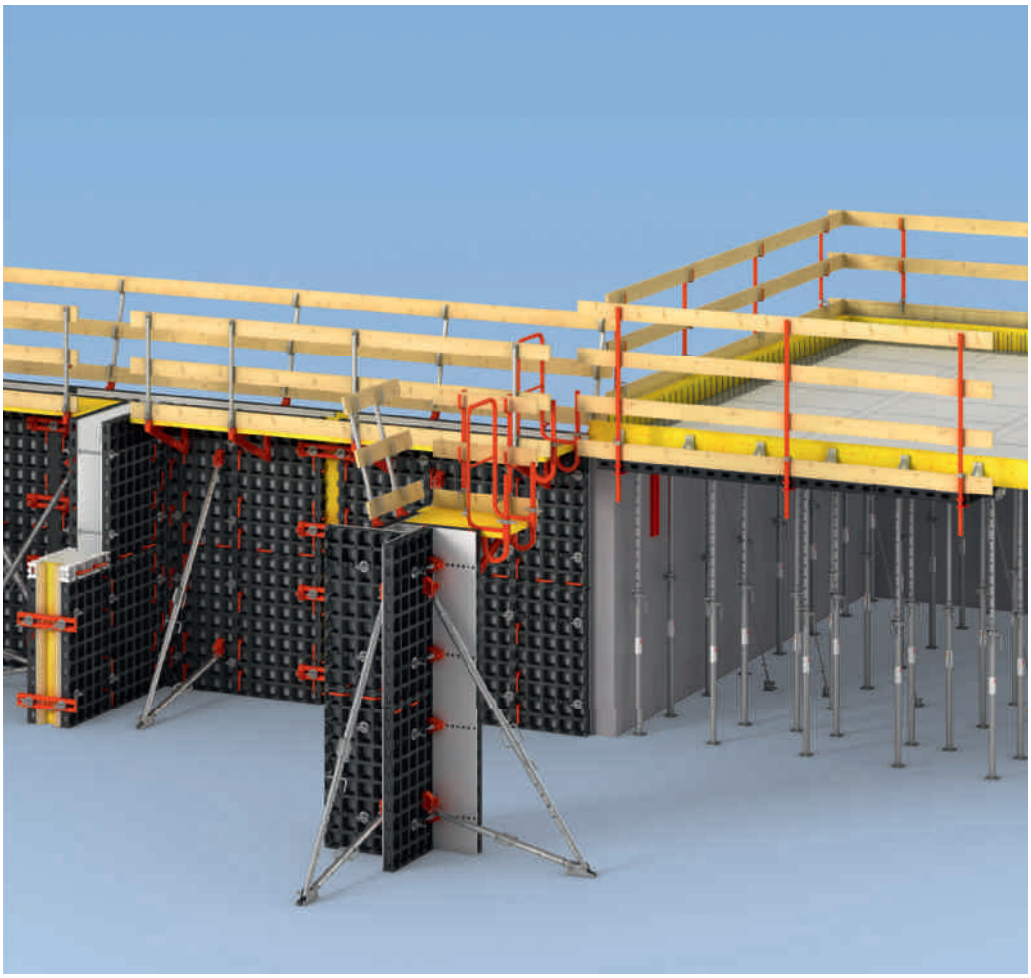
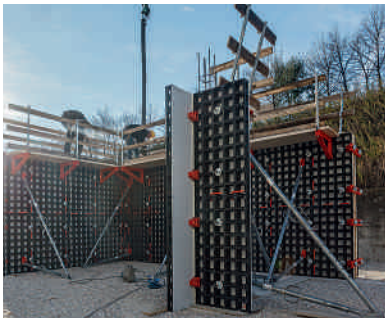
DUO

The lightweight formwork for walls, foundations, columns and slabs

Product Brochure – Issue 01/2018





Content

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Important notes

All current safety regulations and guidelines applicable in those countries where our products are used must be observed.

The photos shown in this brochure feature construction sites in progress. For this reason, safety and anchor details in particular cannot always be considered as conclusive or final. These are subject to the risk assessment carried out by the contractor.

In addition, computer graphics are used which are to be understood as system representations. For ensuring a better understanding, these and the detailed illustrations shown have been partially reduced to show certain aspects. The safety installations which have possibly not been shown in these detailed descriptions must nevertheless be available. The systems or items shown might not be available in every country.

Safety instructions and load specifications are to be strictly observed at all times. Separate structural calculations are required for any deviations from the standard design data.

The information contained herein is subject to technical changes in the interests of progress. Errors and typographical mistakes reserved.

DUO – the lightweight universal formwork

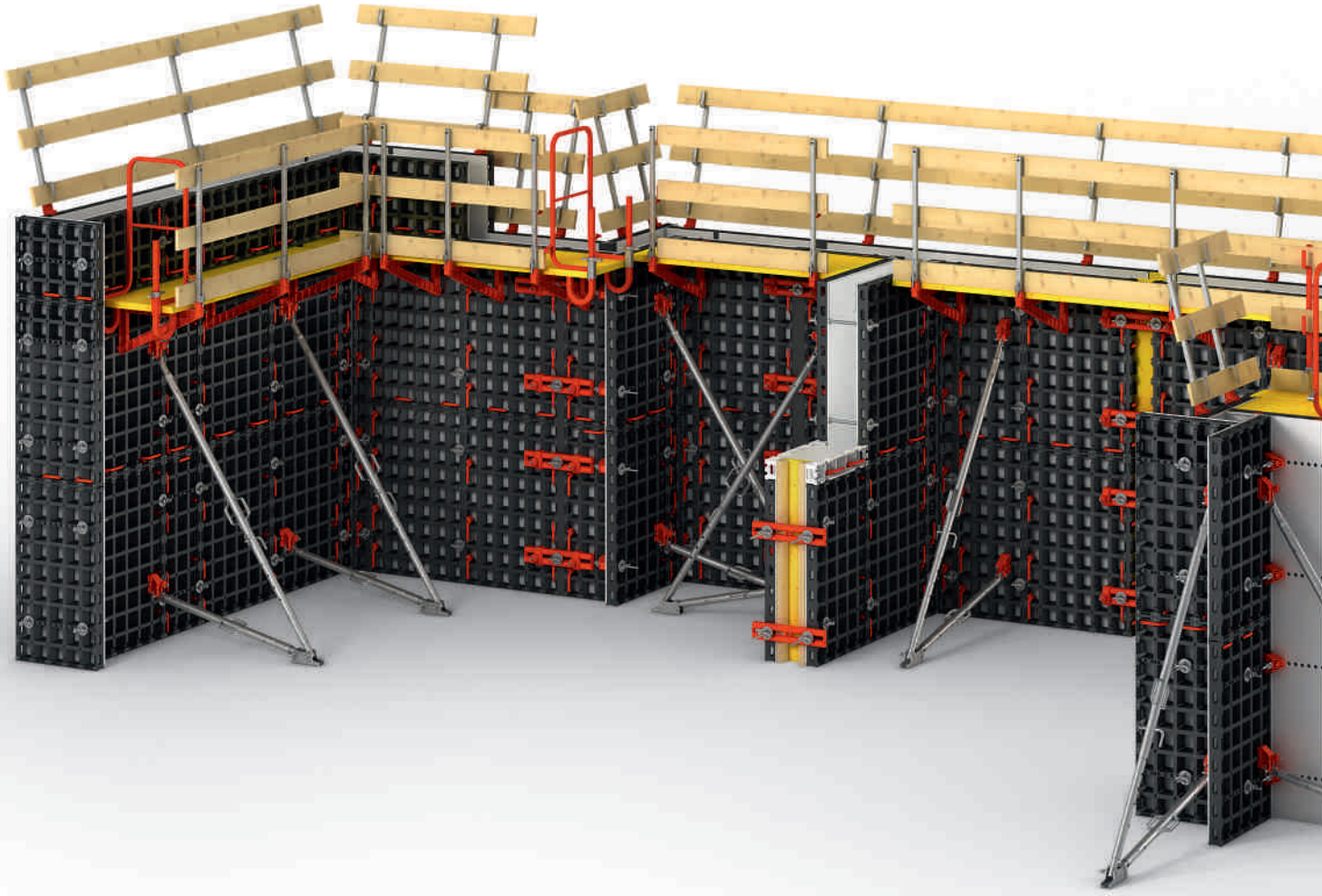
Wall + slab = one system

DUO can be used as

Formwork for vertical walls
- up to 5.40 m high
- with wall thicknesses from 15 cm to 40 cm
- for a maximum fresh concrete pressure of 50 kN/m²

Slab formwork
- up to 30 cm slab thicknesses

Columns
- with cross-sections from 15 cm to 55 cm in 5 cm increments
- for a maximum fresh concrete pressure of 80 kN/m²

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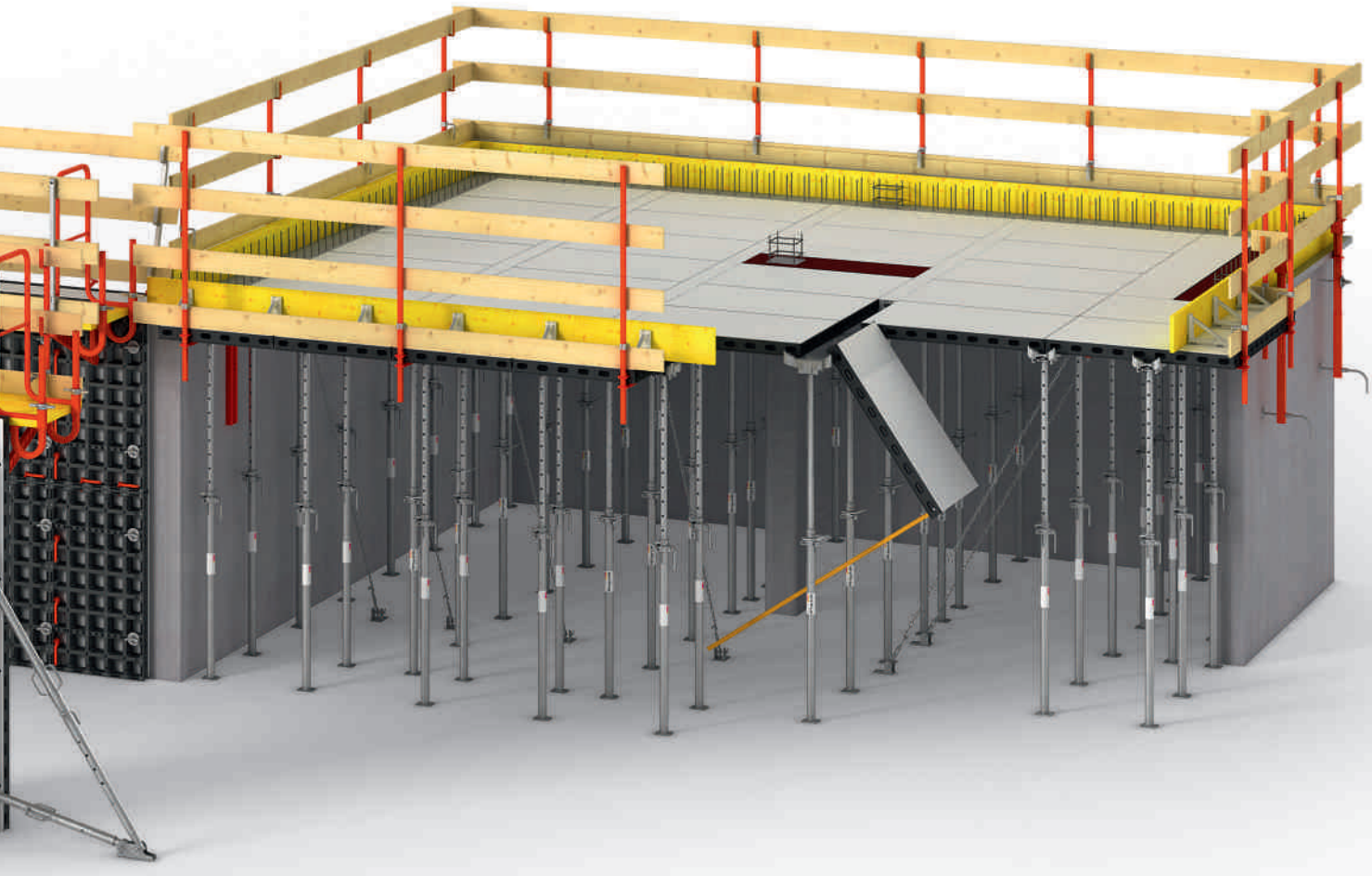


The latest material sciences

Technopolymers in formwork and scaffolding technology

Polymer-coated fibres is the source material for the production of DUO components.

For several years, PERI has been carrying out research and development in polymer products. In so doing, the focus has been on the practical application of these materials in construction engineering. The result is a composite material on the basis of a polymer matrix.

PERI material research focuses on technopolymers that are particularly robust and durable. All development actitivies are aimed at the specific use of these polymers in formwork and scaffolding technology. This has resulted in, for example, the development of a simple stopend angle for slab edges and other items.

PERI took an important additional step in the application of such polymers with the development of the DUO – a new, complete formwork system made out of this material. In order to meet the respective component requirements, the material properties of the DUO system components are optimized through the addition of additives.

The PERI Stopend Angle is made of a composite material and weighs less than 500 g.

Advantages of technopolymers

Low weight
The material is very light compared to steel or wood. This allows for faster, more ergonomic working and saves on crane time requirements.

High durability against moisture
Technopolymers are shrink-free, develop no moisture expansion and do not rust. This makes their use in formwork and scaffolding applications so advantageous compared to wood or steel.

High flexibility regarding product design
The injection moulding process allows the components to be formed in an extremely flexible way. This opens up new possibilities for the design of components, e.g. for clever multiple functions.

Why the composite material is sustainable

Zero waste production
The entire raw material used is processed into the product. No waste is generated during production.

Optimum transport weights
Products made of the polymer-based composite are very light. This minimises the transport weight as well as transport costs along with exhaust gases.

100 % recyclable
All components are 100 % recyclable. Used material can be used to manufacture new products in terms of a sustainable recycling economy.

Independent bodies confirm the special innovative strength of the DUO formwork. The formwork system has been awarded several prizes after being launched in a number of countries.

In France, the PERI new product was awarded the MAT D'OR. For this, communications specialist SAGERET, one of the most important providers of construction industry information in France, surveyed around 700,000 users of the digital platform on prizeworthy new products. The new product won the "Best Innovation Product Award" during an exhibition in Angola where the system was presented to the North African market for the first time. During the bauma CONEXPO INDIA 2016, the system convinced both visitors to the fair as well as a jury and was awarded the "Construction Opportunity Excellence Award" as part of the "Conference on Maximizing CE Sector Opportunities."


PERI
PEP 20-300
Wienerberger
Building Material Solutions
Porotherm

DUO

The universal lightweight formwork for walls, foundations, columns and slabs

The DUO system formwork is characterized by its low weight and extremely simple handling. Not only the material used is very innovative, but also the entire concept: with a minimal number of different system components, walls, columns and slabs can be easily and efficiently formed with only a minimal number of different system components. DUO is the optimal solution for small-sized components with lower surface requirements as well as for restoration work where no crane can be used.

Besides the panels including the formlining, most DUO accessories are made of the new innovative composite material with a polymer basis. This material is extremely light and, at the same time, has a high load-bearing capacity.

Apart from the material, the developers focused on ensuring that the formwork system was easy to handle. Almost all operations with DUO can be carried out without tools, and the working steps are easy to understand. Even less experienced users of system formwork can work quickly and efficiently with DUO.

The fact that the majority of system components can be used for walls, columns and slabs additionally increases the performance. Last but not least, DUO reduces noise pollution on the construction site – an important aspect, for example, on inner-city construction sites.

Universally applicable

High utilization rate of the components through flexible forming of walls, columns and slabs using only one system

Fast and easy to assemble

Fast working procedures thanks to simple formwork rules and uncomplicated application without the use of a hammer

Installation without the use of a crane
High productivity and crane-independence due to the low weight

The core components

The core components of the system are the DUO panels including the formlining and DUO Couplers – completely manufactured using a polymer-based composite material.

The DUO Coupler connects panels evenly. No tools are required for installation.

DUO Panels are available in heights of 135 cm as well as 60 cm. With 6 different panel widths ranging from 15 cm to 90 cm, adjustments in 15 cm increments are possible.

Universally applicable

High utilization rate of the components through flexible forming of walls, columns and slabs using only one system

DUO panels can be used for vertical as well as horizontal applications. In addition to investment and logistics costs, this also minimizes the expenditure for the training of site personnel.

Versatility is the special advantage of the system. DUO panels can be used to form walls, foundations and beams as well as columns and slabs. All accessories such as couplers and corner posts have been designed so that they are extremely versatile. The number of different system components has thus been minimized.

This simplifies both planning as well as material requirements on the construction site. The advantages throughout the entire life cycle are more notable: users carry out the various formwork tasks more efficiently as the same assembly logic can always be followed. Furthermore, the demand for storage space is reduced and transport volumes along with costs are reduced.

With small panel sizes and easy handling, DUO is predestined for the forming of foundations.

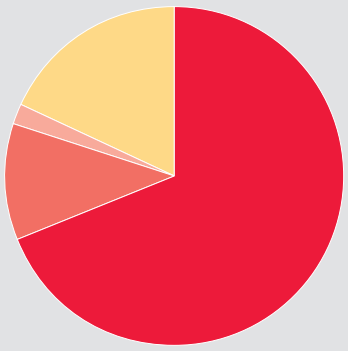
The PERI DUO concept is based on the fact that that as many system components as possible are used universally in the wall, column and slab formwork. This results in reduced investment expenditure.

