4 | 26.8 | | | | |
| 5.00 | | | | | | | | | | | | | 21.8 | 25.3 | | | | |

*For the N-props, a use of the inner tube at the bottom is only possible in connection with PERI Slab Tables or SKYDECK (bolted head).

## Shuttering



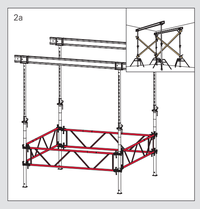
Mount Crosshead or Clawhead on the prop and lock in place (with the self-locking coupling). Secure other types with pins and cotter pins.
**As alternative to the Crosshead:**
Lowering Head 20/24 for easy lowering.




Position Crosshead Props on a flat, clean and sufficiently load-bearing surface. Secure with Tripod (assembly aid).

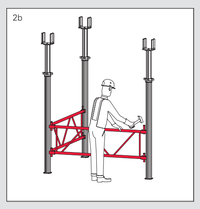
**For inclined use, separate proof of stability is required!**

Horizontal loads from the shuttering procedure can only be transferred for formwork heights up to approx. 3.0 m.

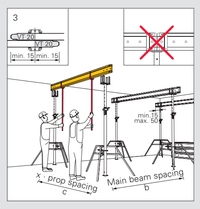


**Formwork height > 3.0 m with PEP Steel Tube Prop**
Brace props with Frame MRK as an assembly aid.

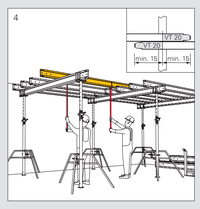
**Alternatively:**
Mount diagonal bracing as an assembly aid with boards and brace clamps.



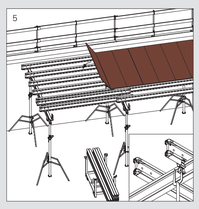
**Formwork height > 3.0 m with MULTIPROP Prop**
Brace props with Frame MRK as an assembly aid. For further details, see type test and MULTIPROP Instructions for Assembly and Use.




Level the Crosshead Props. Install Main Beam from below with the Erection Bar. The Crosshead securely supports one or two main beams with no risk of tipping.
Cantilever: VT 20 max. 50 cm
GT 24 max. 45 cm
Do not begin concreting work on the cantilever.

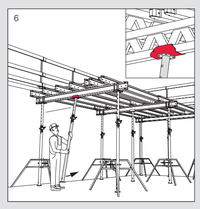



Position the Cross Beam from below using the Erection Bar. Adjust the cross beam so that plywood formlining joints are always positioned on a cross beam or pair of girders.
**Alternatively:**
Install and align cross beams with distance measuring device. Girder overlap on both sides:
VT 20 min. 15.0 cm
GT 24 min. 16.3 cm

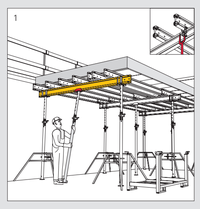


**Risk of falling!**
**Mount guardrails before shuttering and according to valid regulations!**
Secure cross beam against tipping, e.g. with Flexclip MULTIFLEX System. Fit plywood formlining and secure with nails. Level formwork and spray, e.g. with PERI Bio Clean. Attention: risk of slipping!

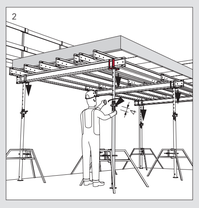
**Risk of tipping!**
**Load effects are to be safely transferred!**
Attach intermediate props with Clawheads in prop spacings c on the beam. Adjust lengths of props accordingly. GT 24 girder: see A3.
The MULTIFLEX slab formwork can now be loaded. Ensure pallets are available on the assembly area during striking.



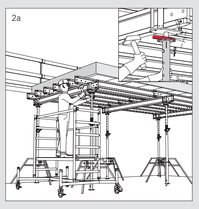
## Striking



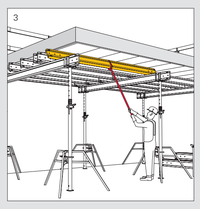
**Curing time must be taken into consideration!**
Dismantle intermediate props and store in pallets. Remove Flexclip with the Fixing Tool. For horizontal transport, the heads stay attached to the props!



Lower all crosshead props by approx. 4 cm. With larger spans, begin lowering and removal of props in the slab centre.a

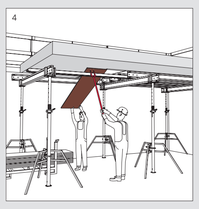


**Alternative to Illustration 2**
Use hammer blow to lower the Lowering Head ≈ 4 cm.
Push back wedge to the original position for the next use and hammer in securely.



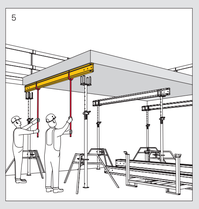
Remove cross beams with Erection Bar and store in pallets.

Cross beams placed under the plywood formlining joints remain in position.

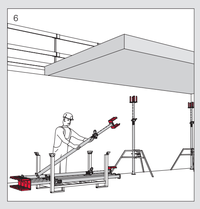


Remove plywood and remaining cross beams and store in pallets.

