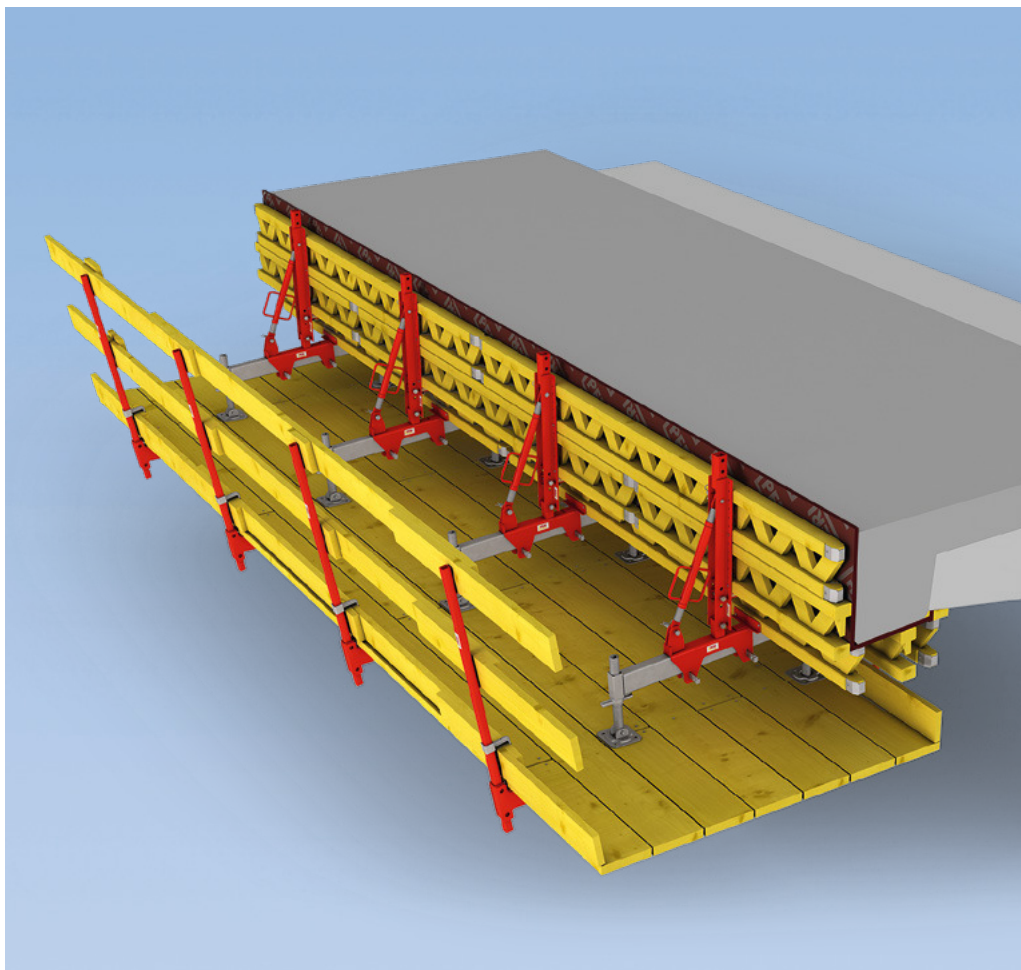


VARIOKIT Cantilevered Parapet Systems

System solutions for new construction and refurbishment projects

Product Brochure – Issue 10/2022



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PERI SE
Formwork Scaffolding Engineering
Rudolf-Diesel-Strasse 19
89264 Weissenhorn
Germany
info@peri.com
www.peri.com

PERI Civil Engineering Solutions

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Important Information

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

The images shown in this brochure feature construction sites in progress. For this reason, safety and anchor details in particular cannot always be considered 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. To ensure 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 still 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.



VARIOKIT system solutions

Cost-effective construction and refurbishment of cantilevered parapets

Depending on the geometry of the parapet, bridge length and type of bridge, different methods are used to construct cantilevered parapets cast in-situ. For this, PERI provides complete system solutions.

Cantilevered parapets - also known as bridge parapets - form the side closure of a bridge. They have no direct static function. Their main task, in addition to protecting the bridge sealing, is guaranteeing a visually attractive lateral closure.

Parapets thus compensate for any building tolerances that have arisen during the construction phase. In addition, they serve as a walkway and for mounting the bridge railings.



VVK Cantilevered Parapet Bracket

The easy-to-handle lightweight for bridges up to 200 m long



VGB Cantilevered Parapet Track

The mobile solution installed below for bridges over 150 m long



VGW Cantilevered Parapet Carriage

The movable, anchorless solution for bridges over 150 m long

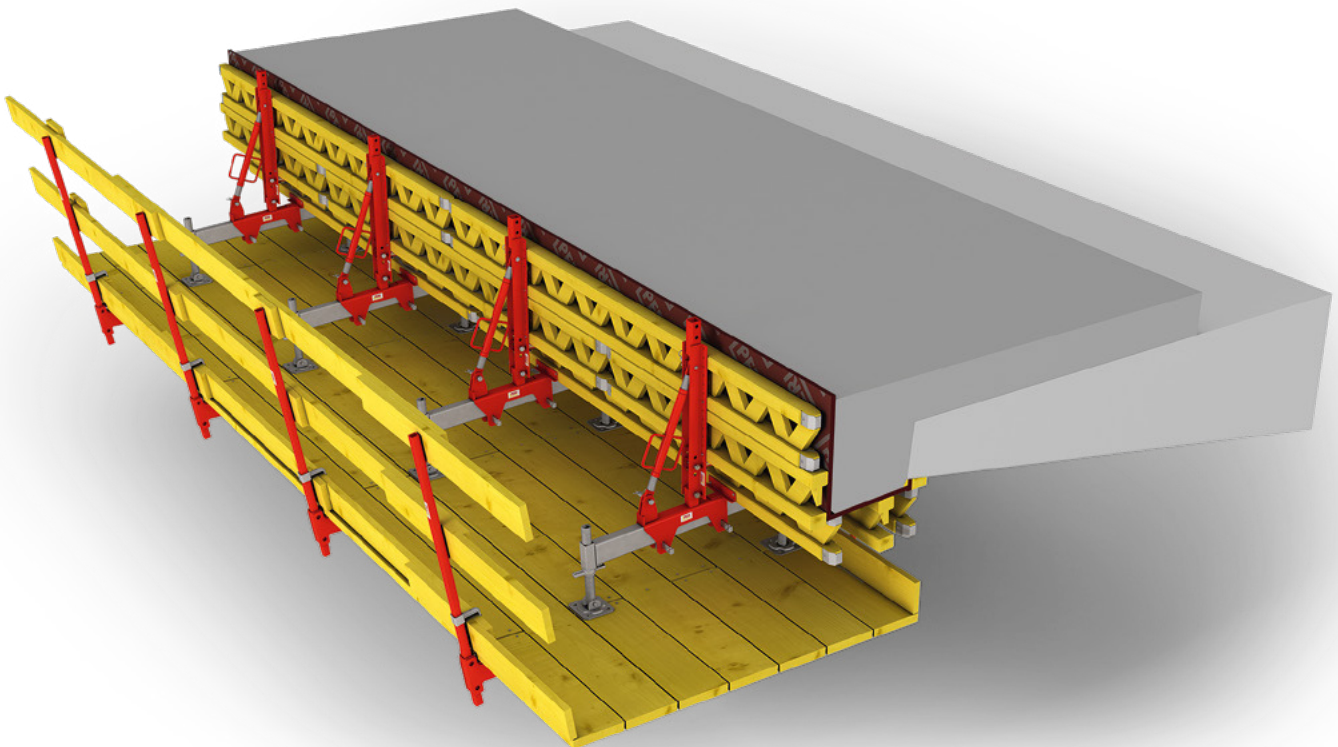
VGK system advantages and detailed solutions

The versatile parapet solution for new construction and refurbishment

For short bridge superstructures up to 200 m long, the VGK Cantilevered Parapet Bracket is a safe, economical and efficient solution for new construction and refurbishment projects.