Based on the necessary on-site material requirements for a 200 m² wall area and four 2.70 m high columns, only around 20 % higher investment costs are to be taken into consideration if DUO is also used as slab formwork. In this case, more than 2/3 of the DUO system components are used in all applications.*

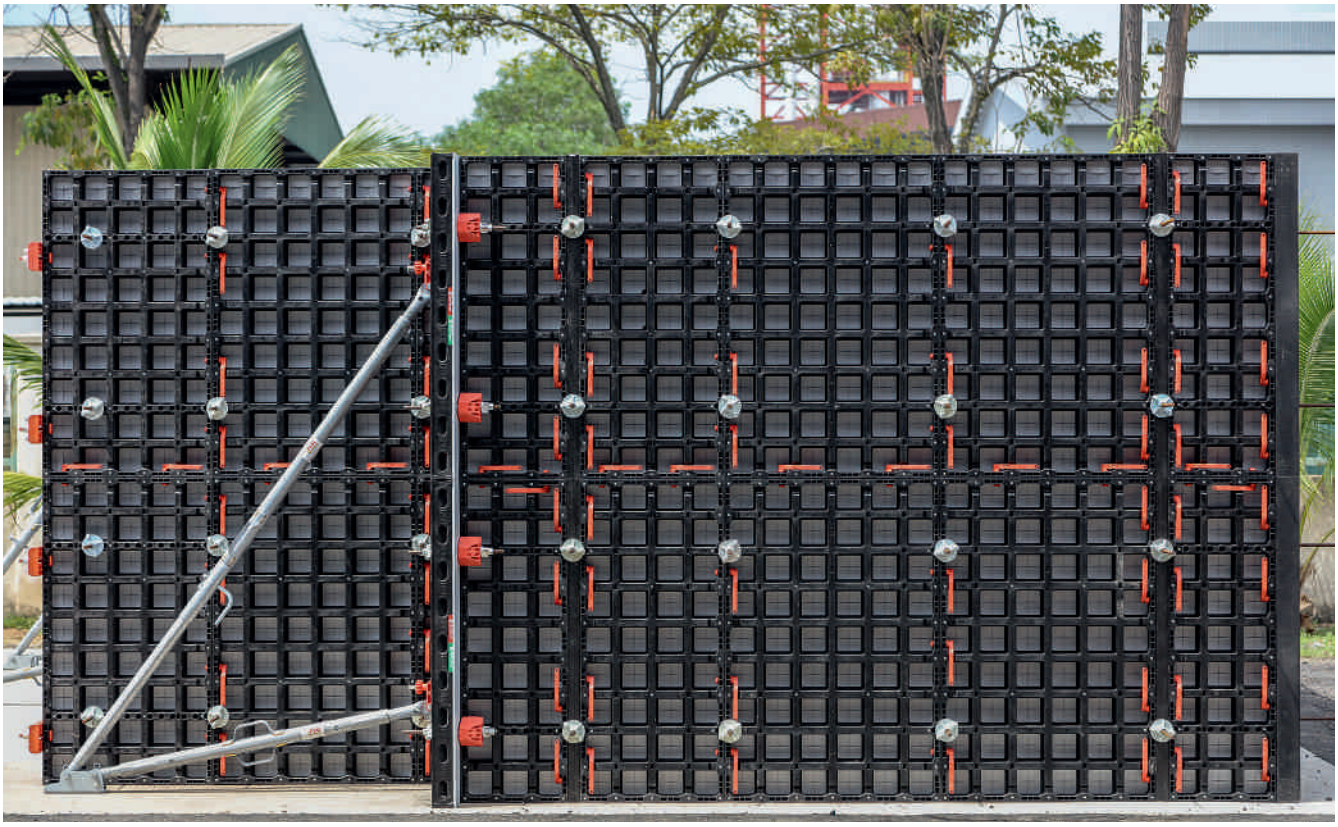
The investment costs are consequently much lower than when using three different systems.

This concept also supports the principle of sustainability: fewer transports and considerably lower transport weights reduce the energy requirements for logistics.

* The calculation example refers to the DUO system components (including tie technology, push-pull props and slab props, brackets and guardrails; excluding wooden planks and boards).



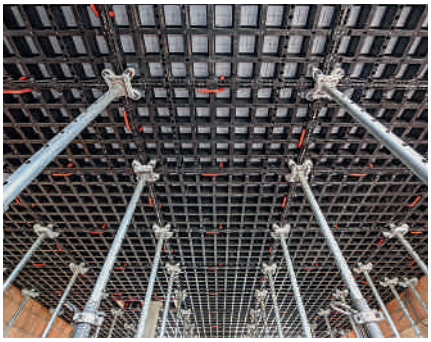
- Universally applicable DUO system components for walls, columns and slabs
- DUO system components for walls
- DUO system components for columns
- DUO system components for slabs



DUO has been optimized for a floor height of 2.70 m – extended with 2 standard panels in each case. In connection with the possibility of horizontal extensions as well as the available 60 cm high panels, this results in numerous possibilities.

With DUO Multi Panels, square and rectangular columns from 15 cm x 15 cm up to 55 cm x 55 cm can be realized in 5 cm increments.

In gardening and landscaping operations, DUO is ideally suited for the construction of retaining walls and similar structural components.



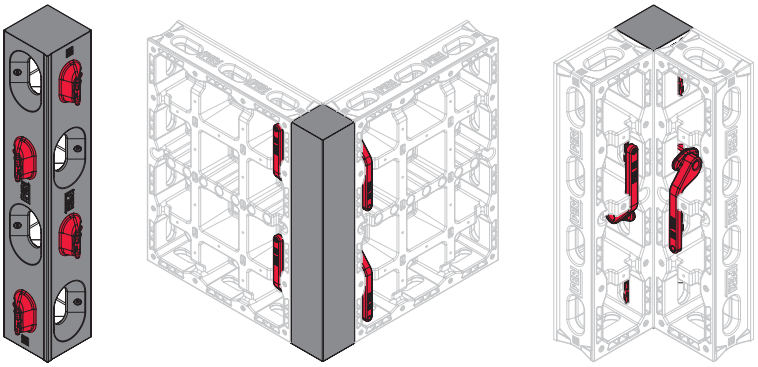
DUO has been optimized for slabs up to 30 cm thick. The universal Fix Head DFH fits on all standard tubular steel props.

Universally applicable

High utilization rate of the components through flexible forming of walls, columns and slabs using only one system

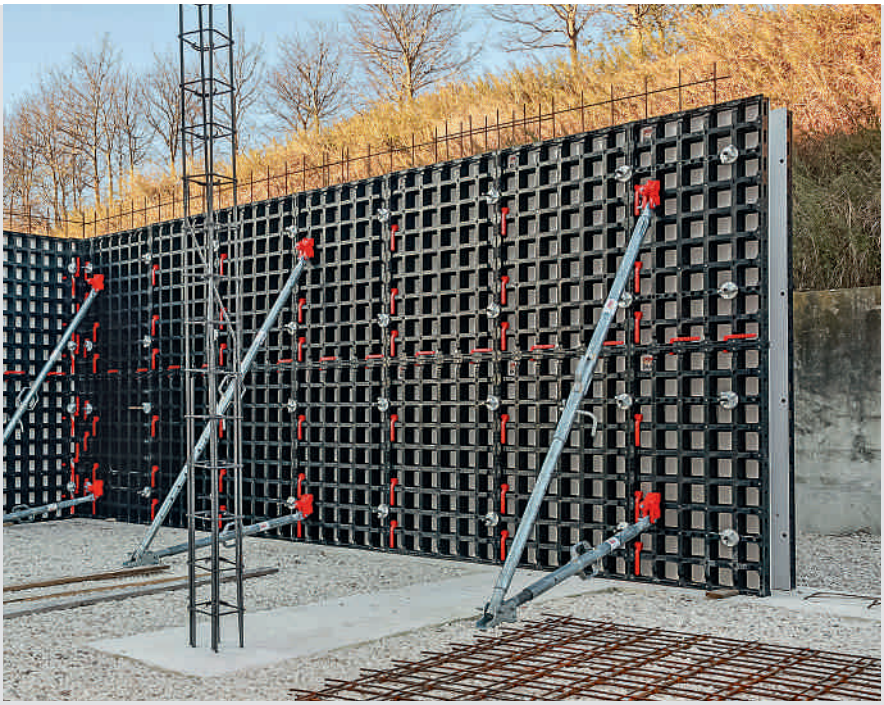
With the DUO, the number of different individual components has been systematically reduced to a minimum. This applies not only to the frame elements but also to the accessories. The intelligent design allows various multiple functions.

An example of consistent component minimization is the compact Corner Post with dimensions of 10 cm x 10 cm. Thereby, the Corner Post can be used for right-angled outside and inside corners – consequently also for all required wall offsets. When forming slabs, the Corner Post is used, for example, for the execution of beams in the system.



The DUO Coupler is used for connecting the Corner Posts to the DUO Panels. The examples show application possibilities for the external and internal corners.

The multifunctional application of the DUO Brace Connector is also particularly well thought-out: it is used both as a support for the guardrail posts or as a tension sleeve for cantilevered panels in the slab formwork.



Fast and easy to assemble

Fast working procedures thanks to simple formwork rules and uncomplicated application without the use of a hammer

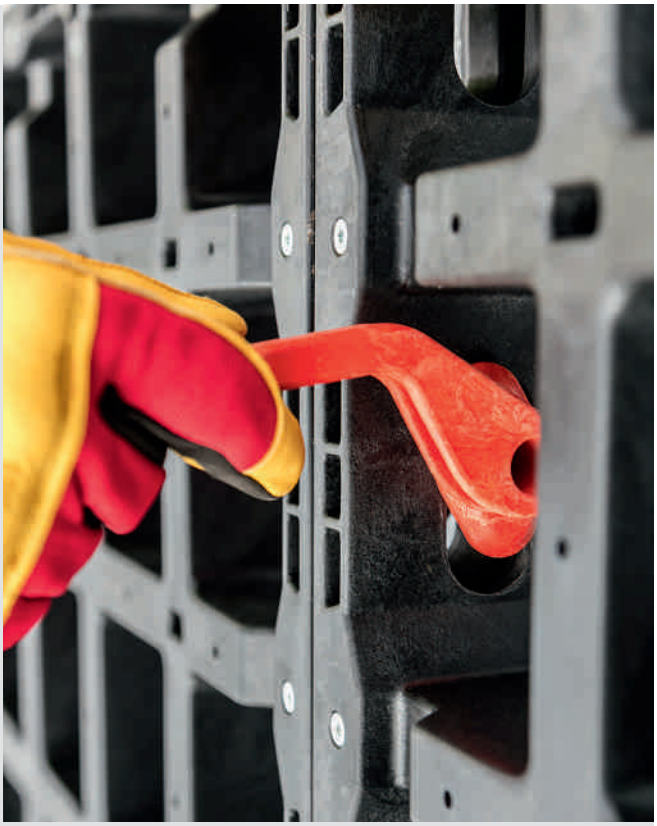
DUO is characterized by its exceptionally easy application while assembly and formwork rules are very straightforward. Easy handling and frequently the same system components ensure a very high level of productivity on the construction site. The fact that the need for tools has been almost entirely eliminated, results in additional advantages such as a reduced risk of injury and low noise emissions.

During the development of the formwork, the focus was on easy and simple handling; thus, the entire design has been optimized in this respect. Assembly steps with DUO are easy to understand and quickly learned. The fact that the same components are often used for different applications additionally reduces training requirements for the construction team.

A particularly good example for easy-to-use system components is the DUO Coupler. Its design and the matching shape of the openings in the panels allow only one way of installation.

The DUO Coupler is inserted through the elongated frame openings and then simply turned 90°. This connection ensures the panels are arranged at even levels. As the couplers are flush with the panel after installation, larger, pre-assembled units can be stacked very flat.

The DUO Coupler is used for
- connecting panels to each other (standard joint)
- connecting panels to corner posts for the realization of corners, T-junctions as well as wall offsets
- connections with wall thickness compensators as well as filler supports for the creation of length compensations



The couplers smoothly align the panels; they are flush with the panel frame when installed. This also simplifies the stacking of pre-assembled elements on the jobsite.

DUO has ergonomic openings in the frame elements designed for the installation of the panel connectors. The openings simultaneously serve as recessed grips for transporting the elements on the construction site.

Forming with DUO is simple as there are only few formwork rules to follow. The training effort and requirements for the users are therefore kept very low.

Working without a hammer avoids a further source of danger. However, the advantage of reduced noise pollution is often far more important, especially in the case of inner-city construction sites.

Installation without the use of a crane

High productivity and crane-independence due to the low weight

The use of the new material ensures particularly low component weights. This makes the handling extremely easy and, on the other hand, brings additional advantages, for example, when working on existing buildings.

All system components are very light and particularly easy to handle, all elements weigh less than 25 kg. This means DUO is a real hand-set formwork system which can be assembled without the use of a crane. Forming operations with DUO are therefore less strenuous and non-tiring. This increases productivity levels and reduces the risk of accidents.

In addition, the small-format system components with low individual weights also open up the use of system formwork in a confined spaces – for example, during restorations and refurbishments.

Alternatively, DUO can also be moved by crane; a corresponding crane eye is provided for this purpose.

The DUO Crane Eye has a maximum load-bearing capacity of 200 kg. Thanks to the low weight of the DUO system components, the required crane hoisting capacity is significantly lower compared to conventional panel formwork. This saves on costs and energy.


AdvanTech
ESR-1785

An additional advantage: easy change of formlining

Quick repair with just a few screws – without requiring any special skills

With DUO, not only minor damage to the formlining can be repaired quickly. The complete formlining itself can be changed quickly and easily – without the need for special tools or other specialist knowledge.

The DUO system components as well as the technopolymer formliner are very durable. With proper use and maintenance, the service life of the components can be maintained over a very long period.

However, in the tough everyday conditions on the building site, the formlining can be damaged. Small identations or scratches in the formlining can easily be repaired. If required, the complete formlining can easily be replaced with a minimum of effort. Replacements are available in all panel sizes and are quickly mounted with just a few screws.

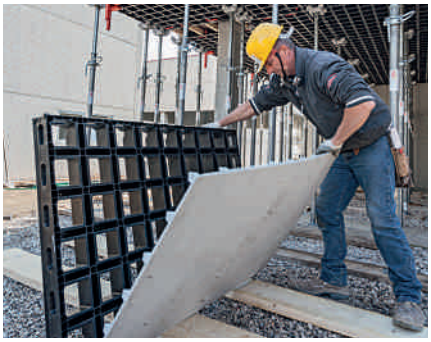
Regular cleaning of the formlining guarantees good concreting results and a long service life – this applies to the DUO system as well as other system formwork.

There is no reaction of DUO with the concrete which means that cleaning requirements are kept to a minimum. Nevertheless, it is advisable to use the PERI Plasto Clean release agent and to remove any concrete adhesions after every use. They can quickly be removed with the DUO Cleaning Device.

It is advisable to use the PERI Plasto Clean release agent. This is easily applied by means of the release agent pressure sprayer.

Usual wear and tear on the formlining leads to poor quality concrete surfaces, therefore regular replacement of the formlining is required for all panelized formwork. With DUO, the formlining can be changed without requiring any special tools and specialist knowledge. The lightweight formlining with the respective panel size can be easily assembled by hand using a few screws – even on the construction site.

1. Loosening the screws



2. Removing the damaged formlining

3. Pre-positioning the new formlining

4. Screwing on the new formlining

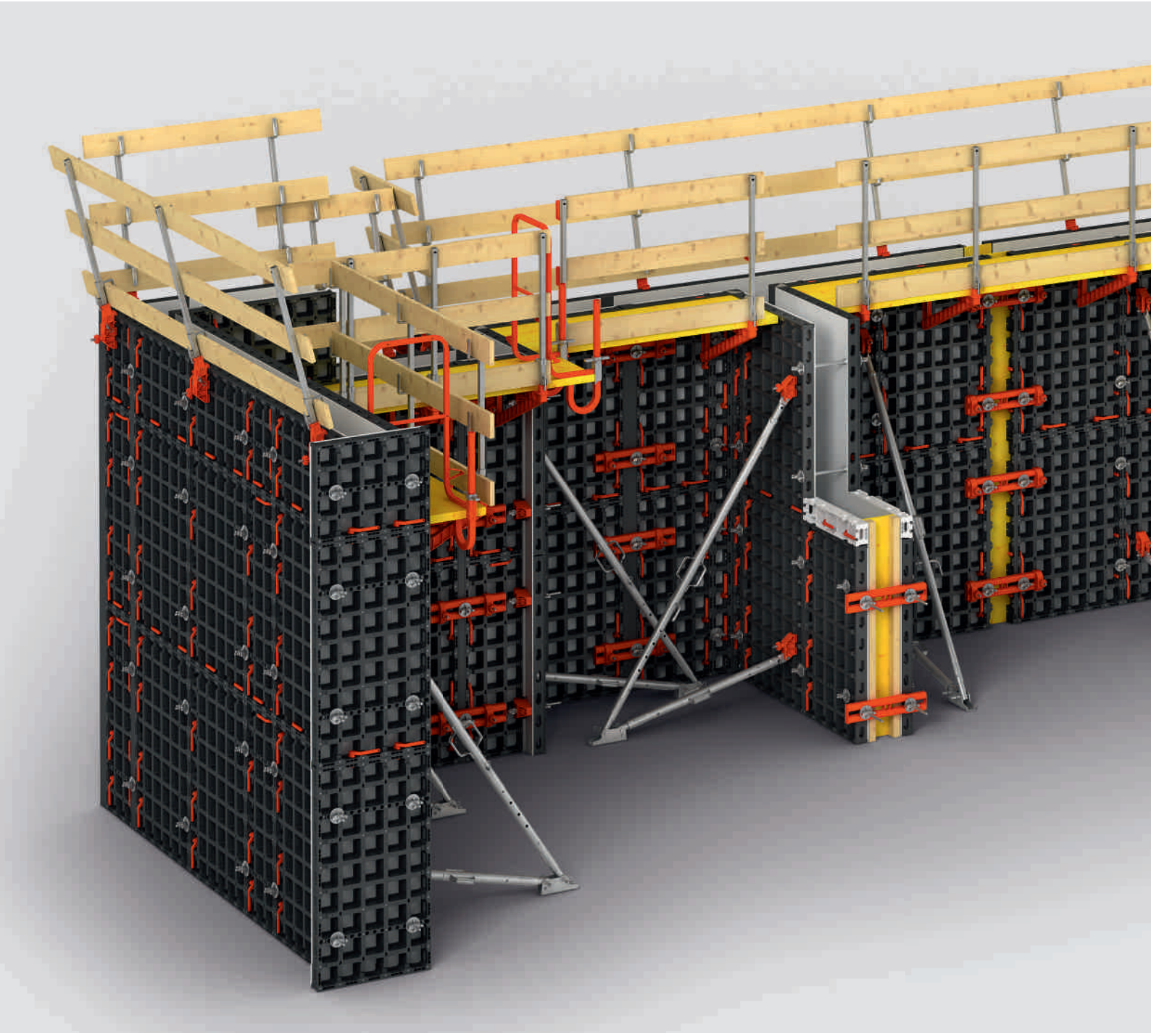
For cleaning after striking, the DUO Cleaning Device is used. Concrete residue can easily be removed using the tool.