Accurately stack the plywood formlining in order to be able to clean the stacked sheet edges.



Remove main beams and store in pallets. Take prop load into consideration!
In those cases where the formwork is not dismantled or if back-propping is used, concreting of a slab above could lead to overloading of the props.

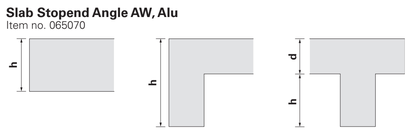


Remove the crosshead props and store them in pallets.
- For horizontal transport, the heads stay attached to the props!
- Accurately stack the plywood formlining in order to be able to clean the stacked sheet edges.

Before the first and each further use, spray the plywood formlining edges with, for example, PERI Bio Clean. This ensures easier shuttering and striking, and looks after the plywood.

## Stopend formwork

**Slab Stopend Angle AW, Alu**
Item no. 065070




The slab stopend angle for setting slab stop ends of slabs up to 40 cm thick.

**Permissible spacings [m] for Slab Stopend Angle AW.**

| Sub-structure | Height of side formwork h [m] 0.20 nailed on SKYDECK* | 0.20 nailed on Formlining 21 mm | 0.20 nailed on Timber girder | 0.20 clamp Timber girder | 0.25 nailed on SKYDECK* | 0.25 nailed on Formlining 21 mm | 0.25 nailed on Timber girder | 0.25 clamp Timber girder | 0.30 nailed on SKYDECK* | 0.30 nailed on Formlining 21 mm | 0.30 nailed on Timber girder | 0.30 clamp Timber girder | 0.35 nailed on SKYDECK* | 0.35 nailed on Formlining 21 mm | 0.35 nailed on Timber girder | 0.35 clamp Timber girder |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Slab thickness d [m] 0 | 3.27 | 3.27 | 3.27 | 3.27 | 2.82 | 2.86 | 2.86 | 2.86 | 1.63 | 2.60 | 2.60 | 2.60 | 0.97 | 2.21 | 1.69 | 1.90 |
| 0.20 | 1.19 | 2.75 | 2.05 | 1.88 | 0.71 | 1.64 | 1.24 | 1.32 | 0.45 | 1.02 | 0.79 | 0.99 | - | 0.69 | 0.54 | 0.76 |
| 0.25 | 1.07 | 2.46 | 1.84 | 1.63 | 0.61 | 1.39 | 1.06 | 1.16 | 0.39 | 0.88 | 0.68 | 0.87 | - | 0.60 | 0.47 | 0.67 |
| 0.30 | 0.93 | 2.15 | 1.61 | 1.43 | 0.54 | 1.23 | 0.94 | 1.03 | - | 0.77 | 0.60 | 0.78 | - | 0.53 | 0.41 | 0.60 |
| 0.35 | 0.82 | 1.89 | 1.41 | 1.28 | 0.47 | 1.08 | 0.83 | 0.92 | - | 0.69 | 0.53 | 0.69 | - | 0.47 | - | 0.54 |
| 0.40 | 0.73 | 1.69 | 1.26 | 1.14 | 0.42 | 0.96 | 0.73 | 0.83 | - | 0.62 | 0.48 | 0.63 | - | 0.42 | - | 0.49 |

| Sub-structure | Height of side formwork h [m] 0.40 nailed on SKYDECK* | 0.40 nailed on Formlining 21 mm | 0.40 nailed on Timber girder | 0.40 clamp Timber girder | 0.50 nailed on SKYDECK* | 0.50 nailed on Formlining 21 mm | 0.50 nailed on Timber girder | 0.50 clamp Timber girder | 0.60 nailed on SKYDECK* | 0.60 nailed on Formlining 21 mm | 0.60 nailed on Timber girder | 0.60 clamp Timber girder |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Slab thickness d [m] 0 | 0.62 | 1.41 | 1.09 | 1.40 | - | 0.68 | 0.53 | 0.83 | - | - | - | 0.54 |
| 0.20 | - | 0.49 | - | 0.60 | - | - | - | 0.40 | - | - | - | - |
| 0.25 | - | 0.43 | - | 0.53 | - | - | - | - | - | - | - | - |
| 0.30 | - | - | - | 0.48 | - | - | - | - | - | - | - | - |
| 0.35 | - | - | - | 0.44 | - | - | - | - | - | - | - | - |
| 0.40 | - | - | - | 0.40 | - | - | - | - | - | - | - | - |

**PERI Stopend Angle made of plastic**
Item no. 126299

Easy assembly, time-saving, good handling.

The plastic stopend angle may not be used as a bracket in order to carry loads; for example, a cantilevered slab or a working platform.

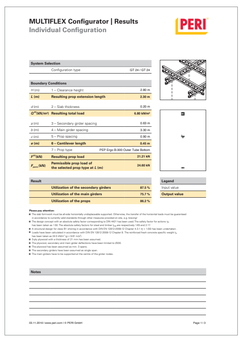
## Design example

Depending on the slab thickness and selected secondary beam spacing, and depending on the formlining, this results in the permissible main beam and prop spacings.