Lightweight, hand-mounted system components facilitate easy operation and efficient work procedures. The design with its separate platform and formwork unit features a penetration-free deck and provides the best possible protection for the flow of traffic below.

The VGK can also be used as a pre-assembled platform unit, which further increases its efficiency and safety. The VGK is anchored to the underside of the bridge. As a result, it does not disrupt work operations on the upper side of the superstructure at any time. The VGK can also be designed with a full enclosure.



Safety and comfort

Thanks to units that can be pre-assembled and always have a closed platform deck and full enclosure

Quick assembly

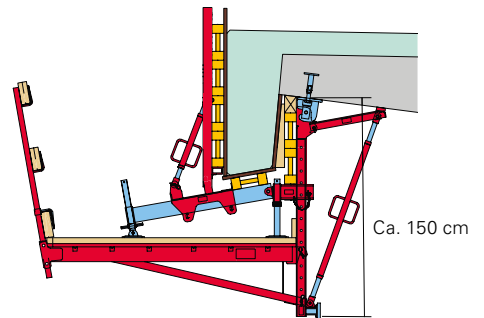
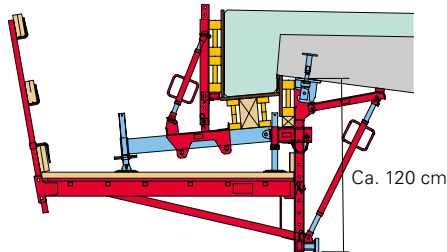
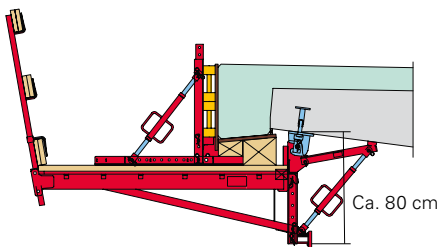
Thanks to simple fitting pin connections and versatile formwork design – operable from above

Fewer anchor points

Even in the case of refurbishments, due to the high load-bearing capacity of the type-tested system

Various configuration options are available subject to the structural clearance, parapet geometry and requirements for formwork convenience.

Bracket height	80 cm	120 cm	150 cm
Type of formwork assembly	Lateral formwork: Formwork assembly is continuously adjustable Slab formwork: Formwork assembly is carried out by carpenters		Lateral and slab formwork can be continuously adjusted
For cantilevered parapet sizes H (height) x W (width)	60 x 60 cm	60 x 60 cm	100 x 60 cm

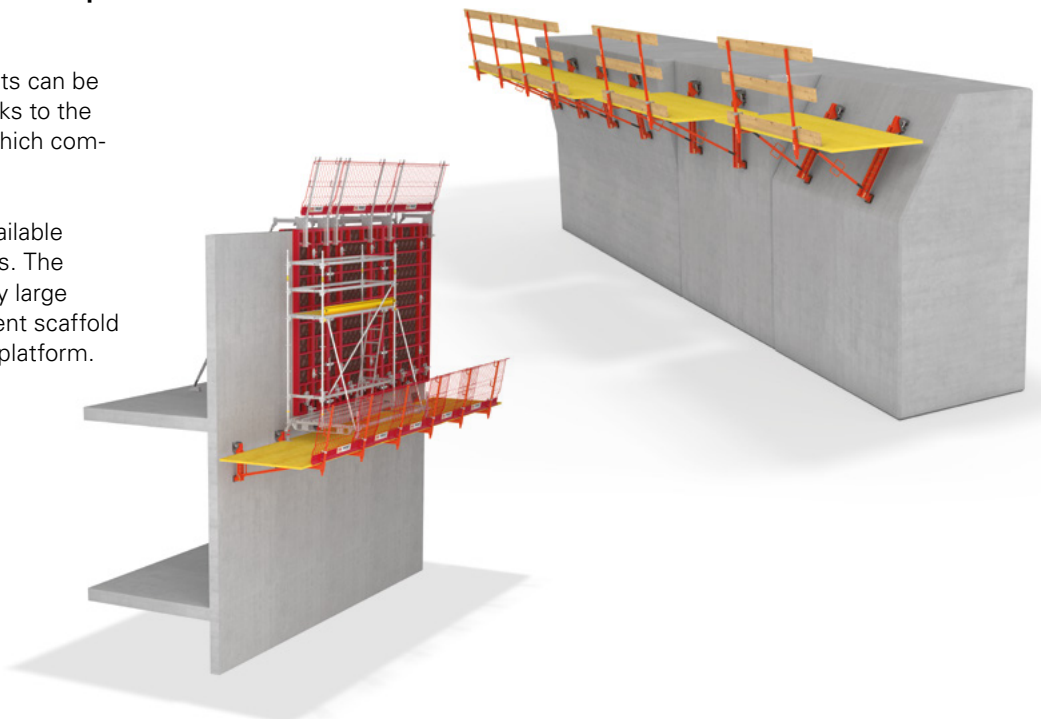


The VGK Cantilevered Parapet Bracket has another area of application. It can also be used as a working platform in building construction and civil engineering. The same components are used for these applications.

Pre-assembled platform units can be hooked in immediately thanks to the refined suspension head, which compensates for tolerances.

Several VGK variants are available for use as working platforms. The VGK 160 offers a particularly large working area. A reinforcement scaffold can also be erected on this platform.

As a working platform on forward and backward sloping walls, such as pier heads, the VGK Flex is the ideal solution. It is available in three widths (70 cm, 90 cm, 120 cm).



The anchor solution in detail

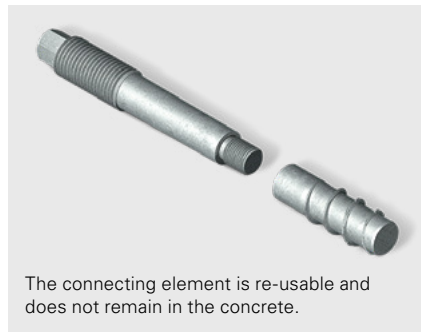
The cost-effective solution for parapet refurbishment

The refurbishment anchor is used with the VARIOKIT VGK Cantilevered Parapet Bracket when renovating bridges or retaining walls. The two-piece composite anchor consists of an internal threaded sleeve and an Anchor Bolt. Thereby, the connecting element can be reused numerous times and only the sleeve remains as a lost component with the required concrete cover in the bridge cantilever.

The flexible and highly efficient VGK Cantilevered Parapet Bracket was developed especially for refurbishment projects. In connection with the new refurbishment anchor for subsequent installation, this results in a coordinated solution for the respective renovation work. The anchor has General Building Inspectorate Approval.

This closed system solution provides maximum flexibility in planning operations and application, increases planning reliability and work safety as well as ensuring easy assembly. This leads to quality improvements and ultimately to cost savings during execution.

As the refurbishment anchor has a very high load-bearing capacity, only a minimum number of anchor points are required. The anchors are inserted in drilled holes of 22 mm in diameter. Due to its undercut, the refurbishment anchor can be loaded immediately after installation so that the console bracket can be mounted immediately. It is impossible for it to slip out when installed overhead. The full load-bearing capacity of the refurbishment anchor is reached after the composite mortar has hardened. The required setting depth is ensured by the conical design of the connecting element and provides maximum assembly safety.



The connecting element is re-usable and does not remain in the concrete.