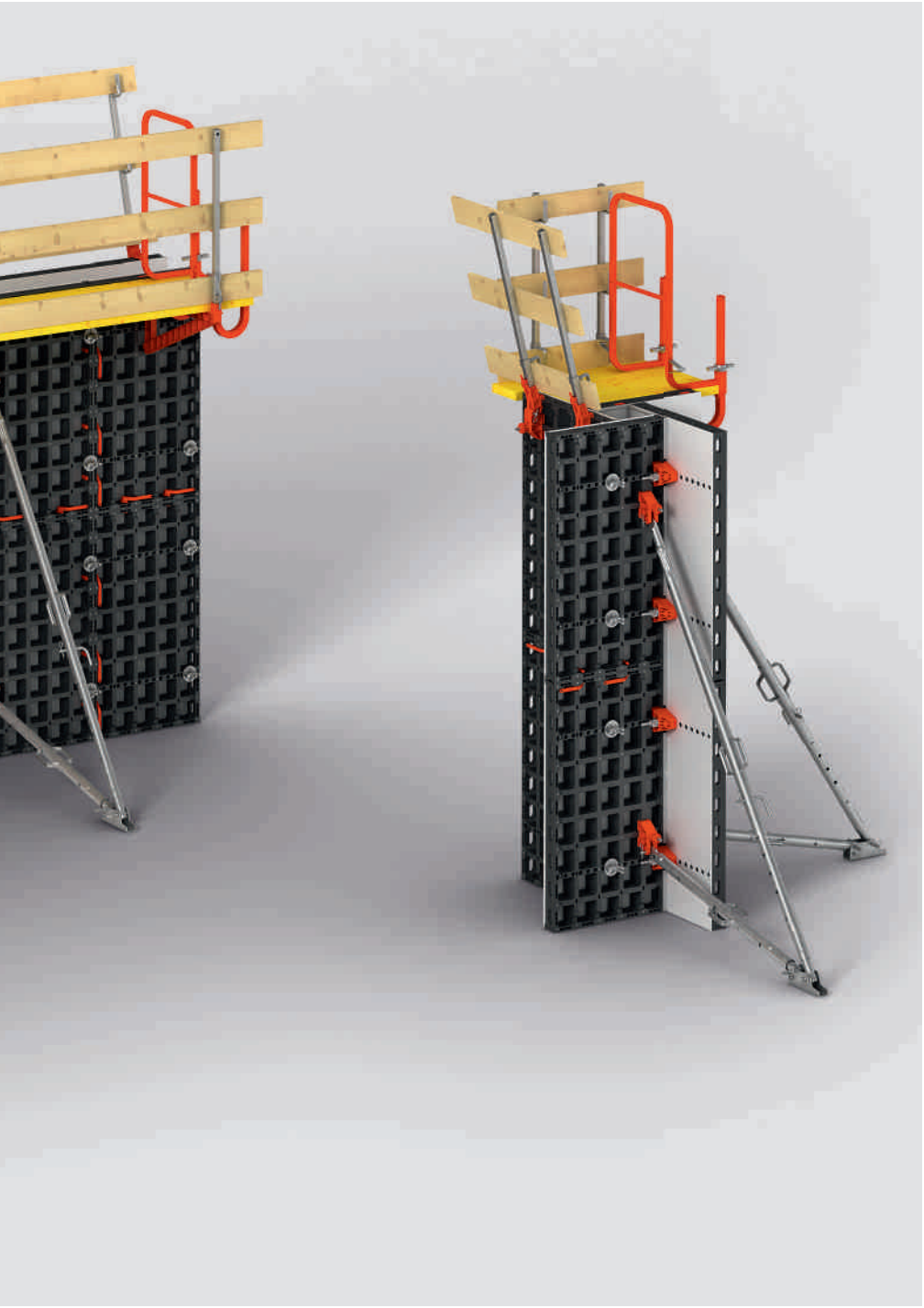
Particularly clever: the cleaning device can also be used to tighten the wingnut counterplates.

As the concrete hardly sticks to the panels, these can easily be released from the concrete during striking. This results in excellent concrete surfaces.

DUO as wall, column and foundation formwork

Standard applications for vertical use





DUO has been optimized for application as wall formwork with a thickness from 15 cm to 40 cm. Wall thicknesses can be adapted in 1 cm increments by means of compensation elements. Columns can be constructed with cross-sections ranging from 15 cm to 55 cm in 5 cm increments; in addition, DUO is ideally suited for the realization of foundations thanks to the easy-to-handle individual components.

The following pages describe standard applications for the forming of walls, foundations, columns and shear walls. The explanations show important basic principles but do not make any claim regarding completeness.

All detailed specifications as well as possibly country-specific data can be found in the Instructions for Assembly and Use. Furthermore, the corresponding Instructions for Use must also be observed.

Realization of right-angled corners, T-junctions and wall connections

Connecting the elements

The DUO Coupler is used for most of the element connections; it is simply inserted into the connector pocket and fixed by means of a 90° turn.

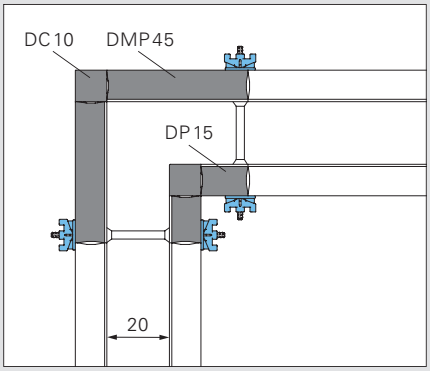
The DUO Coupler is used for standard joints, corners, T-junctions and wall offsets, length compensations, columns and shear walls as well as with the DUO Stacking Aid.

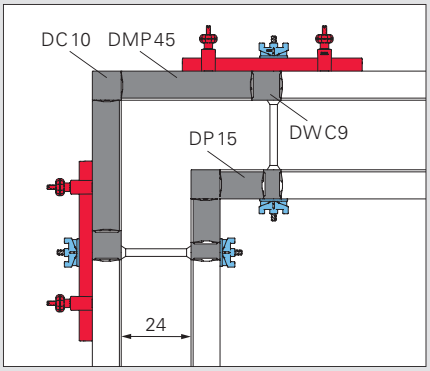
Forming of corners, T-junctions and wall connections

Forming right-angled corners as well as T-junctions and wall connections ranging from 15 cm to 40 cm in 1 cm increments. The Corner Post is used for this purpouse and, if required, wall thickness compensators are inserted.

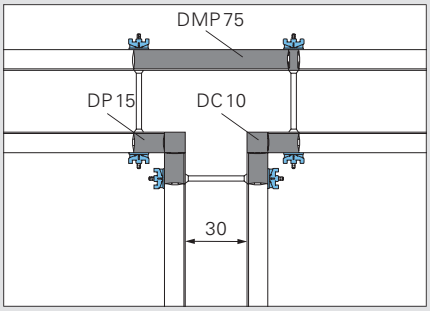
The graphics show a number of examples for the execution of corner connections, T-junctions and wall connections. For a standard connection, 3 couplers are normally used on the longer side of the panel along with 2 couplers on the shorter side in each case.

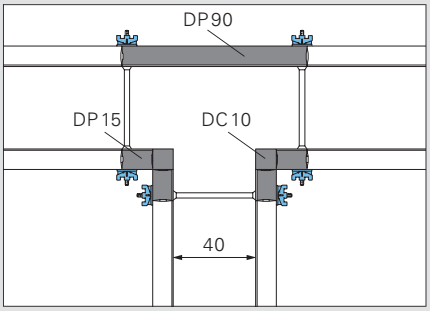
90° corners can be continuously executed. In case wall thickness compensators are required, these are installed between the last wall panel and the corner panel.



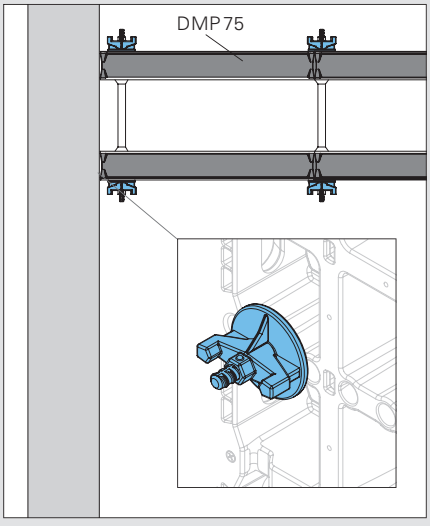


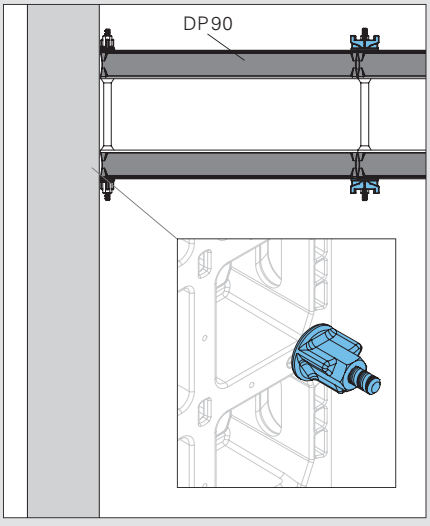
T-junctions can be continuously formed for wall thicknesses from 15 cm to 40 cm. Wall thickness compensators are available with widths from 5 cm to 10 cm and can be used as needed.



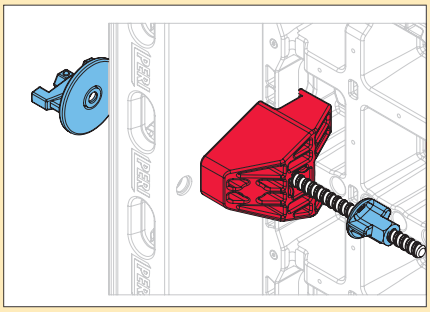


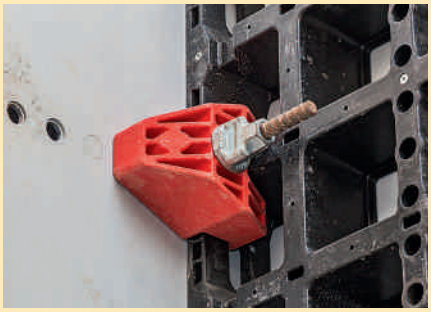
An obtuse-angle connection is possible with a Multi Panel and the standard anchor with a wingnut counterplate. Alternatively, a standard panel can be used with a cam nut.





External corners can alternatively be realized with a Multi Panel and DUO Corner Connectors.





Adapting the length of the wall formwork to the geometry of the building

Forming of length compensations up to 25 cm

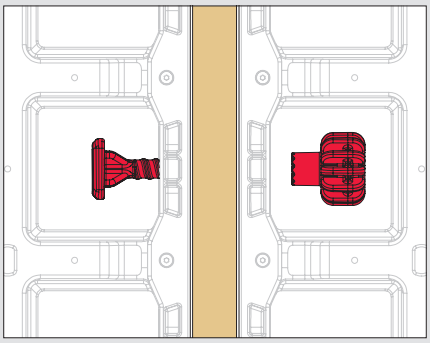
The narrowest DUO panel is 15 cm wide which means that the formwork can be easily adapted to match any building geometry. Simple solutions for residual dimensions of up to 25 cm ensure maximum flexibility.

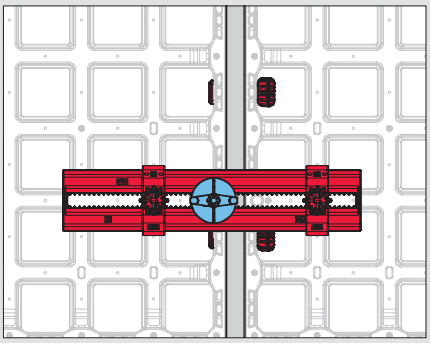
Depending on the remaining dimensions, length compensations are filled using timbers or DUO Wall Thickness Compensators. For larger residual dimensions up to 25 cm, a filler support is available.

Filler plates can be mounted between two panels by means of coupling ties; system compensations are fixed using DUO Couplers. The portfolio includes a corresponding support for installation of filler plates up to 25 cm wide. Depending on the length of the compensation, additional walers must be installed.

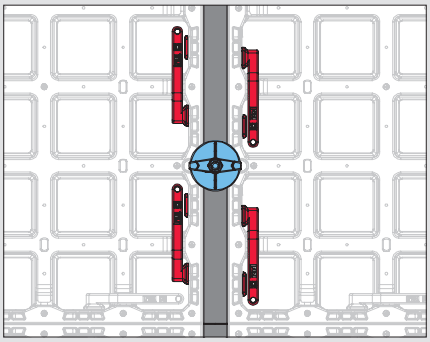
The filler support is fixed to the panel sides using couplers and is covered with an 18 mm thick filler plate. In this way, compensations ranging from 9 cm to 25 cm can be shuttered.

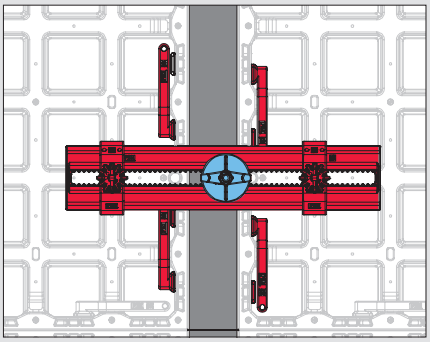
For length compensations up to 5 cm, cut-to-size timbers are mounted between the panels using coupling ties; compensation walers stabilize the connection.



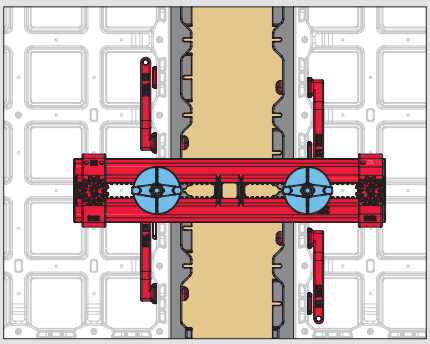


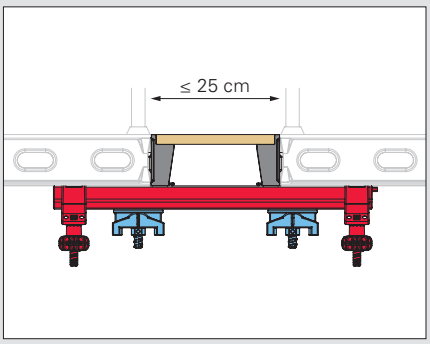
For compensations from 5 cm to 10 cm, wall thickness compensators are used which are available in 1 cm increments. Wall thickness compensators can be fixed to the panels by means of DUO Couplers. For compensation widths of 8 cm and more, additional walers must be positioned in order to achieve a flat and even connection.





For length compensations up to 25 cm, filler supports are mounted on both adjacent panels. The filler area is subsequently closed with a cut-to-size filler plate. Walers are used for bracing purposes.





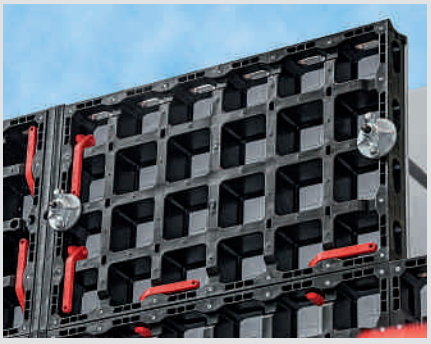
Height adjustments of the wall formwork, assembly of push-pull props

Execution of height extensions

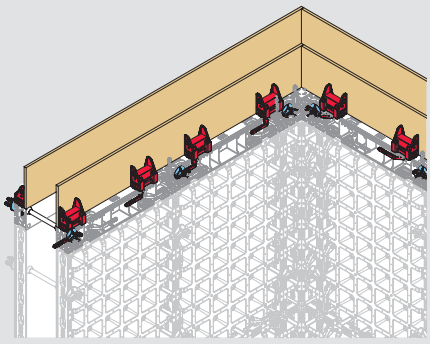
DUO elements can be very flexibly extended through a wide range of possibilities and can thus be easily adapted to suit the required floor height. The respective country-specific regulations must be observed regarding the maximum extension height. The weight of pre-assembled units must also be taken into account during planning as it is limited, for example, by the weight which can be carried manually, the crane capacity or the load-bearing capacity of the crane hook.

As a rule, the extension units are pre-mounted in a horizontal position with the formlining facing the ground. DUO has been optimized for a wall height of 2.70 m whereby two standard panels, each with a height of 1.35 m, are positioned one above the other. Additional heights are achieved by means of vertically or horizontally extended panels. Maximum flexibility results from combinations with the narrower filler panels and through customized filler plate extensions.

