

FormworkPress

Professional Formwork News

VII/2021



Maximum flexibility

AluFix, lightweight and economical – from p. 16

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Imprint

Site photos show situations which do not always depict the final assembly of formwork with regard to safety regulations. Imprint: Edition VII/2021. Circulation: 2500 copies. Publisher: MEVA Schalungs-Systeme GmbH, Industriestr. 5, D-72221 Haiterbach. Layout: MEVA. Print: C. Maurer Druck + Verlag, D-73312 Geislingen/Steige. Reprint and re-use of any editorial content only by copyright permission. We accept no liability for the content of external internet sites, nor for a violation of privacy or any other law arising from these.

“The job of a construction worker is tough. Which is why it is all the more important to make light work – in every sense – of site operations by simplifying formwork.”

Dear Reader

Despite technical progress and state-of-the-art aids, the job of a construction worker is tough. Which is why it is all the more important to make light work – in every sense – of site operations by simplifying formwork. It thus comes as no surprise that MEVA's AluFix, which has evolved from the company's first aluminium formwork system, unveiled exactly 40 years ago, is so popular among contractors.

Users appreciate in equal measure the formwork system's low weight, stability and long service life. Not only does it speed up progress on site, it is economical in a variety of ways. This is because every component needed for formwork operations costs time and money. Our hand-set system requires far fewer parts than plastics formwork products while offering unlimited durability.

The spotlight in this issue of FormworkPress is on the versatility of AluFix as experienced by customers and users. We report on the structural works for a residential building whose walls, slabs, balconies and atria – complete with architectural concrete finish – are built exclusively with this system. Another featured contractor was required

to cast a highly convoluted foundation. And, in an interview with a Brandenburg-based formwork rental company, we find out why AluFix has been so popular with its customers ever since it added the system to its portfolio eight years ago.

True to our tagline “Formwork. Simple. Smart.”, we develop technically sophisticated solutions for straightforward handling and application that help users to overcome all challenges encountered on site while always remaining one step ahead in matters of safety, reliability and cost-effectiveness. Here, AluFix is a shining example. Yet, however good a product may be, there is always something that can be tweaked. Details of this are also included in this issue of FormworkPress.

Our other reports will whisk you away to Switzerland, where a water storage facility was built at a constricted location subject to stringent safety requirements, as well as to sites in India, Chile, Australia and Norway.

Let me wish you a pleasant read.




Florian F. Dinger,
Owner and Managing Director
of MEVA Schalungs-Systeme GmbH

News

Information about MEVA



100% Bauen – 100% green

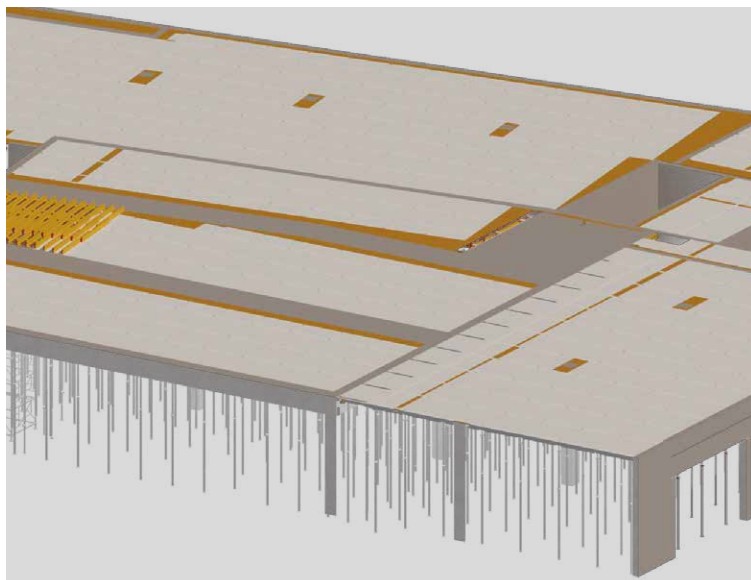
Stefan Kraus, builder and Managing Director of 100% Bauen GmbH, swears by green. Since 2017, a special, brilliant shade of the colour has figured prominently in the corporate design concept of the over 50-year-old Viennese company, newly headquartered in Brunn am Gebirge. "It expresses our wholehearted commitment to sustainable, ecological construction," explains Stefan Kraus, whose company specialises in new-build, refurbishment and alteration contracts in Vienna and Lower Austria.