High anchor load-bearing capacity

Large widths of influence and resulting reduced costs for anchoring, assembly and on-site material requirements

Immediate assembly of the VGK Cantilevered Parapet Bracket

The undercut allows the suspension head and console bracket components to be mounted without any waiting time; immediately after the composite mortar has hardened, the mounted console bracket is also accessible

Cost-effective realisation of the required concrete cover

The refurbishment anchor provides the required concrete cover for the lost component. No costly stainless steel solutions are necessary

Reusable anchor bolt

The refurbishment anchor consists of two pieces, of which only the internal threaded sleeve is lost. The anchor bolt can be unscrewed after use and be re-used many times over.

Assembly sequence*



Step 1
Drill hole with $d = 22 \text{ mm}$ and $t = 160 \text{ mm}$ (at right angles to the concrete surface); clean the drilled hole with brush and blow-out pump



Step 2
Inject the composite mortar



Step 3
Screw in the refurbishment anchor by means of an impact wrench

VGK Design Tool

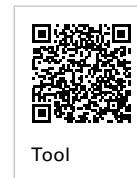
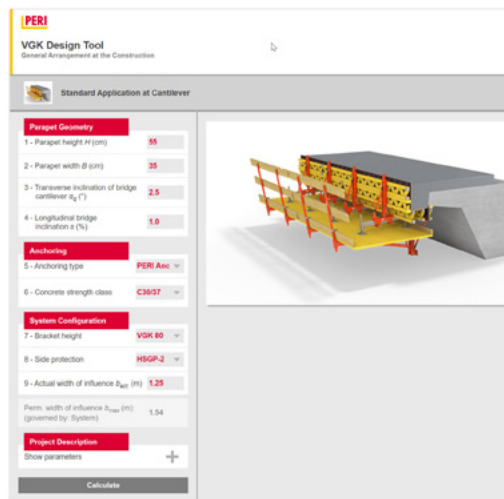
Planning certainty for all VGK configurations

The VGK Design Tool enables you to plan your VGK project independently. The app's result protocol can be used for verifiable structural analysis. The tool can be accessed easily via the PERI website and does not need to be installed. The VGK app is an important step towards a more digitalised future for the construction industry.

Thanks to the VGK Design Tool, the system ensures additional planning security. The tool enables you to plan various VGK configurations.

To calculate and determine the permissible influence widths for your project, you only need to enter data such as the height of the cantilevered parapet or the inclination of the cantilever side. The anchor forces for the selected configuration are automatically determined and output. The results are based on the type calculations of the VGK system.

Another plus point is the fact that the VGK Design Tool is freely and readily available. The tool is browser-based and can therefore be easily accessed. Installation is not necessary, it is supported by practically every browser and can be accessed on both computers and tablets.



Access the VGK Design Tool directly with this QR code and design your project.

VGK projects can be planned easily on a browser in just a few steps. The result protocols can be used for a verifiable structural analysis.



Step 4
Fixing the Suspension Head VGK with the nut M24



Step 5
Fixing the VGK with bolts



After dismantling the console bracket
Remove the reusable connecting element

* Follow the assembly instructions!

Project examples



Isar Bridge in Bad Tölz, Germany

Even stronger after refurbishment: VGK in refurbishment projects

The almost 133-m-long and over 15-m-wide Isar Bridge, south of the town of Bad Tölz, is used by around 16,000 cars every day. After a little more than 40 years, the bridge needed to be renovated. The aim of the project was not only to restore the bridge, but also to increase its load-bearing capacity.

In the course of the renovation work, the bridge parapets were also renewed to give the footpath and cycle path a new look. Almost 100 VGK Console Brackets were used for the parapet renovation of the Isar Bridge.

They ensured a high level of safety with the fully enclosed lateral protection while demolition work was taking place above the road. This meant that traffic could continue to flow uninterrupted under the bridge during the demolition work.

The VGK solution was installed quickly and efficiently. The individual components weighed less than 22 kg and could therefore be installed by hand. In addition, the installation process was straightforward, which minimised the amount of training required.

It is also the case that the VGK system has ties with a high load-bearing capacity, which allowed for a console bracket spacing of 1.45 m. This simplified the installation process even further, resulting in enormous time savings.



Feuchtwangen/Crailsheim motorway interchange underpass, Schnelldorf, Germany

A lightweight working platform for safe access

The A6 motorway from Heilbronn to Nuremberg is considered one of the most important central European west-to-east transit routes. Due to its role as an important transit route, the proportion of HGVs on this stretch is relatively high, which is why the route has been gradually widened to 6 lanes.

The expansion of the Feuchtwangen/Crailsheim motorway interchange was a key project, as it connects the A6 and A7 motorways.

The motorway interchange is used by around 66,000 vehicles daily (approximately 18,000 HGVs). The aim of the expansion project was to make the motorway interchange safer and to adapt it to cope with a higher volume of traffic.

At the new motorway interchange, an underpass for the future carriageway was built, among other things. This is where the VGK Flex Work Platforms could bring their advantages into play.

Assembly was carried out by hand and without a crane thanks to the lightweight components.

It was possible to adapt the VGK system easily to the complex geometry of the structure using standard components, which meant that the working platforms provided sufficient space and were safe throughout. This resulted in a safe and speedy construction process.

Project examples



Cycle Path Bridge, Frankenberg/Saxony, Germany

Simplicity through safety: system combination in bridge construction

The 70-m-long and 4-m-wide cycle path bridge over the Zschopau river was designed as a 3-section reinforced concrete bridge. VARIOKIT Cantilevered Parapet Brackets were used as a safe working platforms to construct the cantilevered parapets, facilitating flexibly adaptable formwork assembly and alignment. All system components are

extremely easy to use and were therefore easy and quick to assemble. Reliable anti-fall protection was realised with PROKIT Side Mesh Barriers. Here, once again, the minimum number of lightweight components simplified assembly operations. And the yellow powder coating made the comprehensive safety measures highly visible from afar.



Bridge over the D6, Čelechovice, Czech Republic

VGK ensured safe working conditions and kept the traffic flowing during bridge refurbishment

On the D6 motorway near Stochov, a 3-section bridge with a length of 77.37 m was completely reconstructed. For this, the bridge sub-structure was rebuilt while the load-bearing prefabricated beams were replaced. All work had to be carried out with traffic still running and any road closures were kept to an absolute minimum. The VGK Cantilevered Parapet Brackets really proved themselves in this project.

In order to keep the duration of road closures during the assembly work as short as possible, the construction team had previously practised the required work steps in the PERI exhibition hall. This considerably accelerated the assembly time on the jobsite.

Well-thought-out planning led to advantages during the execution phase: brackets, platform beams and guardrail posts were already mounted on the prefabricated beams before they were positioned on the new abutment.

As a result, the road only had to be closed very briefly when assembling the platforms. Platform covering and guardrails were easy and quick to install.

After installing the VGK, no additional access was necessary using an elevating work platform or scaffolding from below. The parapet formwork could be mounted from the platforms, while the non-penetrable decking provided protection for the traffic passing below. Further closure of the D6 motorway was not required.

Project examples



Dornbirn Bridge, Bregenz, Austria

On-going rail services: refurbishment work while the trains continue to run below

Cantilevered parapet refurbishment work on a bridge near Dornbirn required safe conditions for construction site personnel, as well as for the trains passing below. Rail traffic closures were minimised thanks to the use of the VGK. The non-penetrable platform covering provided the highest level of protection possible for the area below, thereby allowing train services to be maintained throughout the refurbishment work.

The VGK could be easily and efficiently anchored to the cantilever. The high load-bearing capacity of the bracket facilitated large anchor spacings and thus reduced material and labour costs. The cable duct positioned very close to the cantilever presented no problem during the assembly of the cantilevered parapet bracket. The generous platforms allowed parapet refurbishment without having to dismantle the cable duct.

Once mounted separately on the platform, the formwork could be continuously adjusted by means of a wedge connection. The intuitive system of the wedge connection also accelerated work operations.



Vehicle Bridge, Innsbruck, Austria

Bridge renovation in spite of flowing traffic

In the capital of Tyrol, the cantilevered parapets of a busy road bridge had to be refurbished. The bridge is positioned only a few metres above a large intersection and is crossed by hundreds of road users on a daily basis. For the contractor, it was therefore extremely important to minimise any possible interference with the traffic below.