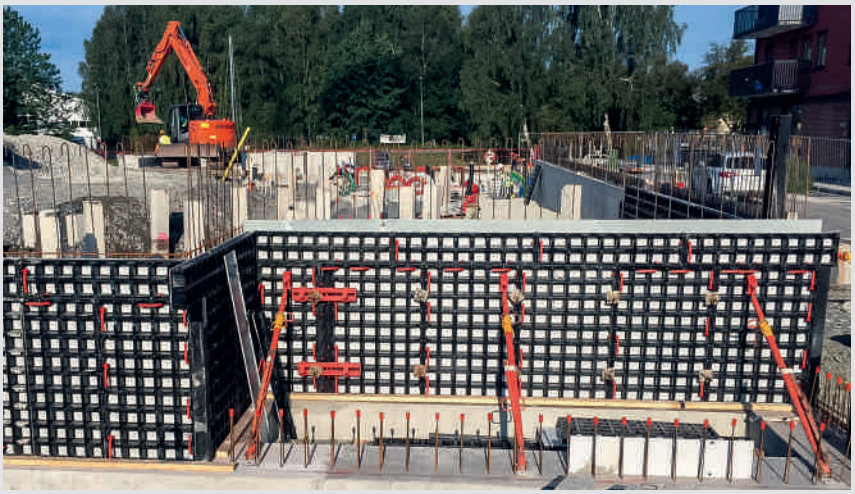
For extension heights of 4.05 m and more, compensation walers must be mounted on the horizontal joints so that the units are sufficiently rigid for subsequent erection.



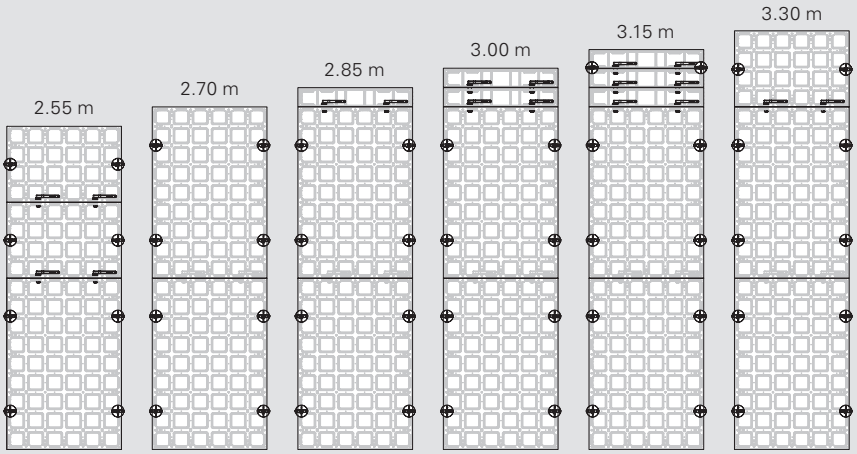
Any combination of the standard panels with 1.35 m and 0.60 m heights provide a wide range of possibilities for height adjustments on the wall formwork.



For customized extensions up to 30 cm high, extension connections with filler plates can be installed as an alternative. These extension connections can be placed on any of the panels.



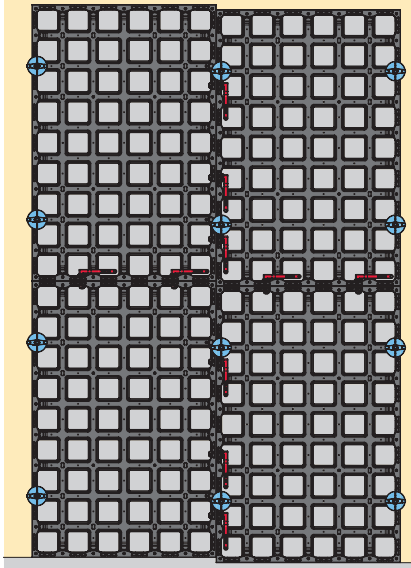
By combining 135 cm and 0.60 m high panels, wall heights of 2.55 m, 2.70 m and 3.30 m can be realized. Maximum flexibility in height adjustment can be achieved if additional 15 cm filler panels are used when extending.



Practical tip: simply compensate height offsets

The connector pocket in the panel offers around 2.5 cm of clearance which means elements can be easily installed in the case of slight unevenness, sloping terrain as well as height offsets.

For adaptating to undulations, the elements can also be positioned in an offset arrangement by 15 cm in each case. This results in by possible height offsets in 15 cm increments, beginning with 12.5 cm up to 17.5 cm.



Safe working conditions in all situations

Execution of working and concreting platforms

DUO Scaffolding Brackets, Guardrail Post Holders, scaffolding planks and guardrail boards are used to realize working and concreting scaffolds on the formwork.

The brackets – also made of lightweight technopolymer but with additional steel reinforcement – are simply hooked into any of the connector pockets of the panels. Planking and guardrail boards complete the working platform which has been designed for a permissible load of 150 kg/m². On the opposite side, the Brace Connector together with Guardrail Post Holders as well as PERI Guardrail Posts are assembled to create opposing guardrails.

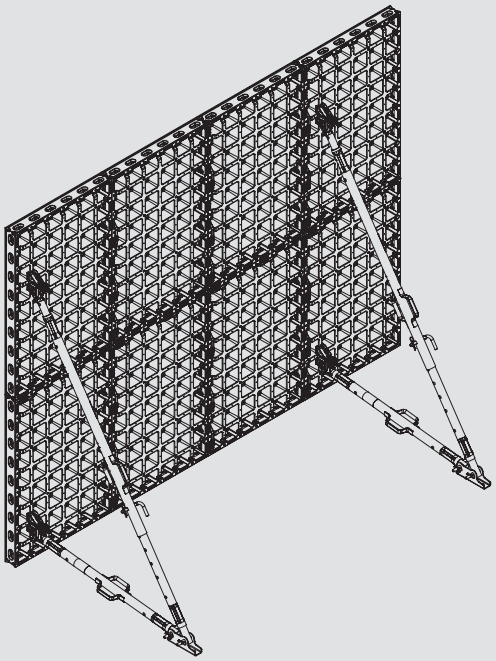
Assembly of push-pull props

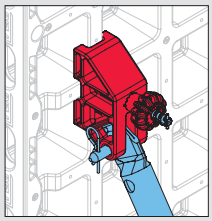
Execution of push-pull props

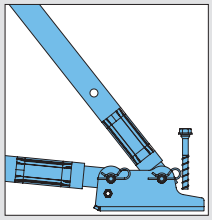
Depending on the height of the wall, push-pull props and kickers are to be mounted for aligning the formwork as well as for stability against wind loads. Assembly of the push-pull props and kickers on the element is carried out with the brace connector while the base plate connects the push-pull prop and kicker.

Firstly, the post is inserted into the scaffold bracket, then the bracket is simply hooked into the panel. Subsequently, 5 cm thick scaffold boards and guardrail boards are installed and fixed in position with screws or nails.

Safety on the opposite side of the formwork is provided by a guardrail consisting of three system components and guardrail boards: the brace connector with a supplementary guardrail post holder is mounted on the panel; the guardrail posts can then be simply inserted.







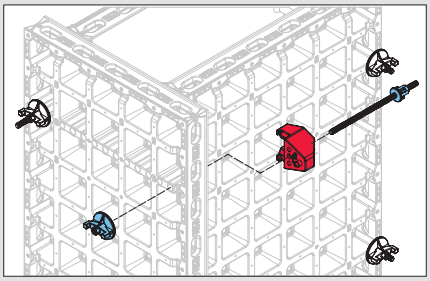
Realization of connecting walls

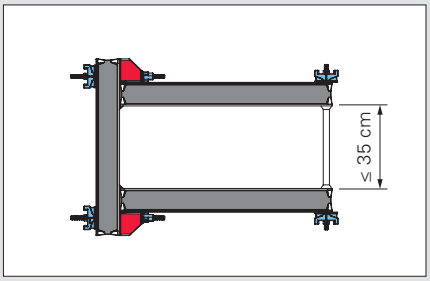
Stopend formwork

DUO offers a wide range of variants for the execution of stopend formwork – both with standard system components and individual filler plates.

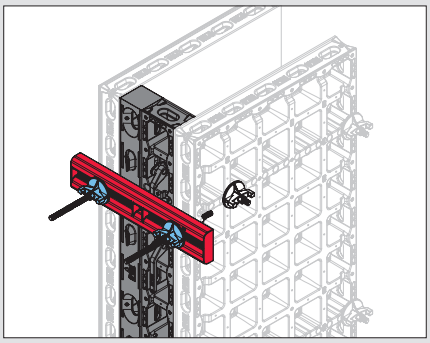
Depending on the application of Multi Panels or standard panels at the end of a wall, there are different solution possibilities for attaching and executing the stopend formwork. As a rule, compensation walers are used for mounting the stopend formwork.

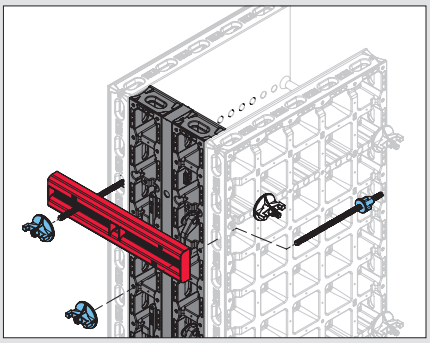
Stopend formwork for up to 35 cm wall thicknesses with system components
If the primary and closing formwork of the wall is executed using standard panels, a Multi Panel can be installed on the front side. The Multi Panel is thereby connected at right angles to the standard panels by means of corner connectors. Suitable chamfer strips ensure clean chamfered edges with 15 mm edge lengths.



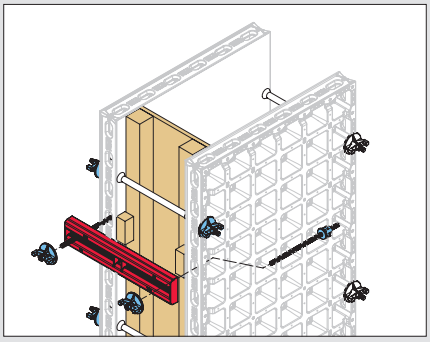


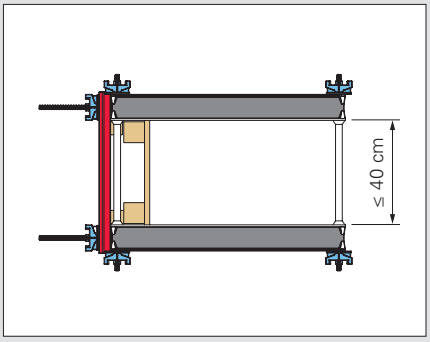
Stopend formwork for up to 40 cm wall thicknesses with system components
If Multi Panels are used as primary and closing formwork, the front side can be formed with any combination of narrow panels, corner posts or wall thickness compensators. The required compensation walers can be attached to the last Multi Panel elements by means of corner connection ties.

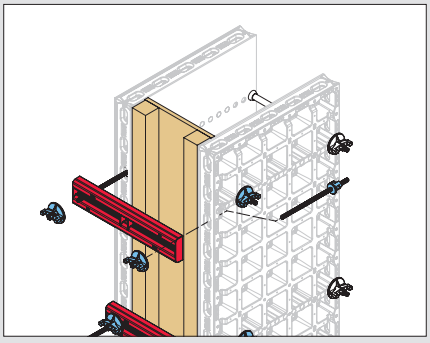


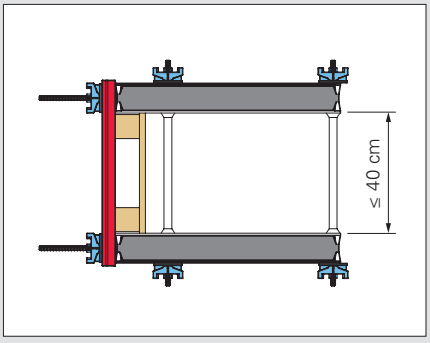


Stopend formwork for up to 40 cm wall thicknesses with filler plates
Alternatively, timbers and filler plates can be used on the front side and fixed in position with compensation walers. If Multi Panel elements form the primary and closing formwork of the wall, tie rods are to be installed behind the stopend formwork. In order to transfer the load to the walers, timber spacers must be installed.









Realization of columns and shear walls

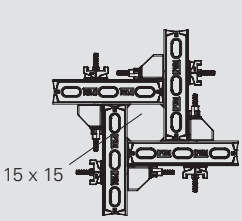
Forming columns

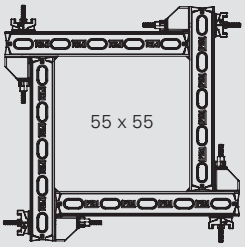
With DUO, square and rectangular columns with edge lengths from 15 cm to 55 cm can be formed in 5 cm increments without ties.

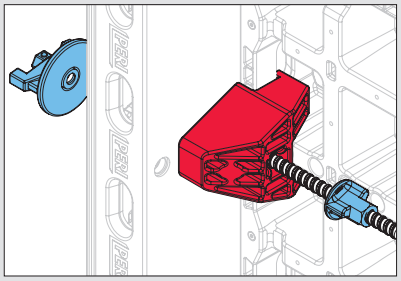
For column formwork, Multi Panels are installed with Corner Connectors. When 45 cm wide Multi Panels are used, the maximum edge length of the column is 25 cm; 75 cm Multi Panel elements allow side lengths of up to 55 cm.

For working and concreting scaffolds – as with the wall formwork – scaffold brackets and guardrail posts as well as planking and guardrail boards are used.

If shuttering and striking is carried out with the crane, column formwork can be moved as two units.







With the corner connector and corner tie, two Multi Panels can be connected at right angles to each other in 5 cm increments.

The Corner Connector DUO is simply pushed over a panel strut ...

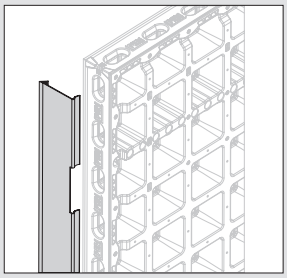
... and then securely bolted through the tie hole in the Multi Panel with the Corner Tie DUO.

Forming shear walls

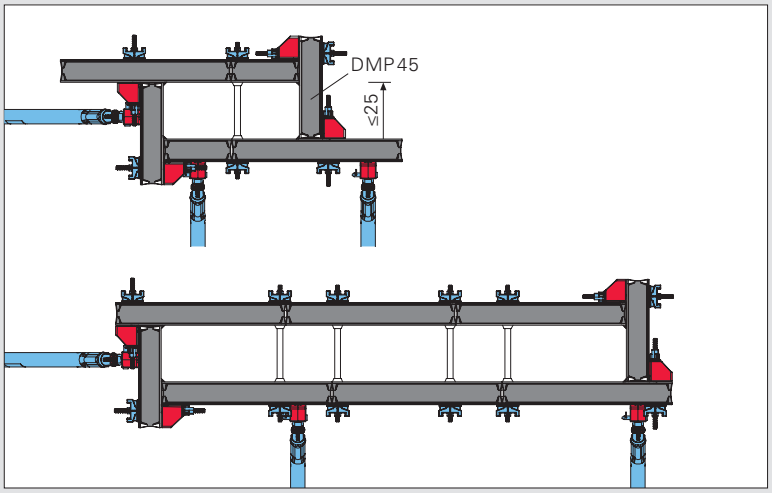
In static terms, a shear wall is a two-dimensional supporting structure which is mainly stressed by forces parallel to the wall. With DUO, shear walls with 25 cm to 55 cm thicknesses and 60 cm to 205 cm lengths can be realized.

A combination of standard panels and Multi Panels is always used for the formwork used on a shear wall with DUO system components.

Shear walls must always be centrally anchored using 1 to 4 anchors dependent on the length of the shear wall. For levelling alignment and required bracing, corresponding compensation walers are installed.



By using DUO Chamfer Strips in the corners, sharp edges can be achieved.



For shear walls with thicknesses up to 25 cm, the 45 cm wide Multi Panel is used on the front side of the wall. Alternatively, shear walls with a thickness of up to 55 cm can be constructed using the 75 cm wide Multi Panel. Multi Panels are combined with standard panels in the longitudinal direction of the shear wall.

Forming foundations with DUO

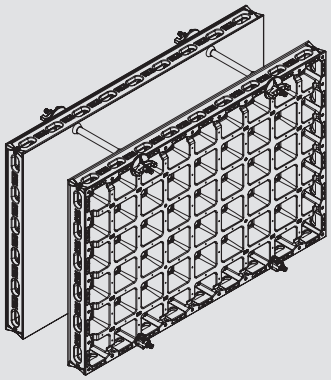
Forming foundations

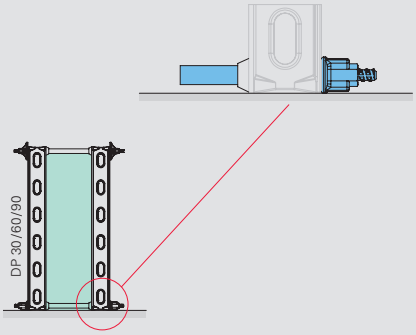
Due to the compact format and the easy handling, DUO is also ideally suited for forming foundations.

For the construction of foundations, all DUO panels can be used. When using the standard panels, cam nuts must be used in the lower area as the wingnut counter-plate cannot be installed so near the level of the ground. T-junctions and right angles are realized analogous to (higher) walls.

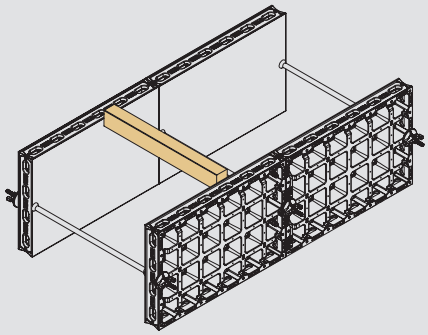
When using horizontal elements, the upper row of ties can be alternatively fixed above the formwork with the DUO Frame Holder. This reduces the number of tie holes through the foundations.