The distinctive colour tone is omnipresent, featuring not only in letterheads and on the company website but, most importantly, on construction sites. The first order placed by 100% Bauen for AluFix hand-set formwork with the special, high-grade powder-coated finish was in 2019. This was followed, last year, by a further order for 600 m² of 150 and 300 cm tall AluFix panels. "In our company, you won't find a single hammer or flange screw that's not green," adds the Managing Director. "Our colour concept has immense recognition value, which generates lots of feedback from customers and suppliers. Along with the benefit of ensuring that AluFix components will never be confused with any others."

Ocean feeling in Nuremberg

Ten years ago, some hobby surfers in Nuremberg, the biggest city in Bavaria's Franconia region, had a crazy idea: why not bring the ocean to the local Pegnitz Beach? The dream of the "Nürnberger Dauerwelle" ("Nuremberg Permanent Wave") association has since become reality: on a stretch of river near the city centre, surfers can now indulge their sporting passion whenever they like, under the admiring gaze of spectators and passers-by.

What, only a few months ago, was an unspectacular patch of meadow has been replaced by a new arm of the River Pegnitz. The water channel needed for the surfing facility was first excavated, then concreted. A single-sided assembly comprising the universal StarTec wall formwork and STB support frames was used for casting against the ground and pit retaining structures. The scheme was supported by the city authorities, the Free State of Bavaria and various sponsors. A fish ladder was also incorporated to meet environmental requirements. The new attraction – complete with means of access for surfers, engineering buildings and a triple-module ramp to generate waves of widths between 5.5 and 8 m for various difficulty levels – conjures up a holiday feel with a flavour of Hawaii.



Slab formwork design 2.0

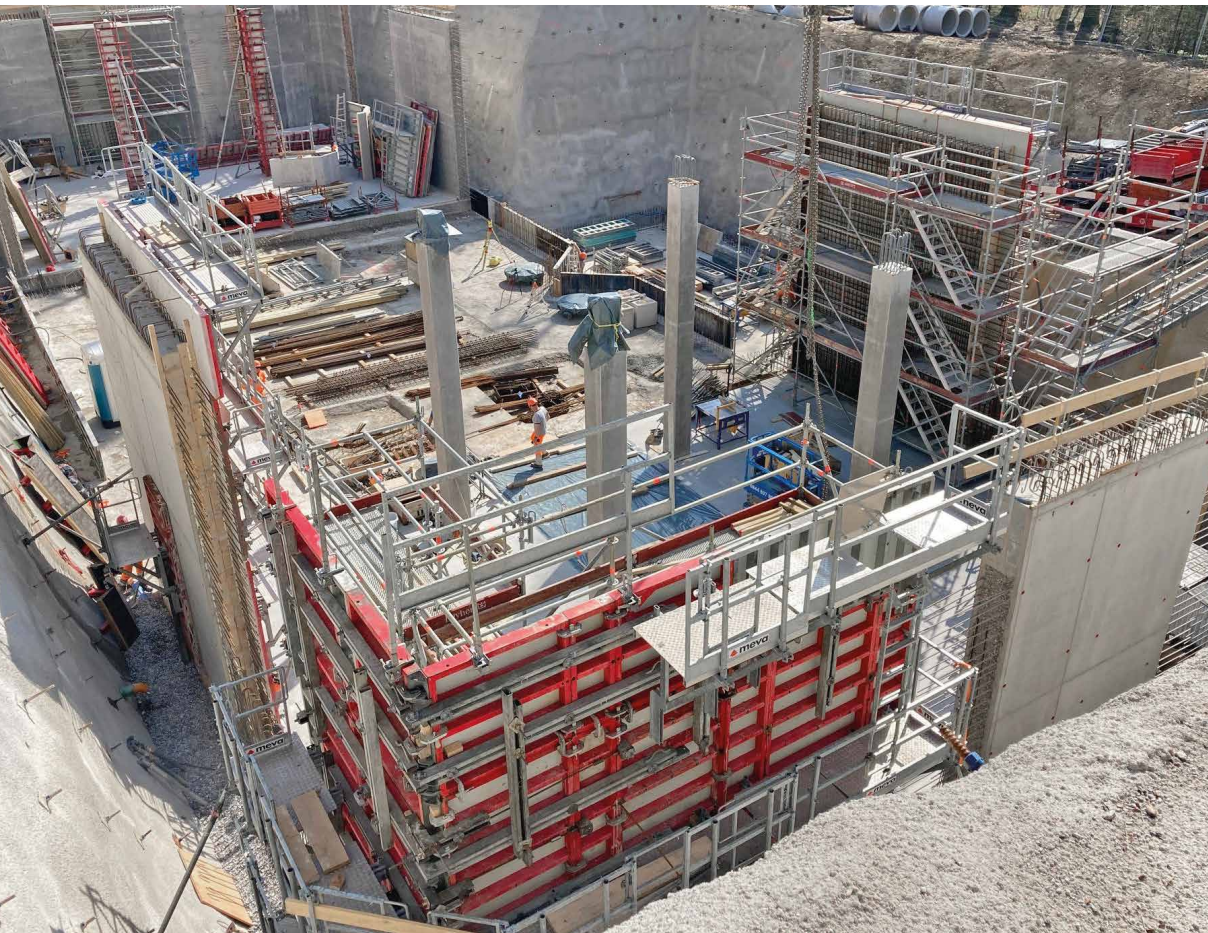
The use of building information modelling (BIM) for the digital presentation of real-life features boosts efficiency in formwork design – also for slab formwork assemblies. The design and construction of horizontal formwork are often given only lower priority in CAD applications, without satisfactory automation. In tandem with its partner BIM², MEVA is looking to tap still-unexploited potential in order to boost the efficiency of building design with MevaDec as well as with MevaFlex.