VARIOKIT Cantilevered Parapet Bracket presented the most cost-effective solution for this project.

The VGK is anchored below on the bridge cantilever, whereby the carriageway on the top of the bridge was not restricted by the bracket, and work could be carried out as normal in this area. Assembly of the VGK bracket is separated

through the working platform and formwork unit. For the cantilevered parapet refurbishment, the working platform was always closed; debris generated during the demolition work could not fall onto the road. This non-penetrable system facilitated the safe execution of the different work operations, such as renovation and concreting, in spite of the enormous volume of traffic.

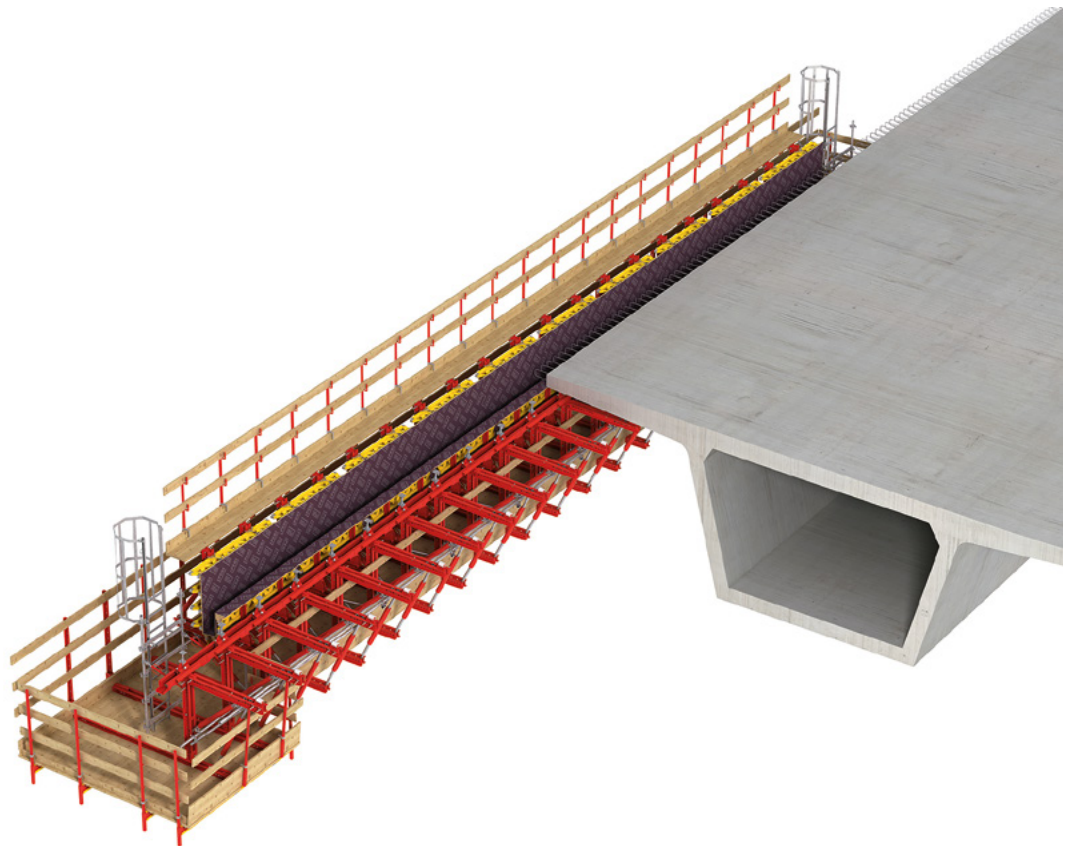
VGB system advantages and detailed solutions

The mobile solution installed below for bridges over 150 m long

The VARIOKIT Cantilevered Parapet Track is used for the construction and refurbishment of cantilevered parapets at the edge of bridges for over superstructures over 150 m.

Essentially, the VGB consists of core components taken from the VARIOKIT Engineering Construction Kit which are supplemented by functional system components such as the Roller Unit. As a result, the parapet track is characterised by a high degree of flexibility and can be used, for example, on short cantilevers.

The cleverly designed VGB suspension ensures a safe transfer of loads in all conditions; also when concreting, no additional fixings on the superstructure are required. The top of the bridge is freely accessible due to anchoring to the underside of the bridge. As a result, construction site traffic is not affected and work operations can be carried out on and under the bridge during moving traffic.



Optimised for your project

Flexibly adaptable system which is based on the VARIOKIT Engineering Construction Kit.

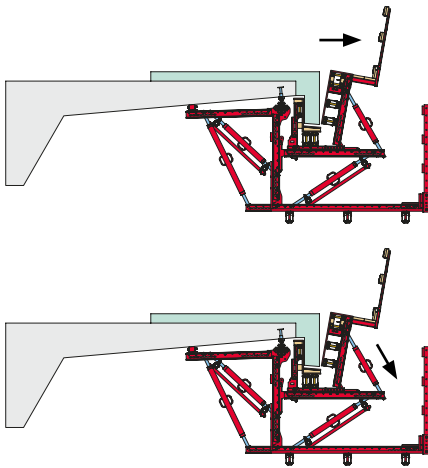
Fast work operations

Additional anchoring is not required because the Roller Unit safely transfers the concreting loads.

Complete system solution

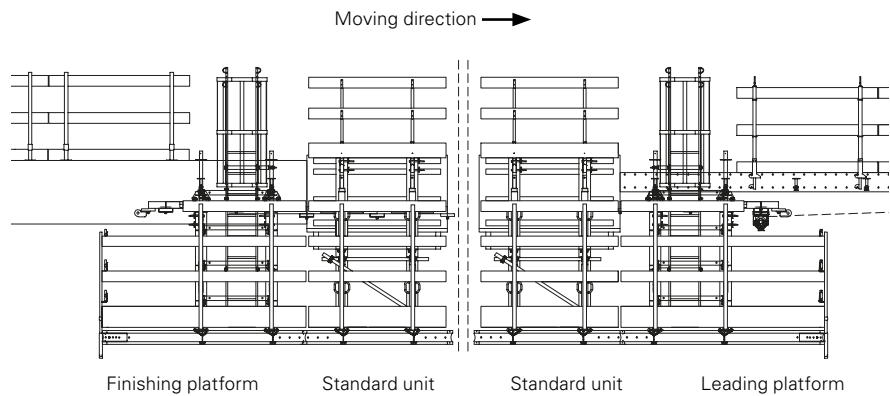
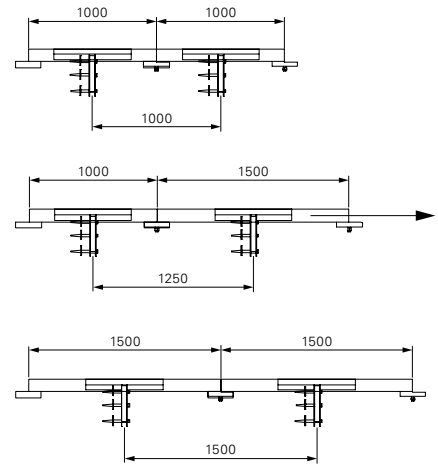
Formwork, pulling and anchor technology from a single source

The striking procedure takes place using only two steps per unit. Firstly, the external formwork is pivoted away by screwing in the SLS Heavy-Duty Spindle. After this, the slab and internal formwork can be struck by moving the Adjusting Unit. The Cantilevered Parapet Track can now be easily moved to the next section.



Safe access possibilities to the platforms are provided via the leading and finishing platforms. The recommended moving and concreting length of the Parapet Track is 20 to 25 m.