When using Multi Panels, standard Wingnut Counterplates DW 15 are used. Cam nuts are used for foundations with standard panels as the wingnut counterplate cannot be installed directly above the ground.

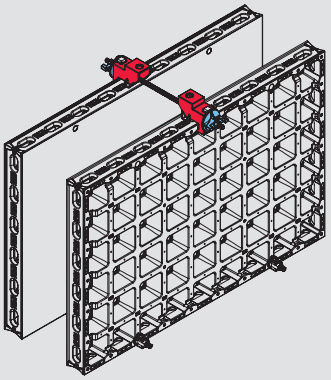


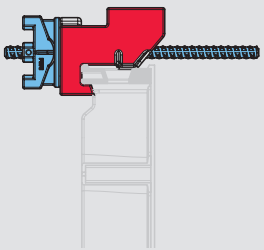


When using the 60 cm high panels for forming the foundations, the ties are positioned in the center. At the upper edge of the formwork, timbers are used to brace the formwork to prevent it from tilting inwards.



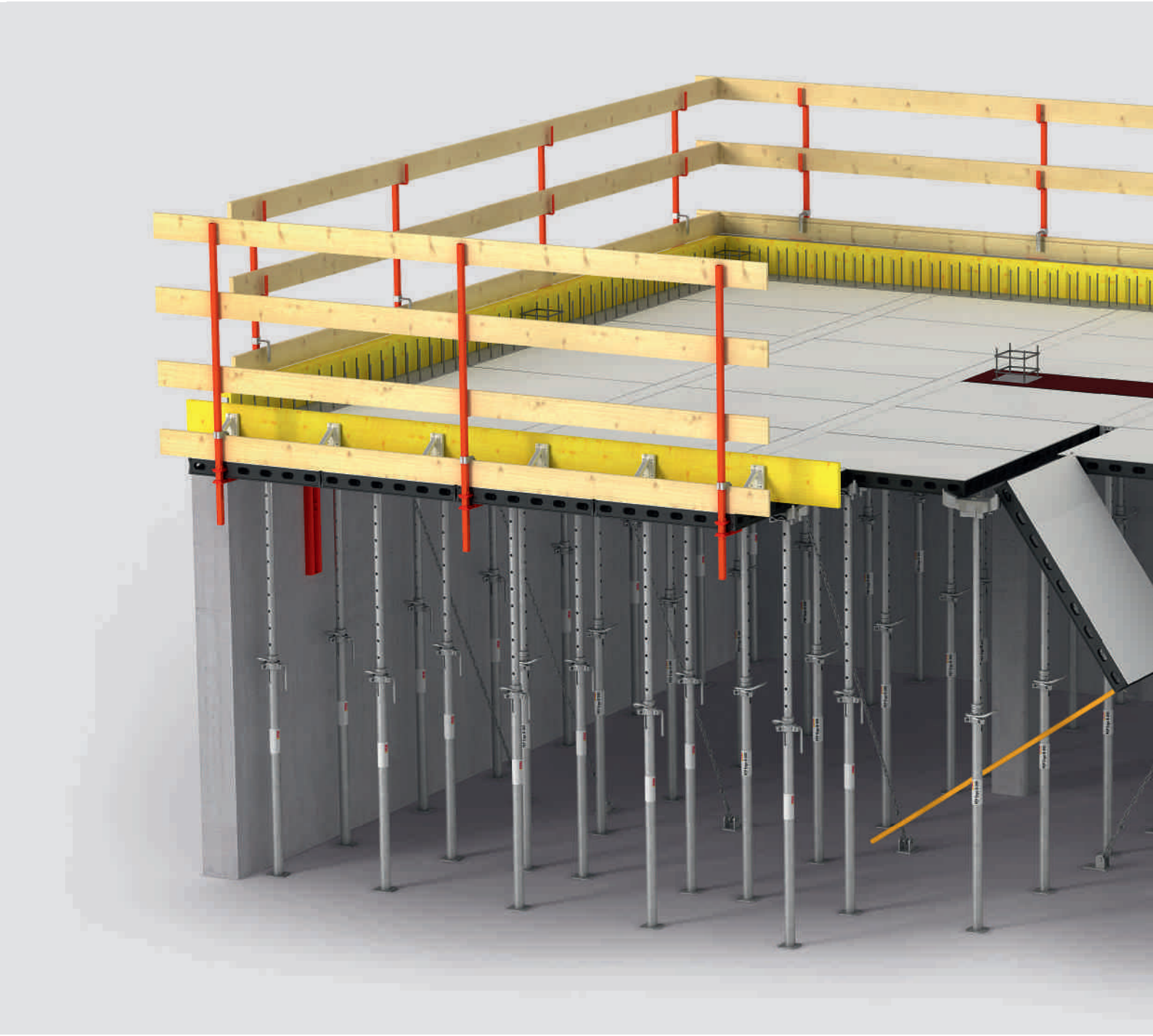
Through the use of the frame holder on the upper edge profile of the foundation formwork, the ties can also be placed above the formwork. This reduces the number of tie holes and saves on work requirements and costs.

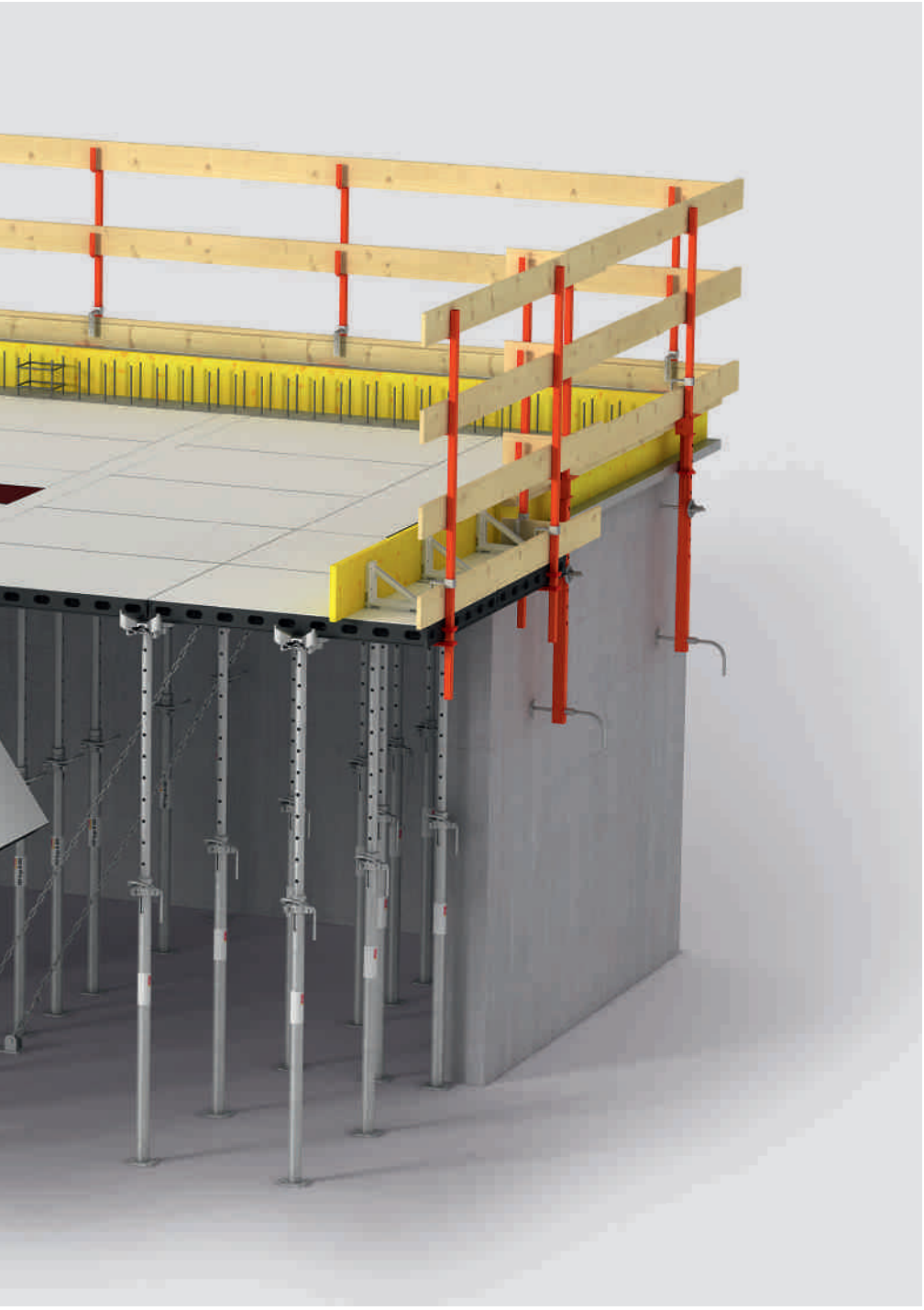




DUO as slab formwork

Standard applications for horizontal use





DUO can be used as girderless panel slab formwork for slabs up to 30 cm thick. Practical accessories for filler areas and slab edges offer versatile solutions in the system.

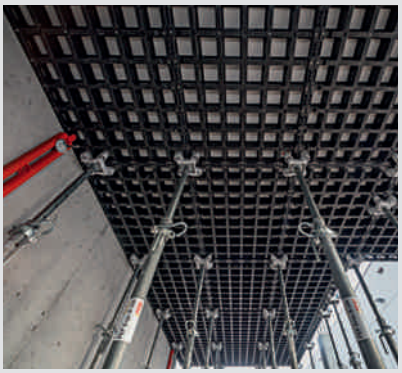
The following pages describe standard applications for the forming of slabs. The explanations show important basic principles but do not make any claims regarding completeness. Instructions for Assembly and Use describe all details as well as execution solutions. Furthermore, the corresponding Instructions for Use must also be observed.

Systematic shuttering from a safe and secure position with a minimum of components

Shuttering the slab from the bottom level

With DUO, the slab can be safely shuttered from the installation level: the panels are hooked in from below and pushed upwards into position by means of the shuttering aid.

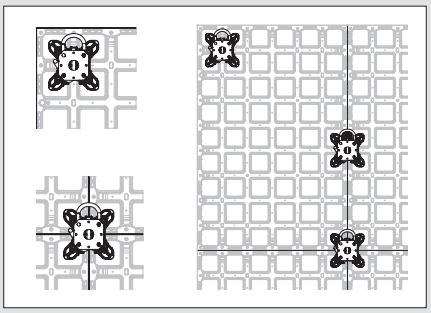
As the panel size determines the position of the slab props, time-consuming measuring is not necessary. Through this simple forming operation system, even inexperienced and untrained personnel can quickly learn how to handle the system.



The DUO Fix Head

The standard DUO Fix Head fits on all PERI tubular steel slab props with 120 mm x 120 mm end plates and thicknesses from 5 mm to 8 mm. The Fix Head is pushed onto the end plate of the prop until the integrated clip retention snaps into the locking position.

Not only assembly but also dismantling is uncomplicated: after lifting the clip retention, the Fix Head can easily be slid off the end plate.



The Fix Head DFH can be securely placed in different positions in the panel: it is used anywhere within a panel field, across the edges of two adjacent panels as well as in the joint area of four panels.

DUO Wall Holder

For horizontal anchoring of the slab formwork, the DUO Wall Holder must be mounted.

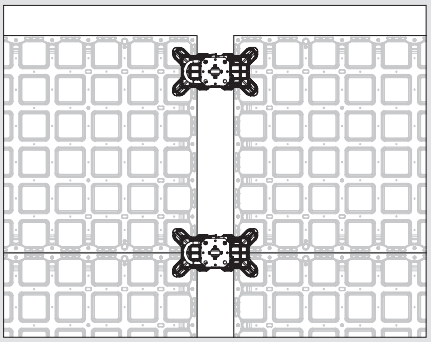
The Wall Holder is installed in both directions on every third panel and anchored to the wall.

Early striking through backpropping

Shuttering with the Backpropping Head

Using a Backpropping Head and 15 cm wide filler panels allows early striking. As a result, panels and connectors can be used at an early stage for other formwork tasks. Only the filler panels and props remain in place and provide the necessary slab support until full concrete strength has been reached.

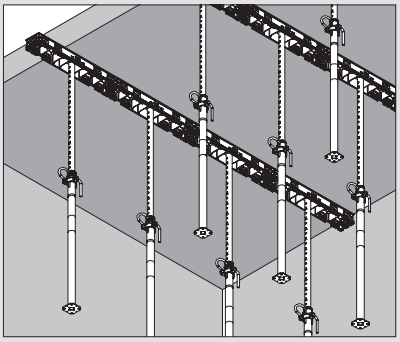
For backpropping the slab, a filler panel is placed between two panels, whereby the wider Backpropping Head DBH engages the adjacent panels. The Backpropping Head is always installed laterally to the main direction of the panel. It can be placed in any position just like the standard head.



Early striking with backpropping

During early striking, the filler panels provide direct support for the load transfer until the concrete has finally hardened.

For early striking, standard slab props are positioned in the center of the filler panels; then the connectors as well as the props with backpropping heads can be removed and used for the next cycle. The filler panels are not connected so that additional slab props and filler panels can be removed as the component strength increases.

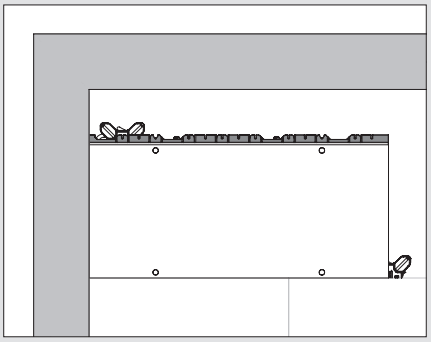


Geometrical adaptations in front of walls and columns under construction

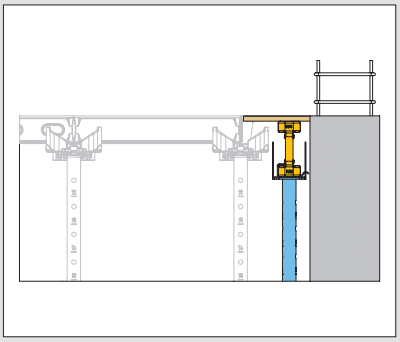
Wall compensations

Filler areas in front of rising walls can be closed with the DUO Filler Support and suitable plywood.

The slab areas are shuttered as far as possible with standard panels. All panels can also be installed transversely in order to minimize residual dimensions. A filler support is mounted on the last panel; in front of the wall under construction, a formwork girder on a slab prop serves as support for the filler plate.



The DUO Filler Support is fixed to the long side of the panel using two DUO Couplers before the panel is pushed upwards.

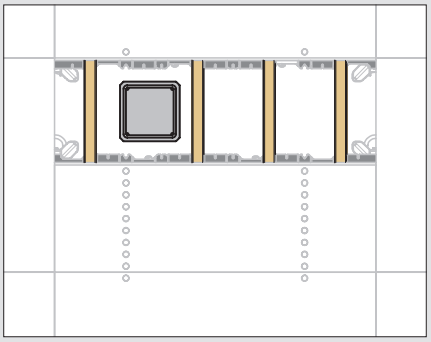


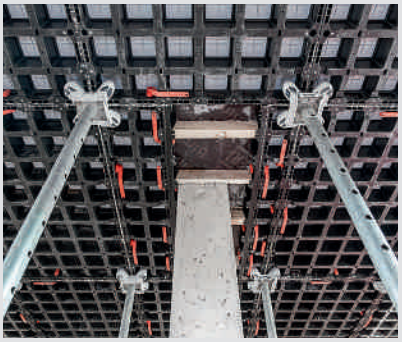
In front of the wall, a VT 20 or GT 24 formwork girder is used as a support for the filler plate. For positional stability, the formlining is nailed on.

Shuttering of columns

With rising columns, residual areas are closed by means of filler supports and cut-to-size plywood.

Two DUO Filler Supports on the adjacent panels and laterally positioned timbers provide support for the filler plates. These are to be cut according to the project-specific geometry.





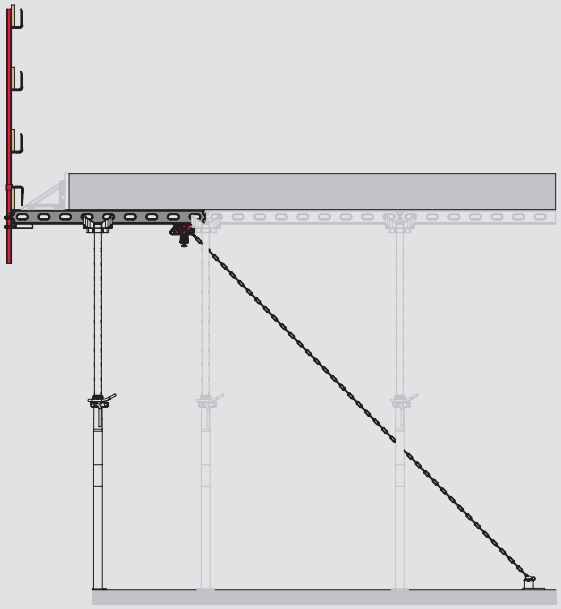
Execution of cantilevers as well as guardrails on slab edges

Cantilevers, guardrails on slab edges

With cantilevers, all horizontal loads must be transferred by means of bracing. The brace connector is used for connecting the corresponding chain to the panels.

For cantilevers, only 1.35 m long panels are to be used whereby the maximum cantilever is 60 cm. Every panel must be braced; the bracing must be installed before the panel is pushed upwards.

Slab guardrail holders and guardrail posts are also mounted before the panel is pushed upwards. After assembly, the guardrails are fitted with back guardrail boards. The guardrail posts are continuously mounted on the panels at spacings of 1.80 m.



For stopend formwork flush with the wall, the PERI Slab Stopend Bar 105 together with PERI Guardrail Posts provide a safe solution.

DUO in use

Reference projects with the universal formwork

The following pages feature project references which provide an overview of the different application areas of the PERI DUO universal formwork.