The new MevaDec generation caters for three slab-forming methods that need to be factored into contract planning: the drop-head-beam-panel method, panel method and primary-and-secondary-beam method. The cost-effective MevaFlex slab formwork system allows flexible planning based on either a purely conventional approach or a combined solution with MevaDec. In future, both products will be integrated in the BIM²form Revit[®] add-in that will allow the digital modelling and addition of real-life features. BIM²form is the key tool for the digital design of MEVA formwork solutions. With a soon-to-be-released software update, BIM² will provide an initial version with extended design functionality for horizontal components in BIM²-form. Further information at www.bim2.eu.

Smoothly running project

Topping-out ceremony celebrated after a construction period of only twelve months: The construction of a large extension for 315 beds at the existing hospital in the German town of Freudenstadt was built by the construction company Glöckle using efficient formwork technology – without a hitch and within the agreed time frame.

For the quick erection of the large-format walls, the project team used the high-performance Mammut 350. High safety requirements were fulfilled and comfortable working conditions achieved even at heights using the SecuritBasic safety system. Scaffolding brackets were used primarily for staircase core formwork. In addition, safety meshes, stop-end rails and stop-end spindles from MEVA's FormSet programme as well as EuMax props were frequently used. The numerous columns were built using the MEVA's CaroFalt column formwork. And last but not least, implementation planning for the lift and stairway cores as well as the slab formwork was performed in 3D using Revit. For BIM², MEVA's partner for digital formwork planning, this was the first project during which special working areas were tested. The experienced Glöckle personnel also had no problems at all forming the slabs using MevaDec.



Königshof water storage reservoir

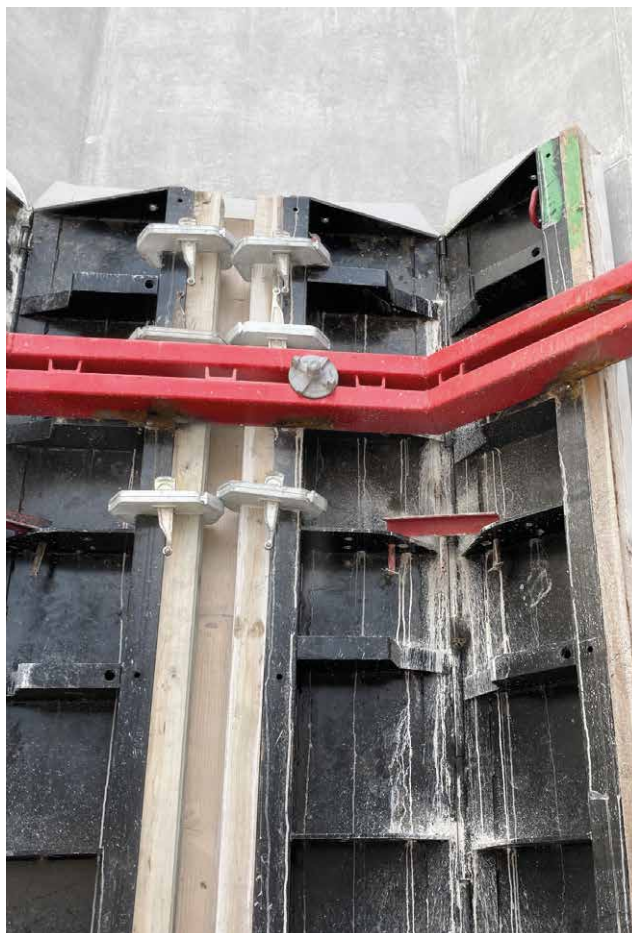
New construction in Rüttenen subject to strict Swiss safety requirements

In the Swiss municipality of Rüttenen a new drinking and process water reservoir is under construction. The notoriously strict Swiss safety requirements are not the only challenges being faced by the contractor.