In accordance with the size of the parapet, anchor spacings of 100, 125 and 150 cm can be realised by combining the 100 and 150 cm rail lengths. This leads to optimal utilisation of the formwork carriage and a reduction in the number of anchor points.



The rollers to be freed up are dismantled from the finishing platform and re-mounted in the moving direction at the front from the leading platform.



The Roller Unit is self-aligning and reliably transfers the concreting loads.



The rail units can be moved by means of hydraulic winches and the RCS Hydraulic Pump.



Project examples



Refurbishment of the Inntal Bridge A 12, Radfeld/Tyrol, Austria All clear: bridge renovation without any jobsite traffic jams

During the renovation and widening work on the 185-m-long Inntal Bridge near Radfeld/Tyrol, road traffic on both carriageways had to remain largely unaffected throughout the project. Therefore, contractor Strabag AG decided in favour of a formwork and scaffolding solution from PERI which was based on two complementary modular construction systems. Due to the rentability of the PERI system components and the easy handling, the refurbishment concept was also very cost-effective.

To refurbish the outer parapets on the north side, two VARIOKIT Cantilevered Parapet Tracks were used. These ran on rollers fixed to the underside of the cantilever. As a result, the superstructure was free of any obstacles, whereas the existing drainage system was removed in several stages, along with demolition of the old parapet, while the new parapet was then shuttered and concreted section by section and new drainage pipes were installed. In addition, the mobile platform served to store and transport

the resulting construction rubble. One of the two Parapet Tracks was previously used on the southern side for refurbishment work on the underside. Competent planning services and the provision of a supervisor were also an essential element of the PERI overall solution. The incomplete as-built documentation required a high degree of flexibility and maximum adaptability – in the planning phase as well as during assembly and use on site.



New Construction of the Ruhrtal Bridge, Bermecke, Germany

Gaining momentum: VGB accelerates concreting of the cantilevered parapets

The Ruhrtal Bridge near Bermecke crosses the Ruhr Valley between Olsberg/Bigge and Nuttlar with a length of 626 m and height of up to 50 m alongside the B 480. The superstructure of the steel composite bridge was constructed using the incremental launching method. With individual spans of 49.95 m – 8 x 65.70 m – 49.95 m, it runs radially over a railway line, as well as over an area of forest and meadows. The composite cross-section consists of an upwardly open, trapezoidal hollow-box girder made of steel as well as

an unstressed concrete carriageway. The joint-venture partners relied on PERI and two VARIOKIT Cantilevered Parapet Tracks for subsequent execution of the cantilevered parapets. The VGB Roller Units were anchored to the underside of the superstructure. By means of suspended rails, the cantilevered parapet track could then be moved using a hydraulically-operated cable winch. No additional anchors had to be fixed to the concrete even during the concreting operations – all loads were safely and reliably transferred by

the Roller Unit. When concreting was finished, the Roller Units could be removed from the finishing platform again. They were then re-anchored in front of the platform – executed from the leading platform – thus allowing the track to be pulled forward by means of a hydraulically-operated cable winch. This system not only resulted in very fast shuttering times and offset cycles but was also characterised by low material costs and work requirements.

Project examples

Immensitz Bridge A81, Geisingen, Germany

Quick and simple: 10-m cantilevered parapet daily

The outer and inner parapets of the Immensitz Bridge were realised with the help of two VARIOKIT Cantilevered Parapet Tracks. Thanks to the simple handling and movability of the PERI system, the construction team was able to complete on average a 10-metre length of parapet every day.

The 227-m-long Immensitz Bridge takes the A 81 motorway between the Geisingen and Engen junctions over the L191 secondary road at a height of 25 m. The bridge superstructure was built in 1971 and needed to be refurbished. The initial phase saw the North Bridge being demolished and a new steel composite construction erected

on the existing bridge piers and abutments. This was followed by realisation of the southern superstructure, during which traffic was guided over the completed new structure until the end of the construction period.

The PERI team planned two Parapet Tracks on the basis of the VARIOKIT Engineering Construction Kit to construct both cantilevered parapets on the southern bridge structure. As a result, parapets of 60 m to 80 m – with section lengths of 20 m respectively – were formed, reinforced and concreted every week. PERI engineers adapted the formwork and platform dimensions according to project specifications to

suit the local conditions, thereby taking into account the different positions of the lateral bracing of the bridge superstructure. In addition, due to the statically optimised arrangement of the anchoring points, the number of mounting parts in the superstructure could be considerably reduced, thus saving costs.

The top of the bridge was freely accessible due to anchoring to the underside of the bridge. As a result, traffic was not affected by the construction site and work could be carried out while traffic was moving on and under the bridge. This created almost unrestricted construction options.



During the bridge construction work, traffic on the A 81 motorway was able to use the already completed superstructure between the Geisingen and Engen junctions.



The VARIOKIT Cantilevered Parapet Track was suspended by means of rails and Roller Units from the underside of the bridge cantilever – at an identical position to the moving procedure and concreting.



The units could be moved quickly thanks to an integrated cable winch.



VGW system advantages and detailed solutions

The movable, anchor-free solution for bridges over 150 m long



Optimised for your project

Flexibly adaptable thanks to VARIOKIT

Rentable

Fast availability in the rental park and low investment costs

Simple and fast assembly

thanks to fitting pin connections and optional pre-assembled units

The PERI Cantilevered Parapet Carriage provides a flexible, efficient and simple solution to meet the requirements of modern bridge construction.

Thanks to the components from the VARIOKIT system, the cantilever of the VGW can be flexibly adapted to suit a wide range of geometries. Frame spacings and formwork lengths per carriage unit can also be designed to be load-dependent. This allows the system to be optimally utilised.

Moving the formwork carriage is carried out cost-effectively and according to project requirements by means of heavy-duty rollers on U-steel profiles. As a rule, no anchoring is required in

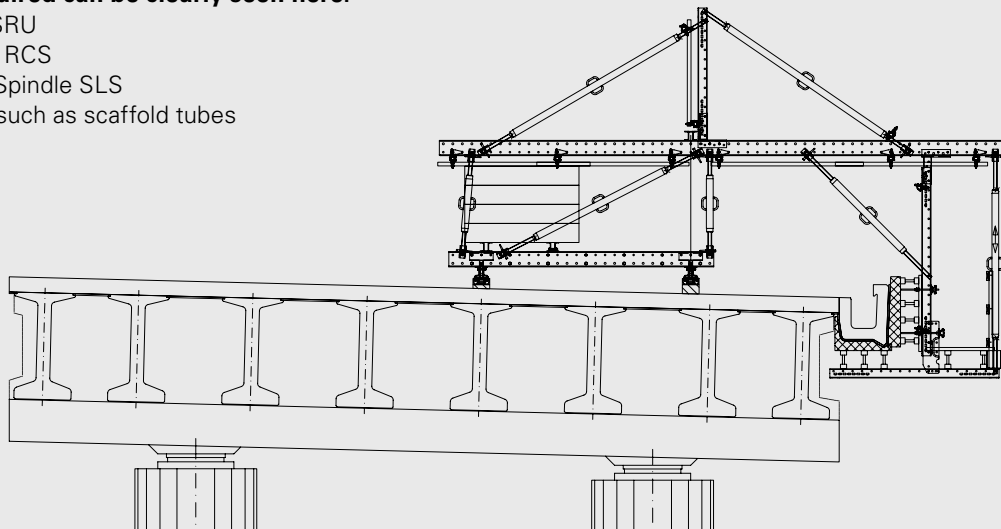
the structure and horizontal forces from the concreting operations or wind are transferred by means of friction.

Final assembly is quick and easy through the use of fitting pin connections. As an option, the units can also be delivered pre-assembled.

The VARIOKIT core and system components are all rentable which means they are quickly available and without any prior investment on the construction site.

The few different VARIOKIT core components actually required can be clearly seen here:

- Steel Waler SRU
- Climbing Rail RCS
- Heavy-Duty Spindle SLS
- Accessories such as scaffold tubes and couplers



The VGW can be adapted to accommodate a wide range of cantilevered parapet geometries.