Since the first introduction of the new lightweight formwork, DUO has proved its advantages and versatility in numerous markets. Depending on the focus of the application or the user group, several of the advantages are the center of attention.

DUO in use

Reference projects with the universal formwork

Successful first use of the lightweight system formwork for the construction of shear walls.

"Formwork newcomers" from the gardening and landscaping sector use DUO for forming bulk material containers.

Aspen Residence,
George Town, Penang, Malaysia

On Penang, the Aspen Residence residential and commercial building featuring a total of 26 storeys was realized. While the construction team worked conventionally with timber and boards on the first thirteen storeys, the DUO lightweight formwork was used for the shear walls of the upper storeys. With horizontally and vertically arranged DUO panel extensions, up to 3.25 m high wall formwork units were mounted and used 4 to 5 times per storey.

Due to the simple formwork logic, the construction team could work very quickly with the new system and with only a minimum introductory period. Due to the low weight, no crane was required for assembly operations and moving the formwork. As a result, no time was lost waiting for the crane thus accelerating construction work. Furthermore, the reduced cleaning effort results in time savings: as the concrete hardly sticks to the formlining, it can be easily and quickly cleaned after every use.

The project manager summed up the fact that compared to the use of conventional timber formwork, around 50 % working time was saved – and this with very little training requirements.

Schlieper Kamp bulk materials storage,
Wipperfürth-Niederklüppelberg, Germany

The universal DUO lightweight formwork is also suitable for applications such as gardening and landscaping. Here, conventional forming operations using timber for small-scale applications are replaced by long-lasting and easy-to-use system formwork.

As part of a new storage facility and office building, a garden and landscaping company built a number of covered bulk material containers using DUO universal formwork. On a length of 22.50 m, a total of five containers were realized for the storage of up to 400 t of bulk materials whereby the ground plan of each container measures 7.00 m by 4.30 m. In addition, the formwork was used to construct the foundations and walls of the adjacent office building.

The garden and landscaping company decided in favour of purchasing the DUO formwork system in order to be able to carry out concreting work for single, secondary components themselves. Due to the lightweight elements, DUO is a real one-man formwork and can be easily handled without the use of a crane; furthermore, it ideally fulfills the requirements for small-scale applications in gardening and landscaping.

Increased efficiency with optimized team capacity.

Reduced cleaning and post-treatment effort.

Applications in infrastructure construction, Pilbara Region, Australia

The Monford Group used PERI DUO for a wide range of tasks as part of a very large infrastructure project. In western Australia, the contractor constructed, among other things, numerous shaft walls, sewers and bottom slabs using the lightweight formwork. A big advantage of the system for these applications is its low weight thus making both crane and scaffolding unnecessary.

Due to the simple assembly logic of the system, even less experienced users were quickly able to carry out forming operations with DUO. Therefore, the trained formwork craftsmen of the Monford Group could focus on those areas where more complex forms had to be carpentered by hand. This resulted in further cost savings for the construction project.

According to the managing director of the contractor, the advantages of the universal formwork were obvious: the low weight reduced crane costs and the risk of injury to the users while the easy and simple assembly led to increased all-round efficiency thus ensuring better results throughout construction.

Choa Chu Kang Grove, Singapore

A new residential quarter with several multi-storey buildings was realized in the western area of Singapore. In total, contractor TiongSeng erected 13 apartment buildings with luxurious condominiums featuring 20 to 25 storeys per building.

DUO was used for the pier heads of the substructure and for the walls of the rising structures. The lightweight panels are ideally suited for small-sized concrete elements with low requirements on the surfaces. The panels could easily be moved by hand and also cleaned very quickly before each subsequent application.

DUO in use

Reference projects with the universal formwork

Easy to mount and move manually.

Low weight, small-format formwork elements – DUO showed off these advantages to the full with these basement walls.

Los Ramones II Pipeline,
San Luis Potosi, Mexico

The reinforced concrete frame columns of this control station for a gas pipeline were formed using the DUO lightweight formwork. 45 quadratic columns, each 4.00 m high with edge lengths of 40 cm and 50 cm were constructed. The construction team mounted five sets of formwork each with 4 DUO Multi Panels DMP 75 – connected by means of DUO Corner Connectors. A circumferential PERI UP working scaffold with ladder access ensured safe working conditions.

Before starting work, the construction team was trained by a PERI supervisor. The training comprised an instruction in forming, cleaning and storage as well as safe working procedures. Thus, working efficiency with the new system formwork was extremely high right from the start. "Especially the low weight of the panels is of great benefit on the jobsite as work carried out by hand saves crane times and accelerates construction progress", project manager Ismael Gomez explained after the work had been completed.

Tonson Park View,
Bangkok, Thailand

The so-called Tonson Park View was realized as part of an important housing project with a total of four towers. After completion, the building will offer luxurious apartments on a total of 17 floors. In addition, the high rise structure includes two basement storeys. As is customary in Bangkok, the excavation pit was enclosed with sheet piling. During the formwork planning phase for the walls and columns in the basement, the contractor was confronted with a very restricted working area due to the shoring. In addition, the use of a crane was difficult due to the steel struts used for bracing the retaining wall. DUO was therefore the optimal solution to meet these challenges – in particular due to the low weight and modularity of the formwork system. Subsequently, the construction site team then decided to use the new lightweight formwork for the upper floors as well where shear walls with heights of up to 4.00 m were also to be constructed.

Contractor, Thai Obayashi, assessed the quality of the concrete surfaces achieved with DUO extremely positively. This was not in the focus of the construction project – but in this case it was a beneficial result.

Modifications and extensions without the use of a crane – best solved with DUO.

Fast shuttering and striking in India.

Alteration of Villa Thuja, Boppelsen, Switzerland

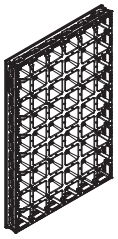
The listed Villa Thuja building in Boppelsen, situated north-west of Zurich, was recently structurally altered; in addition, this historically important structure received an extension. One of the essential requirements the contractor had to accommodate was to carry out all work without a crane – both outside and inside the building. PERI developed a solution based on the lightweight DUO system formwork which was used for forming both the walls and slabs. Due to the small-sized formats and low weights, the panels were very easy to handle which offered great advantages especially regarding the work required inside the villa. As a further benefit, the contractor emphasized that the formwork system includes only a minimum of small components which further simplified the logistics and handling. In some areas, single-sided concreting operations had to take place; here, PERI's Swiss engineers developed a corresponding horizontal support solution.

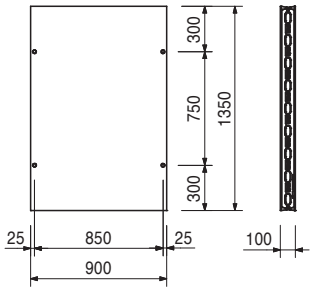
PDPU Hostel, Gujarat, India

"DUO helped us a lot to speed up formwork operations. Not only because the system components are very light but also because it was extremely easy for our construction team to understand and learn how to handle the system", explained the site manager after the building of a new hostel in the north-west of India had been completed. Here, a new hostel was built on the premises of the Pandit Deendayaal Petroleum University – one of the most important universities in the west of India.

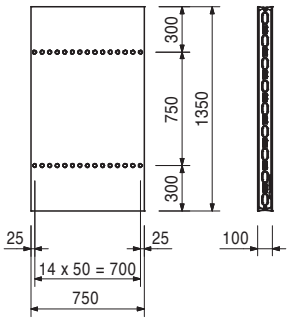
For the nearly 2.90 m high walls, a 25 cm high base was initially concreted with horizontally arranged DUO panels. For the second concreting section, the construction team created an extension with 2 vertically-arranged panels.

Item no.	Weight kg	
128280	24.900	**Panel DP 135 x 90** Panel with 5 mm formlining.

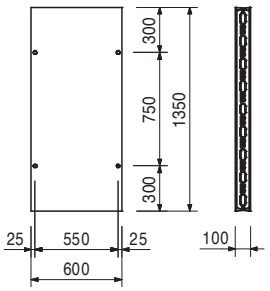




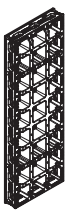
128281	22.900	**Multi Panel DMP 135 x 75** Panel with 5 mm formlining. Also for columns, stopends etc. **Complete with** 26 pc. 128274 Plug Ø 20 mm DUO

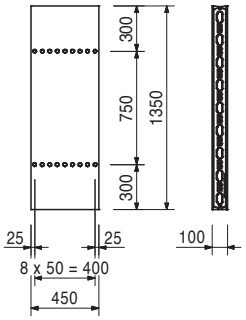


128282	17.100	**Panel DP 135 x 60** Panel with 5 mm formlining.

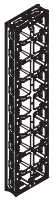


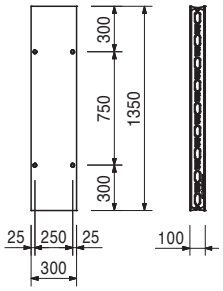
128283	14.200	**Multi Panel DMP 135 x 45** Panel with 5 mm formlining. Also for columns, stopends etc. **Complete with** 14 pc. 128274 Plug Ø 20 mm DUO



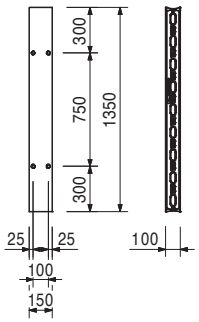


Item no.	Weight kg	
128284	9.370	**Panel DP 135 x 30** Panel with 5 mm formlining.

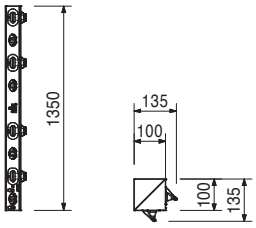




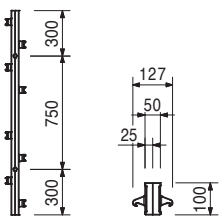
128285	5.270	**Panel DP 135 x 15** Panel with 5 mm formlining.



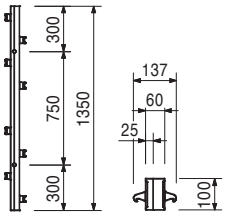
128286	5.110	**Corner DC 135 x 10** For 90° internal and external corners.



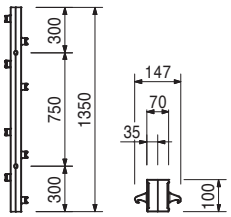
128287	2.850	**Wall Thickness Comp. DWC 135 x 5** For adjusting to wall thicknesses.



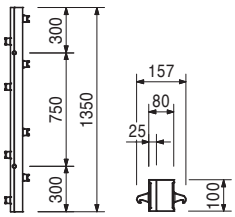
Item no.	Weight kg	
128288	3.120	**Wall Thickness Comp. DWC 135 x 6** For adjusting to wall thicknesses.



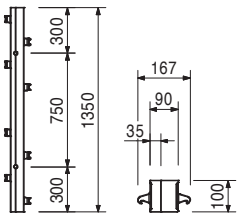
128289	3.390	**Wall Thickness Comp. DWC 135 x 7** For adjusting to wall thicknesses.



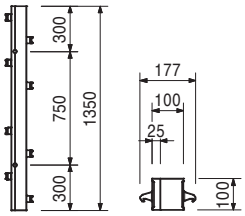
128290	3.640	**Wall Thickness Comp. DWC 135 x 8** For adjusting to wall thicknesses.



128291	3.900	**Wall Thickness Comp. DWC 135 x 9** For adjusting to wall thicknesses.

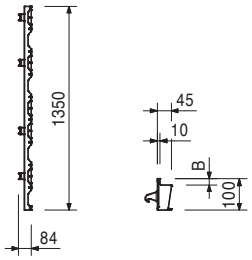


Item no.	Weight kg	
128292	4.150	**Wall Thickness Comp. DWC 135 x 10** For adjusting to wall thicknesses.

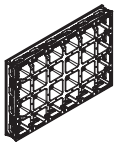


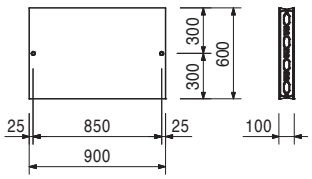
			B
		Filler Supports DFS 135	
128245	1.390	**Filler Support 18 DFS 135**	18
128246	1.510	**Filler Support 15 DFS 135**	15
129979	1.430	**Filler Support 12 DFS 135**	12

For compensations from 9 cm to 25 cm with 12 mm, 15 mm or 18 mm filler plates.

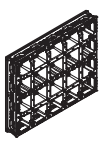


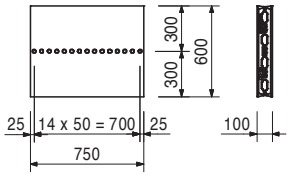
129837	11.900	**Panel DP 60 x 90** Panel with 5 mm formlining.



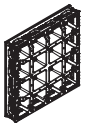


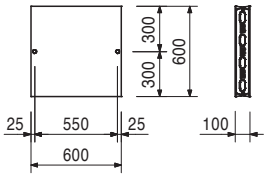
129838	10.800	**Multi Panel DMP 60 x 75** Panel with 5 mm formlining. Also for columns, stopends etc.	**Complete with** 13 pc. 128274 Plug Ø 20 mm DUO



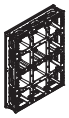


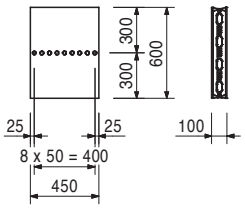
Item no.	Weight kg	
129839	8.160	**Panel DP 60 x 60** Panel with 5 mm formlining.



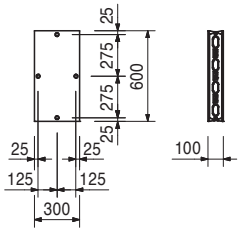


129840	6.690	**Multi Panel DMP 60 x 45** Panel with 5 mm formlining. Also for columns, stopends etc. **Complete with** 7 pc. 128274 Plug Ø 20 mm DUO

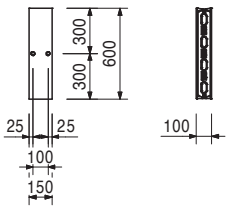




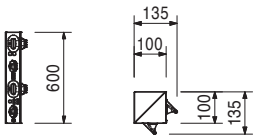
129841	4.500	**Panel DP 60 x 30** Panel with 5 mm formlining.



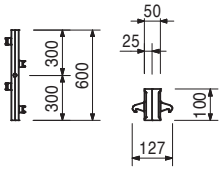
129842	2.430	**Panel DP 60 x 15** Panel with 5 mm formlining.



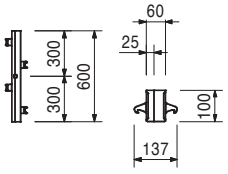
Item no.	Weight kg	
129864	2.300	**Corner DC 60 x 10** For 90° internal and external corners.



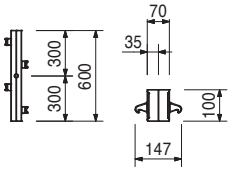
129879	1.310	**Wall Thickness Comp. DWC 60 x 5** For adjusting to wall thicknesses.



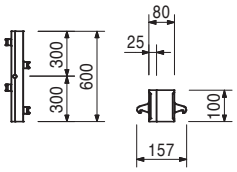
129880	1.430	**Wall Thickness Comp. DWC 60 x 6** For adjusting to wall thicknesses.



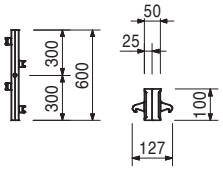
129881	1.560	**Wall Thickness Comp. DWC 60 x 7** For adjusting to wall thicknesses.



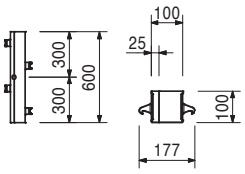
129882	1.680	**Wall Thickness Comp. DWC 60 x 8** For adjusting to wall thicknesses.



129883	1.800	**Wall Thickness Comp. DWC 60 x 9** For adjusting to wall thicknesses.

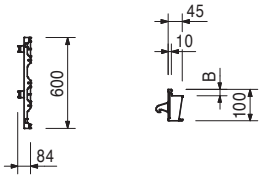


Item no.	Weight kg		
129884	1.920	**Wall Thickness Comp. DWC 60 x 10** For adjusting to wall thicknesses.	

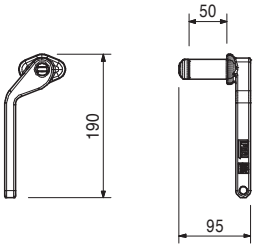


			B
		Filler Supports DFS 60	
129889	0.641	**Filler Support 18 DFS 60**	18
129890	0.694	**Filler Support 15 DFS 60**	15
129980	0.658	**Filler Support 12 DFS 60**	12

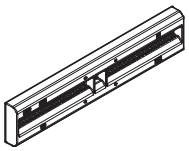
For compensations from 9 cm to 25 cm with 12 mm, 15 mm or 18 mm filler plates.

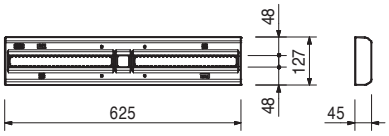


128247	0.160	**Coupler DUO** For all connections of panels, corners and compensations for DUO.



128255	2.380	**Compensation Waler DUO 62** For longitudinal compensation, height extensions and stopends with DUO. Maximum compensation width 25 mm.

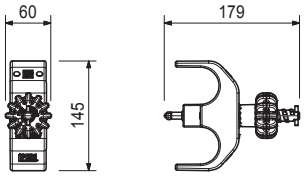




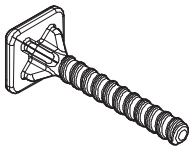
Accessories

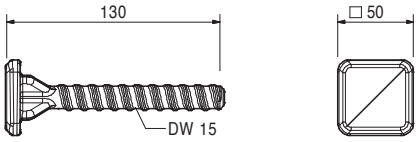
128293	0.502	**Tube Holder DUO**
128256	0.082	**Coupling Tie DUO**

Item no.	Weight kg	
128293	0.502	**Tube Holder DUO** For fixing Compensation Waler DUO 62 and Scaffold Tubes Ø 48 mm.