A regional energy supplier commissioned Marti AG with the construction of the Königshof reservoir. The reservoir with a storage capacity of 6,000 m³ is intended to safeguard the regional drinking water supply for at least the next 100 years and also ensure that water is available for firefighting purposes. Once complete, the new construction will replace two obsolete facilities and will no longer be visible, but rather well hidden below ground. In February 2021, the team led by construction manager Liridon Haxhimurati and foreman Peter Kaufman started the concrete construction work. The prestigious construction company relied on the high performance of the Mammut 350 wall formwork, the safety provided by the SecuritBasic system as well as the simple handling of CaroFalt to create the columns.

The excavation of the construction pit with a length of 60 m, a width of 30 m and a depth of 13 m was completed in January. Removal of the very hard mineral rock of the "Nagelfluh" wall was challenging and time-consuming. The concreted reservoir has a surface area of 51 x 26 m. Correspondingly little space remained for installation work, storage and material maintenance on the cramped construction site in the middle of the countryside, only accessible via a forest track. Especially the installation of the high formwork and the assembly of the SecuritBasic safety system were demanding due to the given spatial constraints. For this reason, several Mammut 350 panels were joined together to produce a height of 7 m and, together with the SecuritBasic safety system installed over three storeys, were simply relocated by crane once the concrete had set.

One of the project's distinctive features was the forming of the very thick corner walls, which were poured with a 45° angle on the inside to reinforce



Special corner braces (top, red) support the hinged corners when forming the corner walls (top right). Foremen Peter Kaufmann and his team from Marti have the challenging project under control in the cramped construction pit (left). SecuritBasic, installed on the Mammut 350 panels, enables safe working practices (middle).

them. In order to withstand the high forces in these corner areas, Mammut 350's permissible fresh-concrete pressure capacity was reduced from 100 kN/m² to 80 kN/m². The construction was reinforced further by means of corner braces manufactured by MEVA especially for this purpose so that the formwork was able to withstand the high pressure in these difficult areas. Mammut 350 and the CaroFalt column formwork were covered with fleece formwork sheets to drain excess water from the concrete surface. Water stops were left in the tie holes as irrecoverable parts after pouring.

On construction sites in Switzerland the strict safety regulations issued by Suva (the Swiss national accident insurance fund) are compulsory, and for the Königshof reservoir project the requirements and guidelines of SVGW (the Swiss association for the water and gas sector) also apply. The Marti construction companies are familiar with the MEVA technologies from a great many joint and also very challenging projects.

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Project data

- **Project**
 - New water storage reservoir, Rüttenen, Switzerland
- **Contractor**
 - Marti AG, Solothurn, Switzerland
- **MEVA systems**
 - Mammut 350 wall formwork
 - CaroFalt column formwork
 - SecuritBasic safety system
- **Engineering and support**
 - MEVA Schalungs-Systeme AG, Seon, Switzerland



Successful debut

Novatec-MEVA-Pilbara assists with bridge construction at Australian mine

The sparsely populated Pilbara region in north-western Australia holds a huge reservoir of raw materials. Founded in 2020 to support the implementation of necessary infrastructure projects, the Novatec-MEVA-Pilbara (NMP) joint venture has now celebrated a successful debut.

The new NMP rental yard is located on the north-west coast of Western Australia in the small community town of Port Hedland. For the mining industry, this is a gateway for shipping natural resources across the world. Port Hedland has a population of approximately 15,000 and, over the years, has become a hub for the many industries that support mining operations throughout the Pilbara region. The iron ore extracted here is transported by rail to the coast and exported all over the world. The necessary infrastructure for mine access, including railway lines and roads, also requires the expansion of bridges. NMP provided formwork, services and know-how to build bridges over the existing rail facilities and rail access road, specifically a 64 m long bridge with





© Novatec

central pier and a 230 m long bridge with five piers crossing an iron ore conveyor line.

Projects in the outback demand particularly robust and durable technology. Accordingly, almost 5,000 m² of Mammut and Mammut 350 panels along with other wall formwork (367 m² AluFix and 470 m² StarTec), STB 450 support frames and Triplex heavy-duty props were delivered to the sites for the construction of stable abutments, piers, wing walls, pile caps and foundation slabs for the around 10 m high bridges.