The cantilevered parapet carriage being moved on a heavy-duty roller.



The VGW also provides a cost-effective solution for refurbishment projects.



Project examples



Bridge over the Danube near Beška, Serbia

Parapet construction of 130 m per week across the Danube

Parallel to the existing bridge structure, the Danube crossing near Beska has been complemented by a so-called twin bridge. This has facilitated a subsequent, continuous four-lane expansion for the E75 motorway between Belgrade and Novi Sad. A 180-m-long foreland bridge joins the 540-m-long main bridge, which is supported on three river piers. The almost 1,500-m-long approach bridge to the north also crosses a floodplain of the Danube river.

For the bridge over the Danube of almost 2.2 km in length, PERI engineers worked closely with the site management

team to develop a common formwork concept, which envisaged the use of the VARIOKIT Cantilevered Parapet Carriage that was to be operated from above. As a result, no additional mounting components, such as anchor sleeves, were required on the underside. In addition, the standardised assembly system minimised the planning effort – and ensured maximum flexibility of the formwork carriage solution when adapting to local site conditions. Two formwork carriage groups, each with four coupled VARIOKIT Cantilevered Parapet Carriages, worked in parallel.

This meant that six casting segments, each 21.50 m long, could be realised in only five days – 130 linear metres of parapet per week. One of the formwork carriages also took into account the designated points of the parapet widening in order to accommodate the lamp posts. Simple and thereby fast shuttering and striking procedures, as well as the systematic concreting sequence, ensured rapid progress for constructing the parapets with a total length of 4,440 m. In this way, the construction team was able to maintain the extremely tight schedule without any problems.

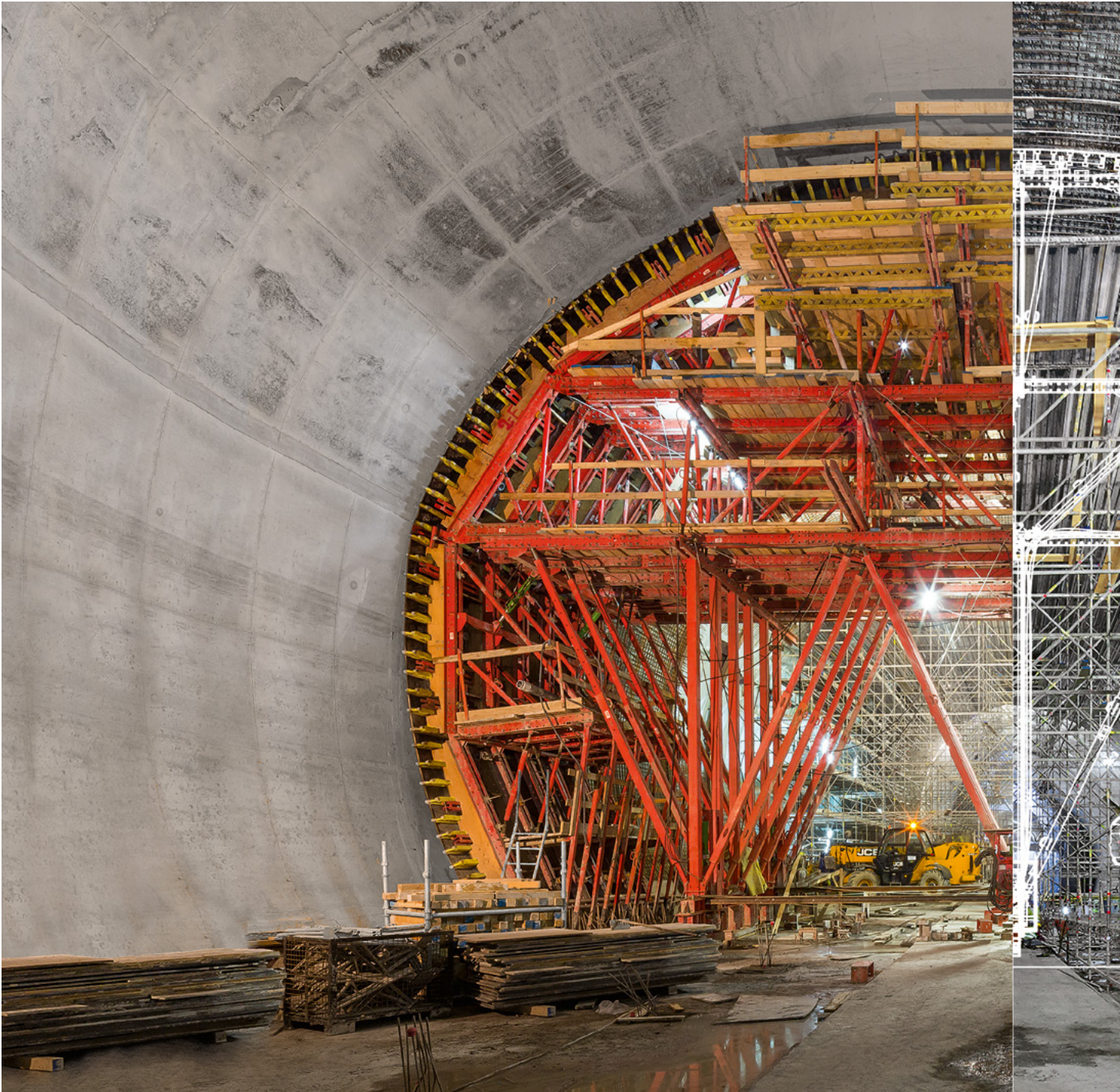


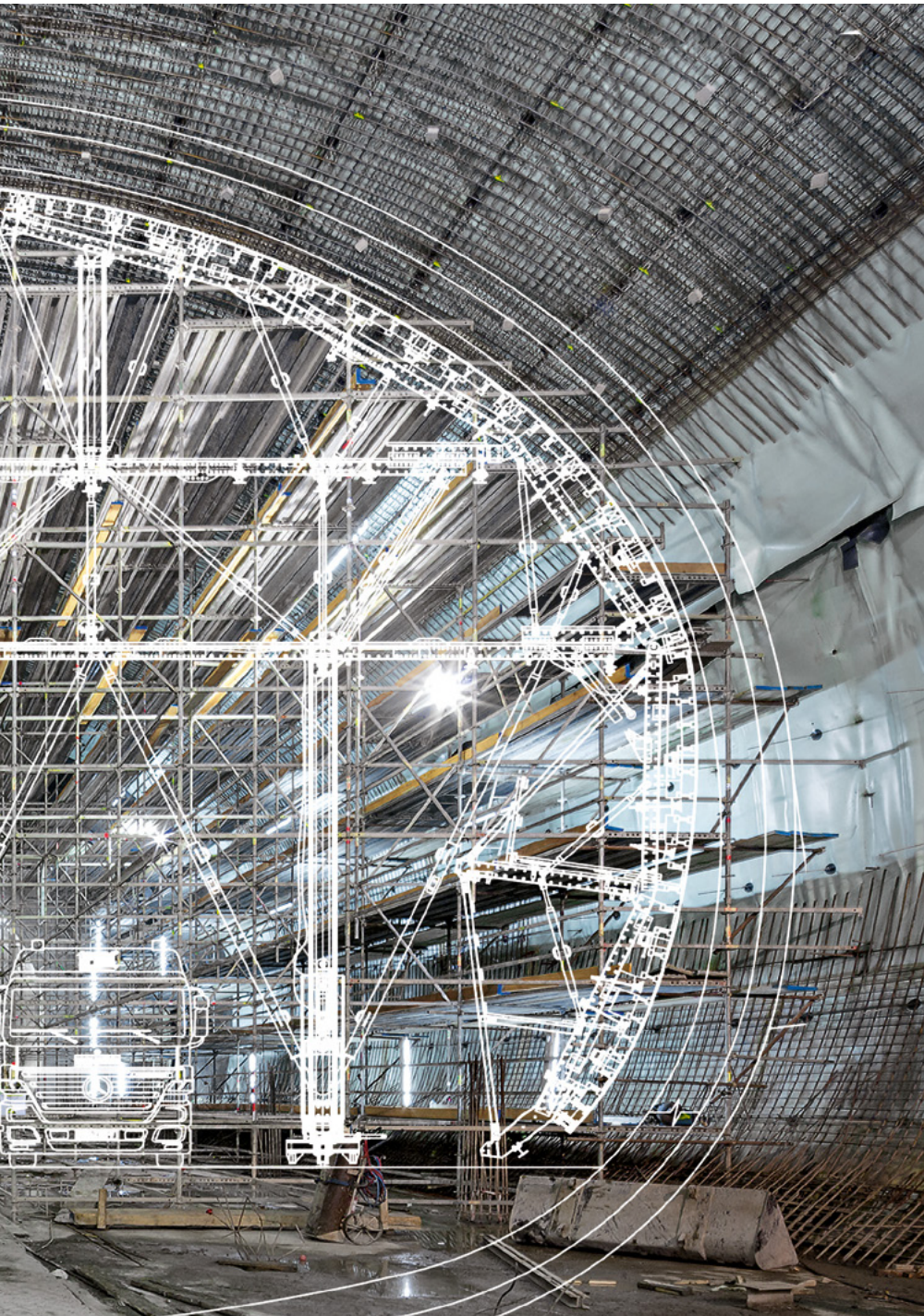
Franckeplatz Elevated Road Bridge, Halle/Saale, Germany
 Parapet refurbishment with the VGW