128256	0.082	**Coupling Tie DUO** For connecting timber compensations up to 5 cm and for fixing Compensation Waler DUO 62 as stopend.

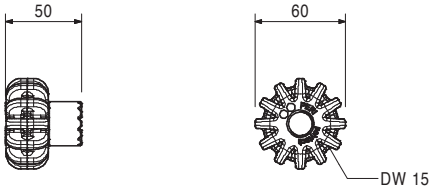




Accessories

128254	0.076	**Grip DW 15 DUO**
030110	0.799	**Wingnut Counterplate DW 15, galv.**

128254	0.076	**Grip DW 15 DUO** Accessory for Coupling Tie DUO.

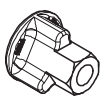


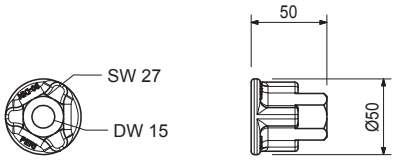
Accessories

128256	0.082	**Coupling Tie DUO**

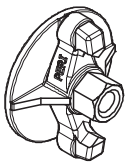
030130	0.318	**Cam Nut DW 15, galv.** For anchoring with Tie Rod DW 15 and B 15.

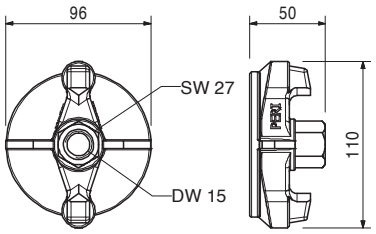
Technical Data
Permissible load 90 kN.



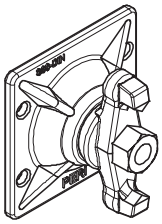


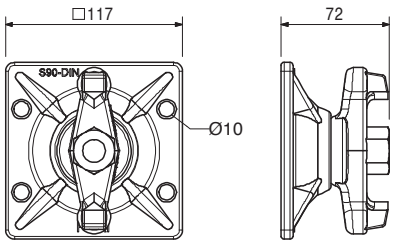
Item no.	Weight kg		
030110	0.799	**Wingnut Counterplate DW 15, galv.** For anchoring with Tie Rod DW 15 and B 15.	**Technical Data** Permissible load 90 kN.



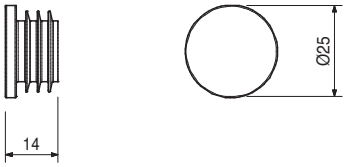


030370	1.660	**Wingnut Pivot Plate DW 15, galv.** For anchoring with Tie Rod DW 15 and B 15. With pivoting captive nut. Maximum angle of tilting 8°.	**Note** Wrench size SW 27. **Technical Data** Permissible load 90 kN.

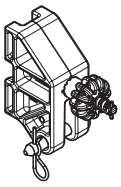


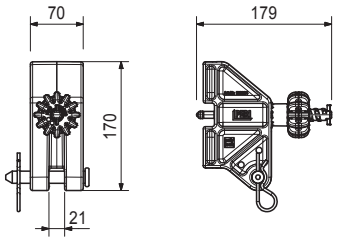


128274	0.002	**Plug Ø 20 mm DUO** For closing Ø 20 mm tie holes which are not required.	**Note** Delivery unit of 250 pieces.

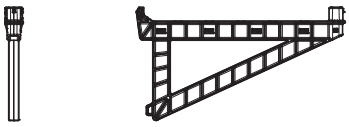


128294	0.984	**Brace Connector DUO** For connecting push-pull props and kicker braces to DUO Panels.	**Complete with** 1 pc. 018050 Pin Ø 16 x 65/86, galv. 1 pc. 018060 Cotter Pin 4/1, galv.





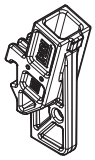
Item no.	Weight kg		
128257	3.560	**Scaffold Bracket DUO 70** For assembling a working and concreting scaffold with DUO.	**Technical Data** Permissible load 150 kg/m² with maximum width of influence 1.8 m.

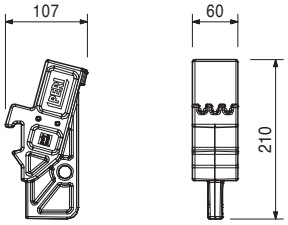


Accessories

117325	4.270	**Post PP**

128297	0.500	**Guardrail Post Holder DUO** Accessory for Brace Connector DUO. For assembling a guardrail on the DUO panel edge profile.	**Complete with** 1 pc. 018050 Pin Ø 16 x 65/86, galv. 1 pc. 018060 Cotter Pin 4/1, galv.

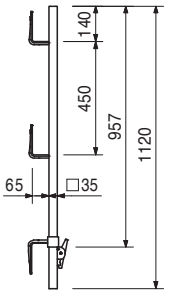




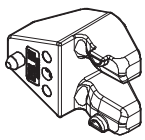
Accessories

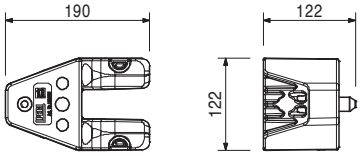
117325	4.270	**Post PP**
128294	0.984	**Brace Connector DUO**

117325	4.270	**Post PP** For the fixation of the Side-Mesh-Barriers.	**Technical Data** Maximum distance of posts with Side-Mesh-Barrier: PMB 260 max. 2.40 m.



128295	1.040	**Corner Connector DUO** For corner connection with columns and wall offsets.	

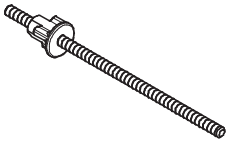


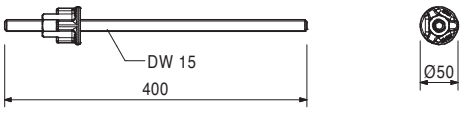


Accessories

128265	0.871	**Corner Tie DUO**
030110	0.799	**Wingnut Counterplate DW 15, galv.**

Item no.	Weight kg	
128265	0.871	**Corner Tie DUO**



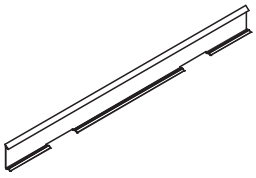


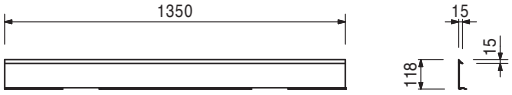
Accessories

128295	1.040	**Corner Connector DUO**
030110	0.799	**Wingnut Counterplate DW 15, galv.**

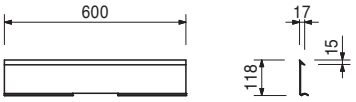
128260	0.642	**Chamfer Strip DUO, l = 1.35 m**

For DUO Column.
Edge length 15 x 15 mm.



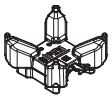


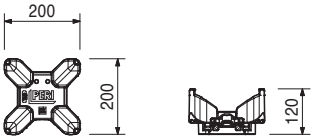
129557	0.284	**Champfer Strip DUO, l = 0.60 m**



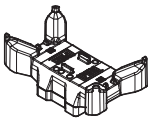
128298	0.909	**Fix Head DFH**

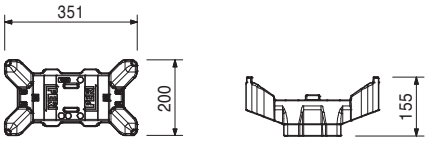
With clip retention. Supports DUO Panels as slab formwork.



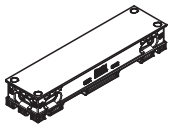


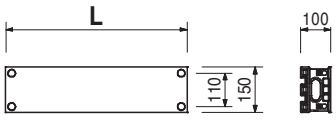
129862	1.590	**Back Propping Head DBH**



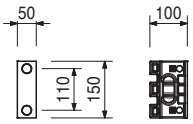


Item no.	Weight kg	Filler Panels DFP	L
129855	2.930	**Filler Panel DFP 15 x 90**	90
129856	2.470	**Filler Panel DFP 15 x 75**	75
129857	1.940	**Filler Panel DFP 15 x 60**	60
129858	1.470	**Filler Panel DFP 15 x 45**	45
129859	0.638	**Filler Panel DFP 15 x 15**	15
129860	0.544	**Filler Panel DFP 15 x 10**	10

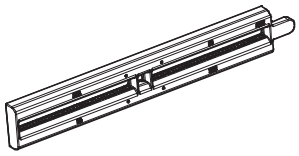


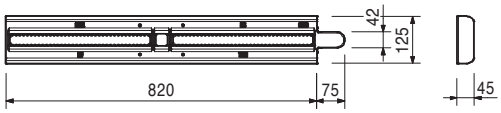


129861	0.402	**Filler Panel DFP 15 x 5**



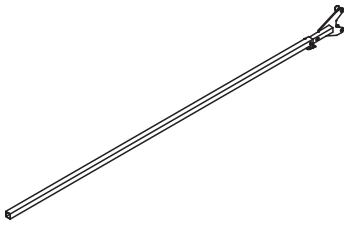
128263	2.950	**Wall Holder DUO 82** For horizontal anchoring on the wall. Attach to every third DUO Panel as slab formwork.

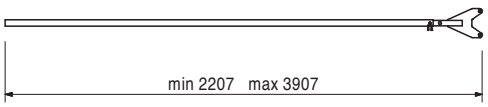




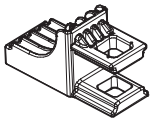
128299	2.400	**Shuttering Aid DUO** For forming of DUO Slabs.

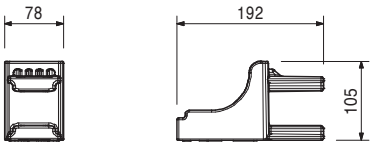
Technical Data
Adjustable in 7.5 cm increments.





Item no.	Weight kg	
128264	0.457	**Slab Guardrail Holder DUO** For assembling a guardrail on DUO Panels as slab formwork.

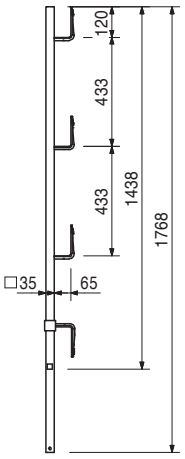




Accessories

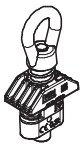
061260	6.150	**Guardrail Post SGP**

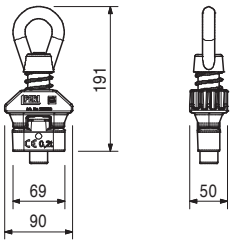
061260	6.150	**Guardrail Post SGP** As guardrail for different systems.



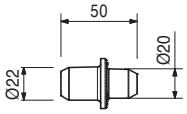
128296	0.948	**Crane Eye DUO** For transporting DUO Panels.

Note
Follow Instructions for Use!
Technical Data
Permissible load-bearing capacity 200 kg.

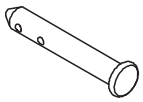


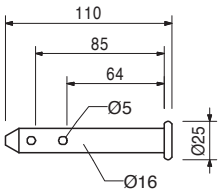


128275	0.011	**Stacking Aid DUO** Prevents panels sliding and protects the formlining against damage.



Item no.	Weight kg	
018050	0.171	**Pin Ø 16 x 65/86, galv.** For different connections.





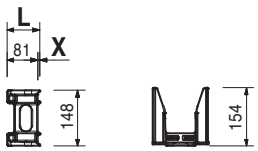
Accessories

018060	0.014	**Cotter Pin 4/1, galv.**

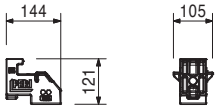
018060	0.014	**Cotter Pin 4/1, galv.**

			L	X
		Extension Suports DES		
129809	0.387	**Extension Support DES 12**	87	6
129810	0.378	**Extension Support DES 15**	84	3
129811	0.369	**Extension Support DES 18**	81	0

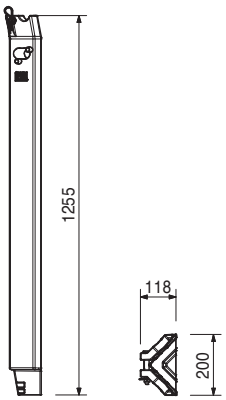
Extensions with filler plywood.



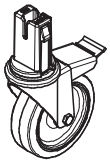
129976	0.567	**Frame Holder DUO** For fixing panels on the ground and for grid-independent anchoring outside of the panel, especially for foundations and height extensions.

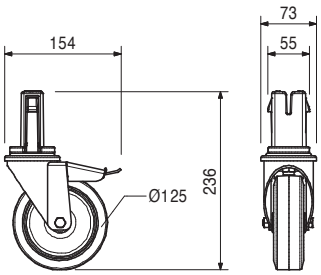


Item no.	Weight kg	
128302	3.710	**Stacking Device DUO**

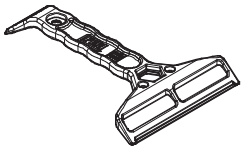


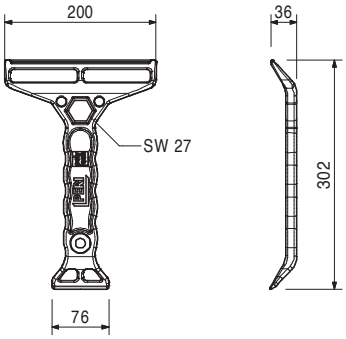
128276	1.240	**Stacking Device Wheel DUO**



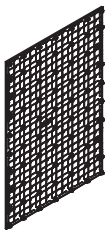


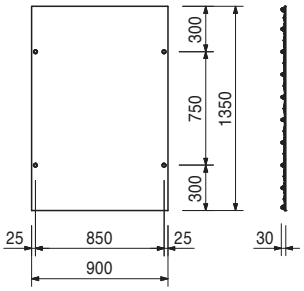
128278	0.372	**Cleaning Device DUO** For cleaning DUO formlining and panel edge profiles or tighten wingnut plates.



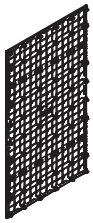


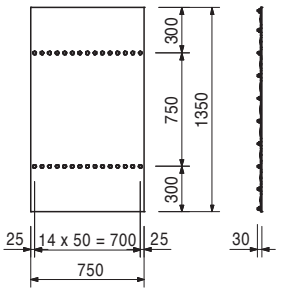
Item no.	Weight kg	
128228	7.120	**Formlining DP 135 x 90** 5 mm formlining for replacement.



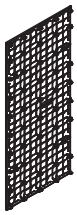


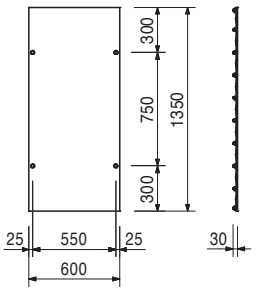
128229	6.040	**Multi Formlining DMP 135 x 75** 5 mm formlining for replacement.



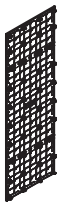


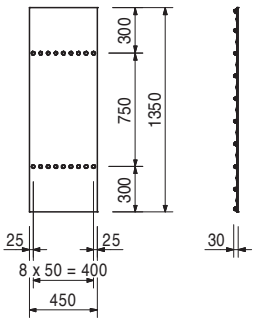
128230	4.870	**Formlining DP 135 x 60** 5 mm formlining for replacement.



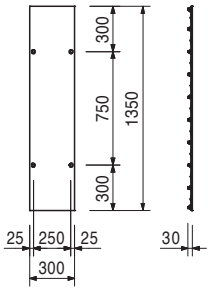


128231	3.580	**Multi Formlining DMP 135 x 45** 5 mm formlining for replacement.

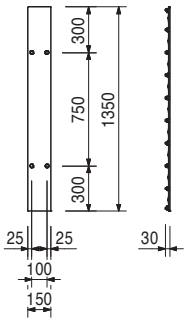




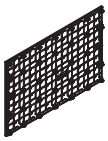
Item no.	Weight kg	
128232	2.460	**Formlining DP 135 x 30** 5 mm formlining for replacement.

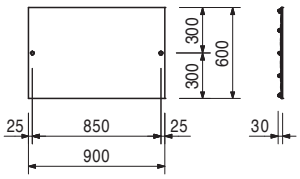


128233	1.250	**Formlining DP 135 x 15** 5 mm formlining for replacement.

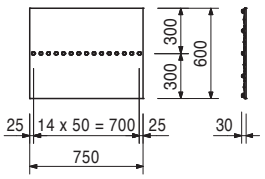


129843	3.300	**Formlining DP 60 x 90** 5 mm formlining for replacement.

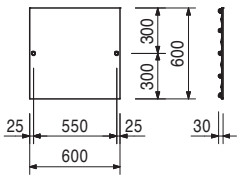




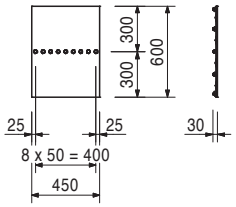
129844	2.700	**Multi Formlining DMP 60 x 75** 5 mm formlining for replacement.



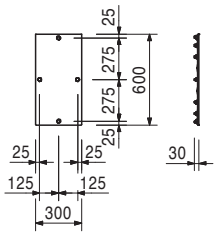
129845	2.180	**Formlining DP 60 x 60** 5 mm formlining for replacement.



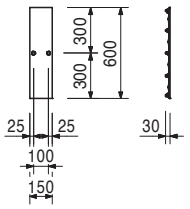
Item no.	Weight kg	
129846	1.600	**Multi Formlining DMP 60 x 45** 5 mm formlining for replacement.



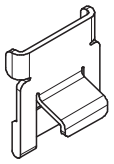
129847	1.090	**Formlining DP 60 x 30** 5 mm formlining for replacement.