The Mammut systems, which are designed for large structures with high fresh concrete pressures of up to 100 kN/m², played a key role. Incorporating DW 20 tie rods, they allowed high concreting speeds of 1.5 m per hour for 25 x 10.5 m walls up to 2.5 m thick. The construction team had no problems assembling and dismantling the simply smart MEVA systems. The 1.3 m wide LAB platform units were also installed quickly and gave the operatives plenty of space to move and work. The 4.5 m high STB support frames ensured that the high loads could be safely supported.

MEVA's lightweight AluFix hand-set formwork was used for the ground works and upstand walls, and the universal StarTec steel formwork for the wing walls while the Triplex heavy-duty prop solution was deployed in constructing the single-sided walls, piers and abutments.

To optimise business expansion in the region through the provision of technical equipment and services for future projects, formwork manufac-

turer MEVA and distributor Novatec Formwork Systems formed the Novatec-MEVA-Pilbara joint venture. For 20 years, the two companies have collaborated successfully in meeting the high safety requirements placed on many projects on the fifth continent. Novatec is involved in large-scale projects, such as high-rise buildings, commercial centres and residential parks, throughout the country. Under the joint venture, the required systems and services are delivered quickly and flexibly to the resource-rich region.

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Project data

- **Project**
 - New bridge construction, Pilbara region, Western Australia

- **MEVA systems**
 - Mammut 350 wall formwork
 - StarTec wall formwork
 - AluFix wall formwork
 - STB 450 support frame
 - Triplex heavy-duty brace
 - LAB safety system

- **Engineering and support**
 - Novatec, South Australia



Quick, light and easy

MonoDec impresses on White Alpha scheme in India

Whitefield, sometimes dubbed “India’s Silicon Valley”, is a suburb of the megacity Bangalore. It is the birthplace of forward-looking ideas and technologies, where everything has to happen at lightning speed. The White Alpha development, for instance: two ten-storey office blocks for the IT industry. On this, its first deployment on the Indian subcontinent, MonoDec put in a convincing performance.

The ambitious timeframe, requiring completion of the structural works for the 10,000 m² project within seven months, demanded strict organisation. Clear-cut requirements were placed on the formwork products: they had to be quick and easy to use, and perform reliably. This prompted the distinguished contractor, L&W Construction, to deploy some 1,500 m² of MonoDec panels on what is the system’s maiden project in India – an investment that immediately paid off.

After the operatives had quickly familiarised themselves with the formwork system, with its light-weight, easily manageable, though no less robust aluminium panels, work was soon in full swing. The 50 cm wide panels, with their practically sized 63.5 mm profile and weighing only 19.5 kg/m², allowed easy movement and assembly by a single operative. The panels are available in five lengths between 50 and 165 cm. The straightforward

handling of the economical system helped to speed up progress on site. Its non-stop use to ensure successful completion of the first building proved a rigorous test, which it duly passed.

Drop-head technology for speed and convenient early stripping, made possible by the drop-head method, achieved considerable savings on the White Alpha site. After concreting, a few hammer blows against the drop head wedge rings suffice to lower the primary beams and panels by 10 cm. These can then be effortlessly removed and prepared for further deployment while the props continue to support the concrete slab. The drop-head method offers the additional advantage of requiring fewer beams and panels to be kept on site. The generous (150 x 180 cm) spacing of the props also provides workers with ample room to manoeuvre.

The cost-effective MonoDec slab formwork system caters for slab thicknesses between 20 and 44 cm while being 100 % recyclable and eco-friendly. It is resistant to corrosion, moisture and fungal attack, thereby guaranteeing a long service life. At the site in Whitefield, the rapid progress achieved through its continuous deployment paid enormous dividends. The buildings, each with three parking decks, a 4.2 m tall ground floor and six 4.05 m tall office floors, grew rapidly. Yet, straightforward assembly and stripping without expensive crane-



age were not the only success factors: cleaning the formwork panels also required less time due to the reduced concrete adhesion. Moreover, the high quality of the concrete finish provided L&W Construction with the final proof that they had chosen the right formwork solution.



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Project data

- **Project**
 - White Alpha office buildings, Bangalore, India
- **Contractor**
 - L&W Construction Pvt. Ltd., Bangalore
- **MEVA systems**
 - MonoDec slab formwork
- **Engineering and support**
 - MEVA India





Built on a sound foundation

Mammut 350 wall formwork delivers strong performance in Atacama Desert

At an open-cast mine in the Antofagasta region of northern Chile, Mantos Copper extracts copper oxide minerals for the production of copper concentrate. The installations at the Mantos Blancos mine are undergoing modification with the aim of increasing annual output to 50,000 t and cutting running costs.