The four-lane elevated main road in Halle runs close to the city centre crossing the River Saale and the Glauchaer Platz and Franckeplatz intersections. The bridge refurbishment of the important road link was carried out in two sections: while renovation work was carried out on one of the two parallel bridge structures, traffic on the other bridge was single lane. In order to keep any disruptions to the traffic to a minimum, only 6 months of construction time was available per section for carriageway renewal, parapet refurbishment and modernisation of protective measures – for each 900-m bridge section with its 1,800-m-long parapet. For parapet demolition and forming operations, a total of 12 VARIOKIT Cantilevered Parapet Carriages were used in construction activities at the same time. Two parapet sections, each with 10-m cycle lengths, were concreted on a daily basis. Important components of the PERI solution were planning and static verification as well as the pre-assembly and delivery of ready-to-use formwork and platform elements.

ishment and modernisation of protective measures – for each 900-m bridge section with its 1,800-m-long parapet. For parapet demolition and forming operations, a total of 12 VARIOKIT Cantilevered Parapet Carriages were used in construction activities at the same time. Two parapet sections, each with 10-m cycle lengths, were concreted on a daily basis. Important components of the PERI solution were planning and static verification as well as the pre-assembly and delivery of ready-to-use formwork and platform elements.

VARIOKIT system solutions and services from one source





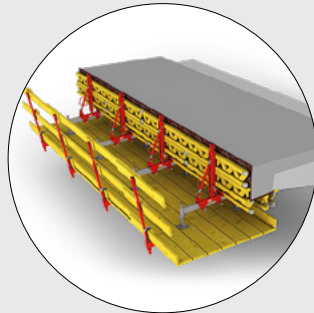
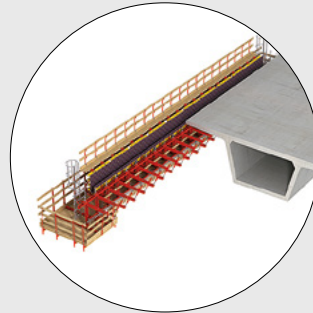
Every bridge and tunnel construction requires project-related planning. With its extensive know-how and expertise, PERI provides not only the required materials but also the complete planning services from a single source.

PERI solutions take into account building and assembly processes along with the maximum functionality for the construction work. With well-engineered technical planning, PERI provides cost-efficient solutions that are optimised on a project-specific basis and are precisely tailored to meet the requirements of the jobsite. Technical project solutions with VARIOKIT and services from one source accelerate the work process enormously.

Applications with the VARIOKIT Engineering Construction Kit

VARIOKIT solutions are typically comprised of around 95 % rentable core and system components. In order to fulfil specific project requirements, only a few special components are needed.

VGB Parapet Track



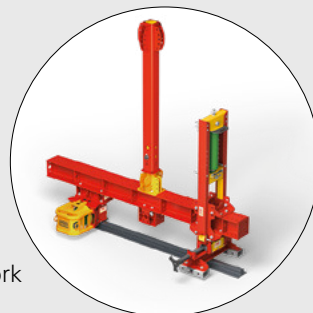
VGK Cantilevered Parapet Bracket



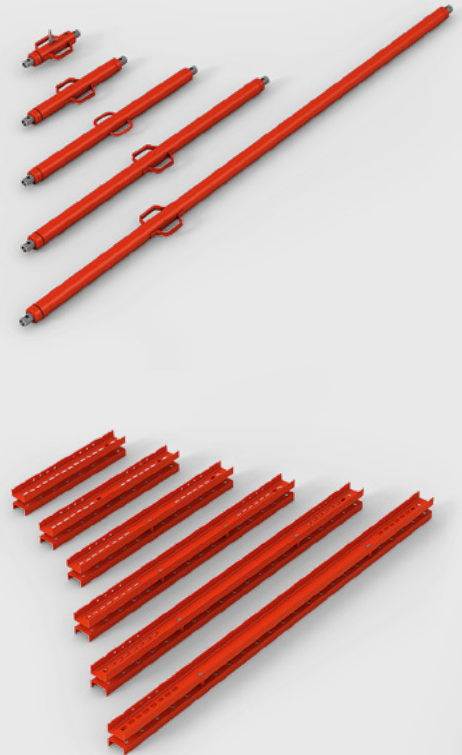
VGW Parapet Carriage



VCB Cantilever Brackets



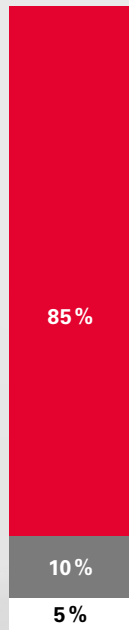
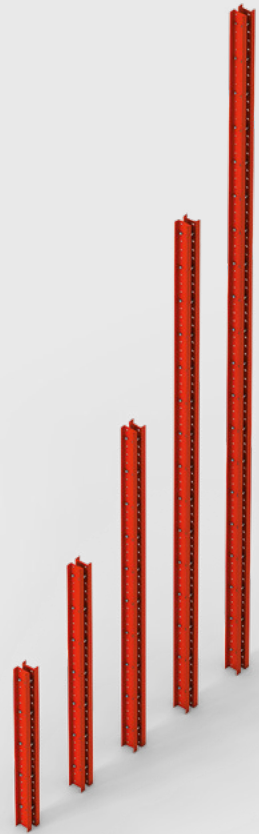
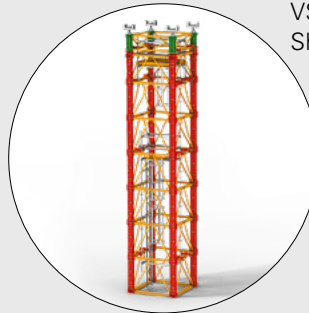
VTC Tunnel Formwork Carriage