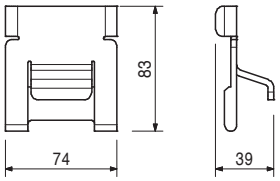


129848	0.562	**Formlining DP 60 x 15** 5 mm formlining for replacement.

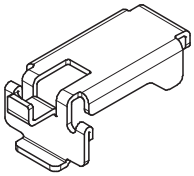


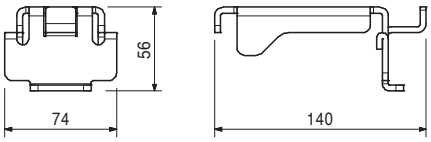
131182	0.241	**LIWA Adapter DUO** For connecting Articulated Corner LIWA.



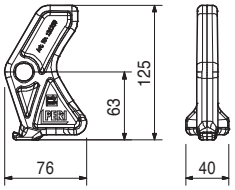


Item no.	Weight kg	
131241	0.395	**DOMINO Adapter DUO** For connecting Articulated Corner DOMINO.





131239	0.124	**Foundation Tie Clamp DUO** Accessory for Brace Connector DUO. For anchoring foundation formwork in combination with perforated foundation tie.

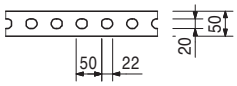


Accessories

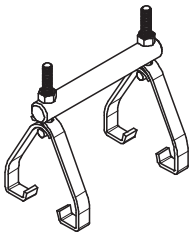
128294	0.984	**Brace Connector DUO**

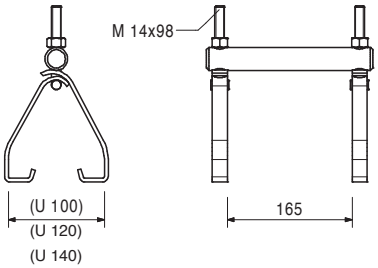
023020	0.676	**Perforated Foundation Tie, 25 m** For use with Foundation Tie Clamp TRIO, DOMINO, LIWA and HANDSET.

Technical Data
Permissible tension force 12.9 kN.

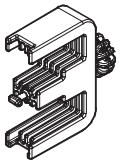


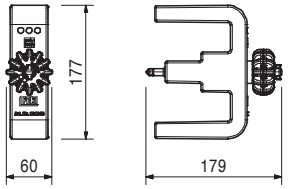
131225	2.080	**Hook Strap SB DUO** For the fixation of Brace Frame SB to Compensation Waler DUO 62.



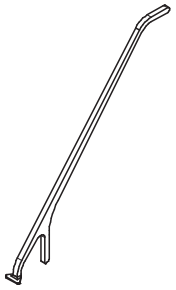


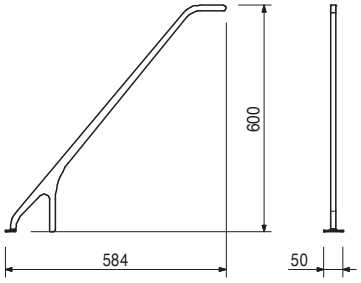
Item no.	Weight kg	
131245	0.738	**Timber Connector DUO** For the fixation of Timbers 2x4" (nominal 1-1/2"x3-1/2 real) and Metal Profiles 50 x 50 mm.





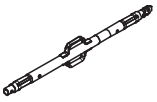
128642	2.200	**Stripping Aid DUO**

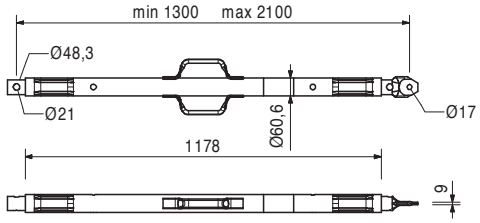




117466	10.600	**Push-Pull Prop RS 210, galv.** Extension length l = 1.30 – 2.10 m. For aligning PERI Formwork Systems and precast concrete elements.

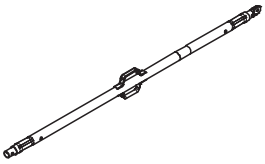
Note
Permissible load see PERI Design Tables.

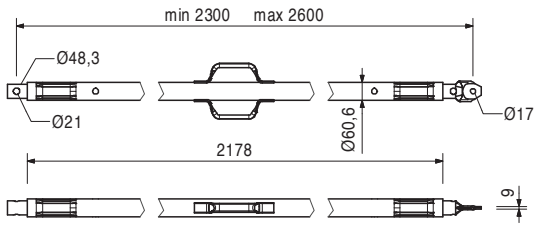




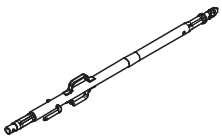
118238	12.100	**Push-Pull Prop RS 260, galv.** Extension length l = 2.30 – 2.60 m. For aligning PERI Formwork Systems and precast concrete elements.

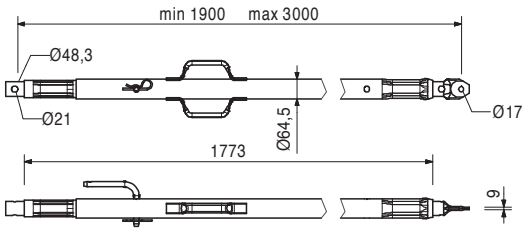
Note
Permissible load see PERI Design Tables.



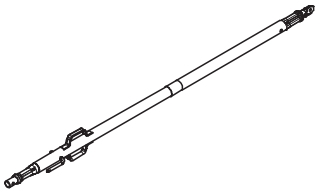


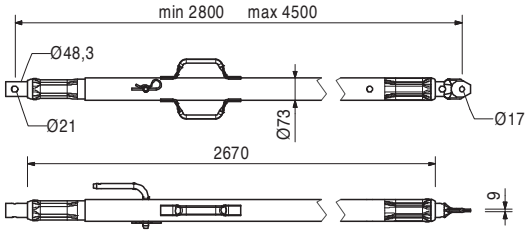
Item no.	Weight kg		
117467	15.500	**Push-Pull Prop RS 300, galv.** Extension length l = 1.90 – 3.00 m. For aligning PERI Formwork Systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.



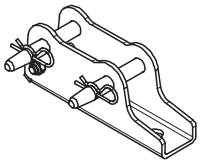


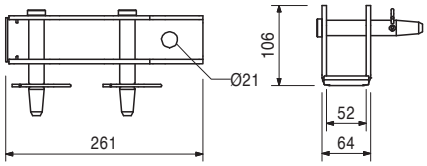
117468	23.000	**Push-Pull Prop RS 450, galv.** Extension length l = 2.80 – 4.50 m. For aligning PERI Formwork Systems and precast concrete elements.	**Note** Permissible load see PERI Design Tables.





117343	3.250	**Base Plate-2 for RS 210 - 1400, galv.** For assembly of Push-Pull Props RS 210, 260, 300, 450, 650, 1000 and 1400.	**Complete with** 2 pc. 105400 Pin Ø 20 x 140, galv. 2 pc. 018060 Cotter Pin 4/1, galv.

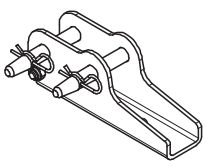


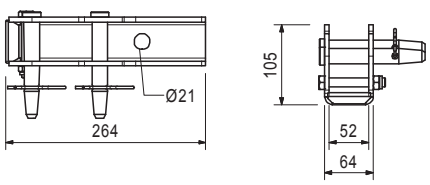


Accessories

124777	0.210	**Anchor Bolt PERI 14/20 x 130**

126666	3.070	**Base Plate-3 for RS 210 - 1400** For assembly of Push-Pull Props RS 210, 260, 300, 450, 650, 1000 and 1400.	**Complete with** 2 pc. 105400 Pin Ø 20 x 140, galv. 2 pc. 018060 Cotter Pin 4/1, galv. 1 pc. 113063 Bolt ISO 4014 M12 x 80-8.8, galv. 1 pc. 113064 Hex Nut ISO7042-M12-8-G, galv.

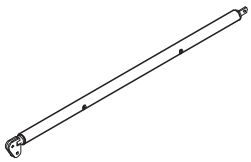


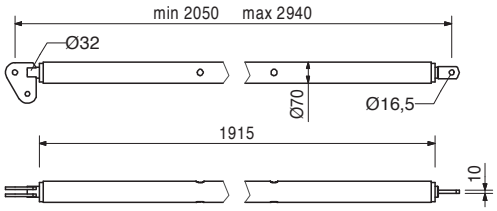


Accessories

124777	0.210	**Anchor Bolt PERI 14/20 x 130**

Item no.	Weight kg		
028010	17.900	**Push-Pull Prop RSS I** Extension length l = 2.05 – 2.94 m. For aligning PERI Formwork Systems.	**Note** Permissible load see PERI Design Tables.

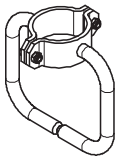


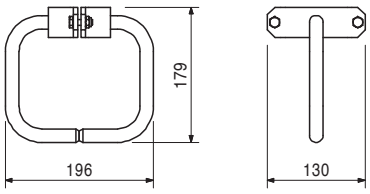


Accessories

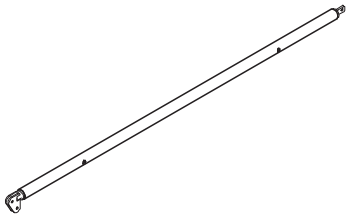
113397	1.600	**Spindle Handle RSS / AV**

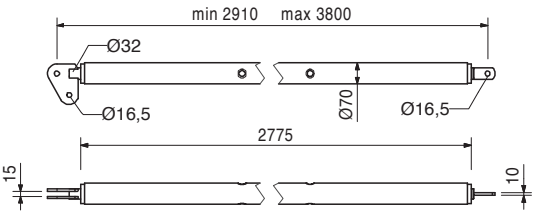
113397	1.600	**Spindle Handle RSS / AV** Spindle handle for screwing on Push-Pull-Props RSS I, RSS II and Kickers AV 210 and AV RSS III.	**Complete with** 2 pc. 722342 Screw ISO 4017 M8 x 25-8.8, galv. 2 pc. 711071 Nut ISO 7042 M8-8, galv.





028020	22.000	**Push-Pull Prop RSS II** Extension length l = 2.91 – 3.80 m. For aligning PERI Formwork Systems.	**Note** Permissible load see PERI Design Tables.

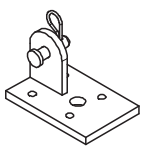


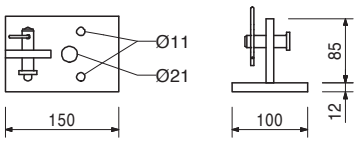


Accessories

113397	1.600	**Spindle Handle RSS / AV**

106000	1.820	**Base Plate-2 for RSS, galv.** For assembly of Push-Pull Props RSS.	**Complete with** 1 pc. 027170 Pin Ø 16 x 42, galv. 1 pc. 018060 Cotter Pin 4/1, galv.





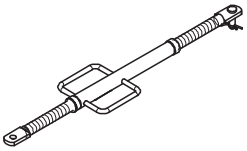
Accessories

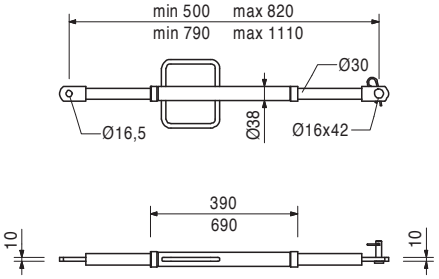
124777	0.210	**Anchor Bolt PERI 14/20 x 130**

Item no.	Weight kg		min. L	max. L
		Kickers AV		
057087	3.510	**Kicker AV 82**	500	820
057088	4.200	**Kicker AV 111**	790	1110

For aligning PERI Formwork Systems.

Complete with
1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.
Note
Permissible load see PERI Design Tables.

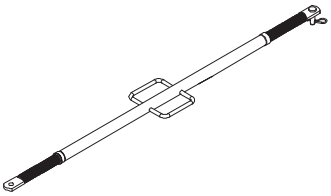


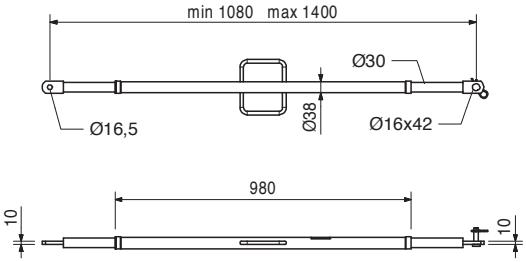


028110	4.850	**Kicker AV 140**

Extension length l = 1.08 – 1.40 m.
For aligning PERI Formwork Systems.

Complete with
1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.
Note
Permissible load see PERI Design Tables.

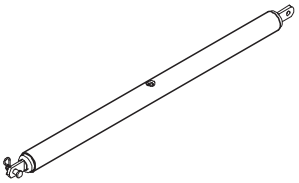


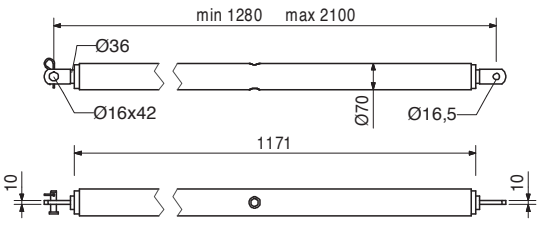


108135	12.900	**Kicker AV 210**

Extension length l = 1.28 – 2.10 m.
For aligning PERI Formwork Systems.

Complete with
1 pc. 027170 Pin Ø 16 x 42, galv.
1 pc. 018060 Cotter Pin 4/1, galv.
Note
Permissible load see PERI Design Tables.



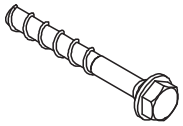


Accessories

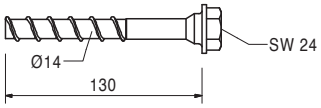
113397	1.600	**Spindle Handle RSS / AV**

Item no.	Weight kg
124777	0.210

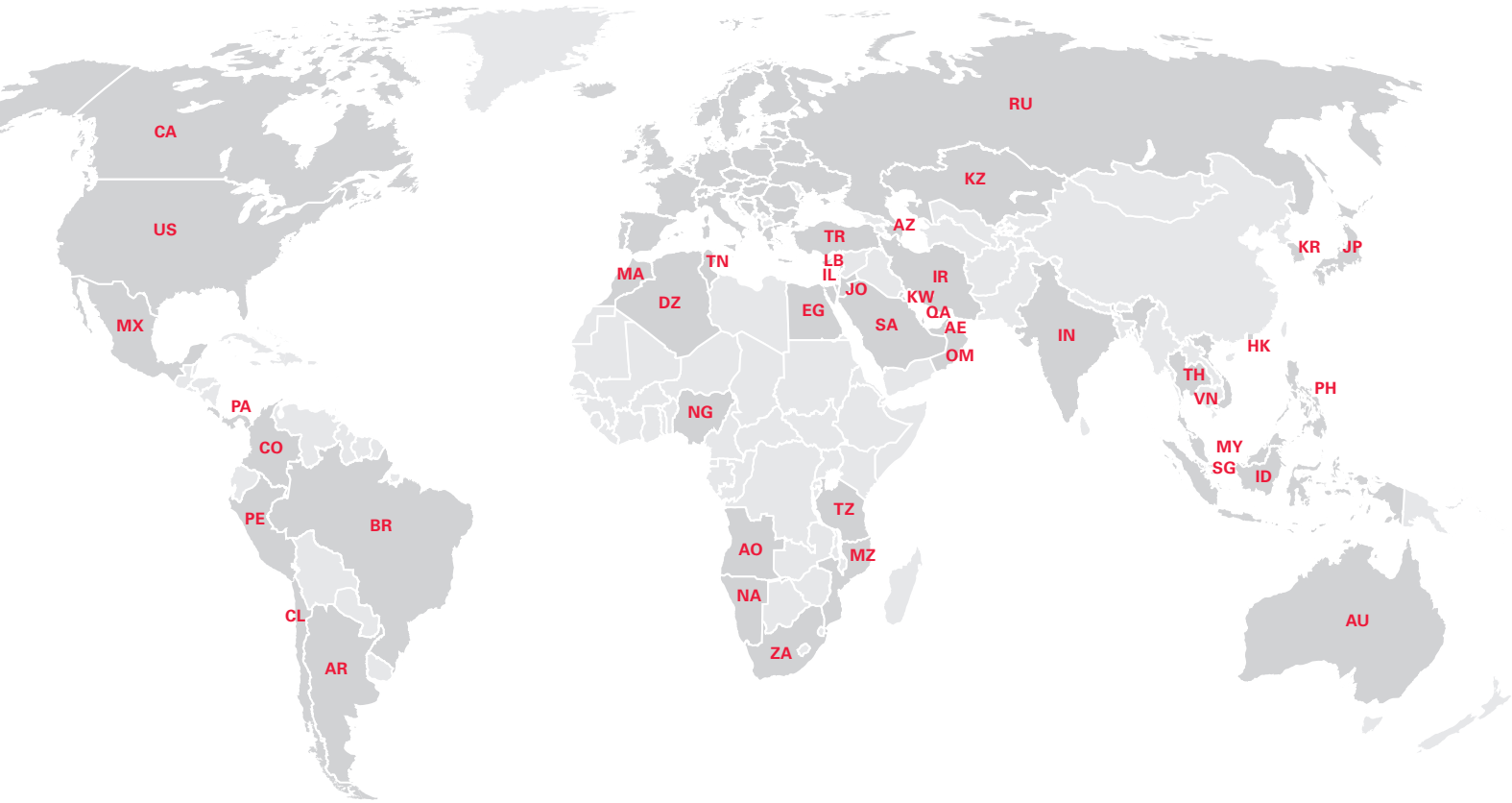
Anchor Bolt PERI 14/20 x 130
For temporary fixation to reinforced concrete structures.



Note
See PERI Data Sheet!
Drilling Ø 14 mm.



PERI International



North America

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www.peri.ca

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PERI Cimbras y Andamios, S.A. de C.V.
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