Scheduled for completion by the end of 2020, the project involves expansion of the copper oxide/copper sulphide lines and concentrator system by industrial construction company Promet Sp.A. One key element of the scheme comprises installation of a ball mill, a cylindrical machine for grinding the extracted ore. This requires construction of a new 28.50 m long, 17.20 m wide and up to 14.00 m tall building, which stands on a monumental 2.80 m thick foundation.

Seismic risk assessments, the mass of the development and the dynamic impact and friction loads from the milling operations necessitated

the placement, within 40 hours, of over 1,400 m³ of concrete in the rock-strewn Atacama Desert. Recognising the need for a highly robust formwork system to accommodate the sheer volume of concrete, GFS Global Formwork & Scaffolding opted to supply MEVA technology. The solution featured the strong, industrial Mammut wall formwork system, with 300 cm tall panels and a fresh concrete load capacity of up to 100 kN/m².

As a seasoned expert for large-scale formwork applications, GFS advised Promet on the development of a safe, reliable and practical design solution. As additional support for the externally braced Mammut panels in resisting the hydrostatic pressures, the formwork supplier provided for the incorporation of specially designed anchors: through their tensile strength, twin tie rods secured from the outside by bolts offered extra stability. GFS also advised the customer on the calculation of pour speeds, the checking of cold joints and the preparation of construction joints.





The Mammut 350 formwork system is particularly important for GFS. “With panel sizes up to 3.50 x 2.50 m, it is by far the biggest system on the Chilean market,” explains GFS General Director Rodrigo Muñoz. “And the fact that it needs so few accessories per square metre significantly boosts productivity.” MEVA’s Chilean partner is no less impressed by the durable alkus all-plastic facing, which is easy to clean and repair. After – quite literally – “laying the foundation” for successful delivery of this project in the Atacama Desert, Mammut was also used for the subsequent pour cycles.

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Project data

- **Project**
 - Molino Bolas, Mantos Blancos, Chile
- **Principal**
 - Promet Sp.A., Chile
- **MEVA systems**
 - Mammut 350 wall formwork
- **Engineering and support**
 - GFS Global Formwork & Scaffolding, Chile



Octagons place heavy demands

Ten fish farm tanks cast with Mammut 350 and hinged corners

Contractor Arne-Olav Tveit AS was mandated by a fish farm in Norway to build ten octagonal concrete tanks. Mammut 350 wall formwork was used in conjunction with MEVA hinged corners to create the precise geometry.

The new, 5 m high tanks installed on the rocky coast near the Norwegian town of Kragerø can hold some 8,000 m³ of water and many tonnes of fish. Four were built with an internal wall-to-wall distance of 16.5 m while the other six spanned 12.5 m. MEVA's Norwegian distributor Maxbo Teknikk supplied the formwork systems along with expert support.

Easily adaptable formwork panels

Instead of a commonly adopted steel or plastics solution, the customer Fossing Stormolt AS opted for an extra-durable concrete fish farm tank. Formation of the 135° angles required for the

octagonal shapes necessitated the incorporation of MEVA's hinged inside and outside corners. These are used for non-orthogonal angles and permit continuous adjustment between 60° and 180°. This allows the simple and precise adaptation of wall formwork, such as the 350x250 cm Mammut panels with their 8.75 m² contact area. All that was needed was to fit alignment rails using MEVA's handy flange screws to the intelligent multi-purpose profiles with their welded-in Dywidag nuts. The hinged corners were secured at the required angle with an easy-to-use locking device for frequently adopted configurations (70°, 90°, 120°, 135° and 180°).

The robust Mammut 350 heavy-duty formwork with a full-surface fresh concrete load capacity of 100 kN/m² significantly speeds up concreting operations. The 40 cm thick tank walls were rapidly erected with self-compacting concrete (SCC).