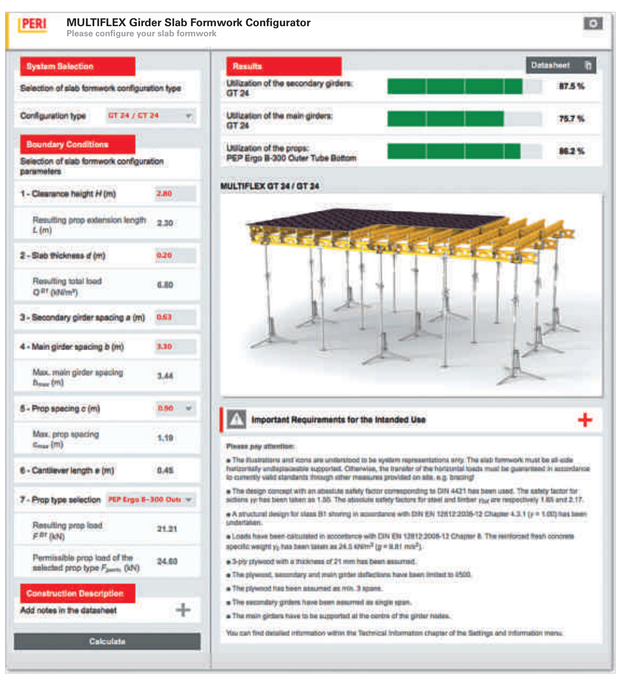
**MULTIFLEX configurator**
In the meantime, smartphones and tablets are integral features of jobsite working operations. With the MULTIFLEX configurator, the user can quickly and easily optimize the girder/prop spacings and props for MULTIFLEX Girder Slab Formwork.

**Details:**

1. Clear room height H (m)
2. Slab thickness d (m)
3. Secondary girder spacing e (m)
5. Prop spacing c (m)
7. Prop type selection

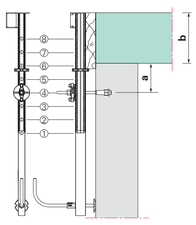



The PDF output format for the documentation, direct printing or sending via e-mail is provided by the application. The customer's building specifications are integrated via a note in this data sheet.




**Permissible prop load [kN] according to the type test**

**Slab Stopend Bar 105**

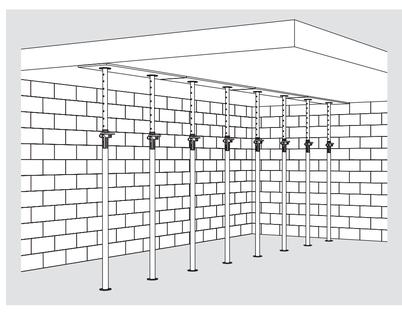



**Permissible width of influence [m] for Slab Stopend Bar 105**

| Slab thickness d [m] | 0.20 | 0.30 | 0.40 | 0.50 | Hole |
|---|---|---|---|---|---|
| with side protection (handrail boards or Side Mesh Barrier PMB) | 1.20 | 1.12 | 0.80 | 0.66 | ① |
| | 1.20 | 1.12 | 0.93 | 0.76 | ② |
| | 1.30 | 1.24 | 1.14 | 0.99 | ③ |
| | 1.43 | 1.37 | 1.34 | – | ④ |
| | 1.58 | 1.53 | – | – | ⑤ |
| | 1.77 | – | – | – | ⑥ |
| without side protection | 1.75 | 1.15 | 0.80 | 0.66 | ① |
| | 2.22 | 1.56 | 1.12 | 0.89 | ② |
| | 2.90 | 2.07 | 1.45 | 1.21 | ③ |
| | 3.00 | 1.67 | 2.00 | – | ④ |
| | 3.00 | 3.00 | – | – | ⑤ |
| | 3.00 | – | – | – | ⑥ |

Used in connection with HSGP-2 and boards 15/3. Connecting to the structure takes place, for example, with Stopend Sleeve 15. Max. anchor tension force 6.3 kN.
For applications with edge distances a, separate verification of the deformation is required.

## Early striking



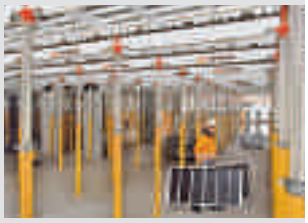
**Early striking with temporary props**
In order to allow early striking, temporary props must be positioned first. This means that formwork materials can be dismantled earlier and are then available for the next use.

**Striking procedure:**
Firstly, the temporary props must be positioned in the centre of the area (use more if necessary) according to static requirements. The actual striking then corresponds to the standard procedure. This means only a few props and formwork panels are additionally required.

**The optimal System for every Project and every Requirement**


Wall Formwork

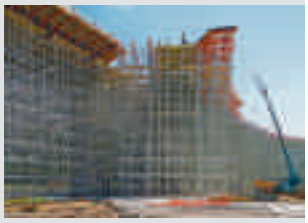

Column Formwork


Slab Formwork


Climbing Systems


Bridge Formwork


Tunnel Formwork


Shoring Systems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