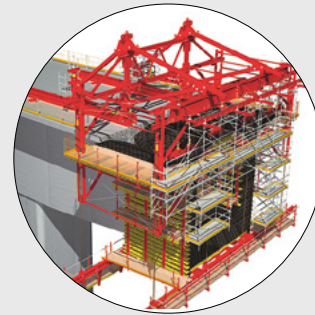
VRB Heavy-Duty Truss Girder



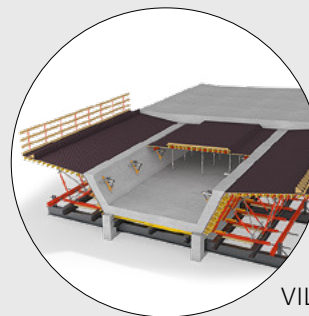
VST Heavy-Duty Shoring Tower



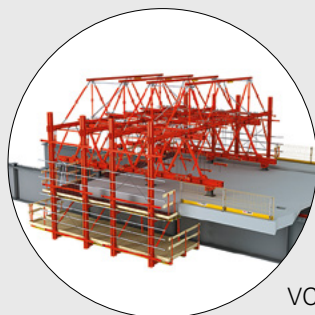
85 % core components
 10 % system components
 5 % special components



VBC Balanced Cantilever Equipment



VIL Incremental Launching Facility



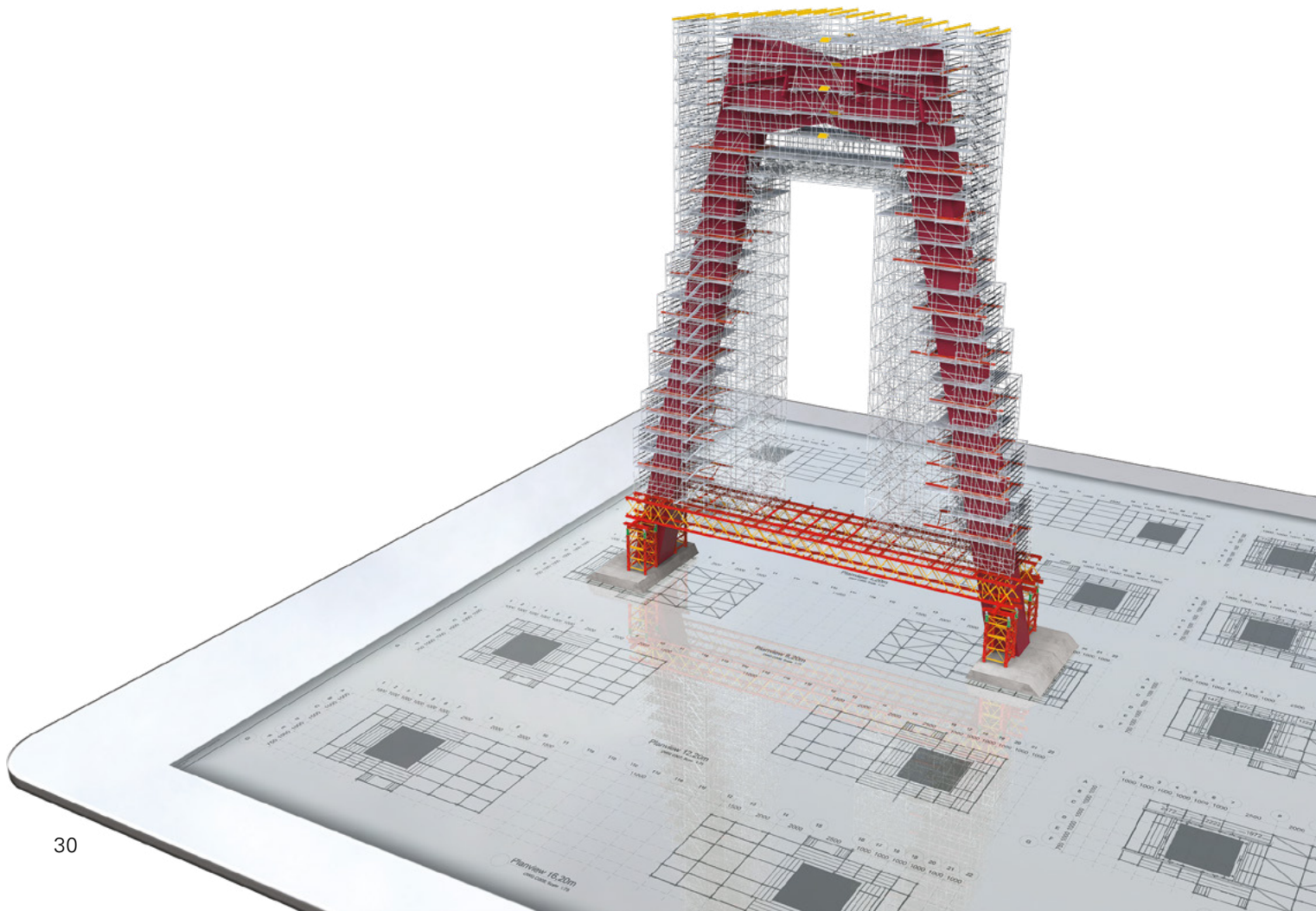
VCC Composite Formwork Carriage

Individual services for customised bridge and tunnel construction

In addition to the required materials, PERI also provides a comprehensive range of expertise, as well as the complete planning services from a single source. PERI solutions take into account building and assembly processes along with the maximum functionality for the construction work. For the planning, PERI pays great attention to maximising the utilisation of the rentable core and system components in order to provide customers with particularly cost-effective solutions.

Around 1,300 PERI engineers worldwide plan and design formwork and scaffolding solutions for cost-effective executions. All PERI Engineering planning services are aimed at ensuring that PERI formwork and scaffolding systems in construction operations are always used in line with time, cost and quality standards. The basis for this is the execution plan records which are based either on 2D-views and sections or realistically visualised 3D building models. As a result, technical solutions are developed with customers that optimise the use of materials and the construction process itself.

These planning-related services from PERI Engineering are supplemented by verifiable, static calculations as proof of stability for formwork and scaffolding operations, as well as by project-specific installation and assembly plans for the professional implementation of special applications. Construction site personnel can use the plans to assemble the individual PERI components correctly and prepare them for use.





A consistent CAD planning process is realised by bundling the formwork and scaffolding planning.



Implementation plans are coordinated, and it becomes much easier and quicker to organise subsequent plan changes and put them into practice.



PERI supervisors also explain plans and parts lists along with providing information on the maintenance, cleaning and storage of PERI materials. If required, they will provide the construction team with comprehensive on-site support to ensure efficient use of PERI system equipment from the very start.



In order to minimise on-site assembly times and maintain tight construction schedules, PERI also provides – if required – pre-assembled units to the construction site. VARIOKIT is extremely cost-effective, especially with short utilisation times, thanks to the rentable components and assembly advantages.



When it comes to BIM, PERI has been one of the leading companies in the industry for many years now and can already show a number international project references that have been successfully developed with customers using BIM principles.

Through the additional integration of the time and cost factors, the 3-dimensional visualisation of the planning gradually turns into a 4D or 5D model. Additional process data relating to formwork and scaffolding technology, such as required plan changes, automated collision checks, safety checklists and QR codes for object navigation, are documented and tracked in a mobile building information management system. All relevant data is available on the construction site via tablet solutions for day-to-day operations.

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



Wall Formwork



Column Formwork



Slab Formwork



Climbing Systems



Bridge Formwork



Tunnel Formwork



Shoring Systems



Construction Scaffold



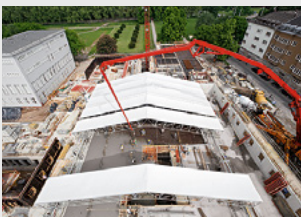
Facade Scaffold



Industrial Scaffold



Access



Protection Scaffold



Safety Systems



**System-Independent
Accessories**



Services



PERI SE
Formwork Scaffolding Engineering
 Rudolf-Diesel-Strasse 19
 89264 Weissenhorn
 Germany
 Tel. +49 (0)7309.950-0
 Fax +49 (0)7309.951-0
 info@peri.com
 www.peri.com