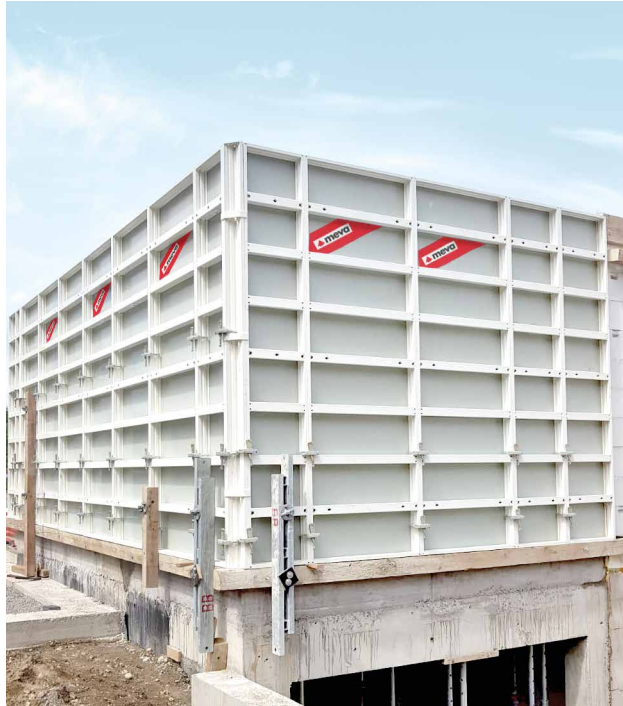
Mammut 350 is fitted as standard with the high-grade alkus all-plastic facing. The form face is hard-wearing, repairable with the same material and absolutely even while delivering a smooth, flawless concrete finish – a crucial requirement in this case to eliminate any risk of injury to the fish.

Given the geographical factors governing the site on Norway's craggy coastline and the unusual concreting geometry, this project called for in-depth formwork planning expertise. Maxbo Teknikk's technical department accordingly drew on its profound experience in formwork design and dimensioning. The solution involved the use of 350 and 250 cm tall panels in three different widths. The ten tanks were completed on time, in the specified quality and to the customer's full satisfaction.

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Project data

- **Project**
 - Fish farm, Kragerø, Norway
- **Principal**
 - Fossing Storsmolt AS, Helle, Norway
- **Contractor**
 - Arne-Olav Tveit AS, Neslandsvatn, Norway
- **MEVA system**
 - Mammut 350 wall formwork
- **Engineering and support**
 - Maxbo Teknikk, Norway



Many tasks – one formwork

AluFix in use for walls, slabs, balconies, shafts and architectural concrete

When walls need to be poured in existing buildings, during conversions or in confined spaces, the lightweight, easy-to-handle AluFix system is used regularly. During the construction of a multi-family house in southern Germany this formwork proved that it can achieve much more besides.

In Neufra-Riedlingen, where the young, narrow Danube meanders through meadows and forests, a multi-family house was built with a gross floor area of around 300 m² and two 2.75 m high storeys. In order to complete the project in the specified time and to the specified quality, the construction company responsible, Brul-Bau, required remarkably little formwork material. Only 165 m² of AluFix panels, 300 props 20/300 and AluFix prop heads were transported by MEVA to the construction site for the construction of the concrete building shell. Thanks to straightforward logistics and simple handling with few parts, the workers achieved rapid construction progress.

AluFix for walls and shafts

The AluFix panels are even lighter than plastic formwork, and at the same time they are exceedingly durable and require fewer connecting elements. Furthermore, the ergonomic grip profiles contribute to the simple handling. This enabled the walls of the residential building to be formed

effortlessly, quickly and, even in wet conditions, safely. Due to the optimum range of panels with six widths ranging from 20 to 90 cm and heights from 135 to 350 cm, AluFix is the ideal solution for trouble-free corner solutions for every wall thickness and for smaller concrete surfaces such as small garden or retaining walls. The unproblematic creation of the residential building's atria underscores the versatility of this formwork. With a permissible fresh-concrete pressure capacity over the entire surface of 50 kN/m² and the strong, torsionally rigid aluminium profile, AluFix is extremely resilient and enables optimum results to be achieved when performing practically all tasks involved in craneless residential construction.

AluFix as slab formwork

Depending on the panel size and the type of support, slabs with a thickness up to 46 cm can be poured using AluFix. MEVA props and AluFix prop heads can be firmly connected to the lightweight formwork panels in just a few simple steps. At the point of intersection of four panels, or at the joint of two panels located at the slab edge, a robust, painted cast AF prop head is installed on each MEVA prop and simply secured with a pin. The prop heads enclose the panel profile. This enabled Brul-Bau to quickly and safely form a total of 500 m² of slab in the residential building as well as the balconies.



AluFix for architectural concrete

With the alku all-plastic facing fitted as standard, the Brul-Bau construction workers achieved high-quality results throughout – right through to a 4.6 m high retaining wall in architectural concrete quality. The AluFix system also proved convincing in other aspects of its handling: The closed aluminium profile with a high-quality cured powder-coated finish enables quick and resource-conserving cleaning. Due to its durability and lasting high quality – including a 7-year long-term warranty on the alku facing – the popular MEVA formwork promises its owner a long period without having to worry about high secondary costs or the need to invest in replacements.



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Project data

<p>→ Project</p> <ul style="list-style-type: none"> - New multi-family house, Neufra-Riedlingen, Germany 	<p>→ MEVA systems</p> <ul style="list-style-type: none"> - AluFix wall formwork system - Props 20/300
<p>→ Contractor</p> <ul style="list-style-type: none"> - Brul-Bau UG, Riedlingen, Germany 	<p>→ Engineering and support</p> <ul style="list-style-type: none"> - MEVA Schalungs-Systeme GmbH, Haiterbach, Germany



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Polygon-shaped challenges

Winding floor slab formed using AluFix and columns with StarTec XT

It doesn't always have to be right-angled. The residential buildings on the "Funkenwiese" in the German town of Kempten have polygonal floor plans with a variety of angles. The construction company B. Wassermann Bauunternehmung values the efficiency of its AluFix formwork and also employs the wall formwork systems StarTec XT and Mammut XT as well as the LAB working platform.

Seven multi-family houses are currently being built on a park-like plot of land. However, these are not your typical rectangular buildings with a maximum utility value. On the contrary, the two larger and the five smaller buildings march to a different tune: polygonal floor plans with numerous non-right-angled corners present the construction companies with tasks that do not occur every day.

Easy-to-handle and quickly set

B. Wassermann Bauunternehmung was commissioned with the construction of the building shell of one of the larger buildings. An elongated floor plan in the form of a stylised rosetwig is being cre-

ated on a surface area of 1,075 m² and above an adjacent underground garage of 1,000 m². The building consists of five storeys including the basement and the ground floor with heights of 3.00 and 3.30 m respectively as well as three upper floors, each with a height of 2.65 m. A floor slab with a thickness ranging from 45 to 55 cm and formed by B. Wassermann

Bauunternehmung using AluFix formwork serves as the base. The lightweight and nevertheless robust hand-set formwork is the ideal choice here, as this project involves hardly any long walls or floor slab formwork with large surface areas. The formwork on the ground was created without any problems using 55 cm wide panels, used horizontally, and the practical brace bracket 80 from MEVA.

"AluFix proved its worth straightaway and demonstrated that it is very well suited for the creation of floor slabs with difficult geometries. The system can be set quickly and efficiently, and safely carried by hand even when there isn't a lot of room," reports construction manager Daniel Christ. During the project in Kempten the panels are also being used to manufacture the concrete beams and the parapet walls.

Tied from one side using XT formwork

The high-performance XT wall formwork systems were also used without a hitch by Daniel Christ's team. The large-format Mammut XT played to its strengths, among other things during single-sided tying while constructing the 3.30 m high basement walls. Using 2.70 m high StarTec XT panels, B. Wassermann Bauunternehmung created columns, among other things. The combination tie hole fully integrated into the frame in both XT formwork systems combines three tying methods in one system and allows flexible switching between conventional and single-sided tying with a flick of the wrist without additional parts or additional assembly. This enables the user to achieve significantly shorter formwork times than would be the case using comparable systems.

As the entire building structure was split into two construction phases, an exceedingly high falling edge was created at the building separation joint during the first construction phase. It was not possible to secure this edge, as work had already started on the second construction phase as the construction work on the first phase progressed. The LAB working platforms, which wandered upwards floor by floor, provided the solution to enable the work to be performed safely.



Project data

→ Project

- New multi-family house, Kempten, Germany

→ Principal

- Sozialbau Kempten, Wohnungs- und Städtebau GmbH

→ Contractor

- B. Wassermann Bauunternehmung, Kempten, Germany

→ MEVA systems

- AluFix wall formwork
- Mammut XT wall formwork
- StarTec XT wall formwork
- LAB working platform

→ Engineering and support

- MEVA Schalungs-Systeme GmbH, Haiterbach, Germany



Interview

“Very successful business expansion”

Experiences with the use of AluFix in the rental pool and building site applications

WS Schalungs- und Betontechnik GbR based in Havelsee in the German state of Brandenburg has been established for 30 years as an experienced formwork rental company and service provider. The managing directors Michael Warsow and Ronny Steinicke explain why they rely on AluFix in the rental pool and on the construction site out of conviction.

When and why did you decide to use AluFix?

We have been working very successfully with AluFix since 2013, both at our customers and in our rental pool. Especially due to the availability of 150 and 300 cm high panels and five widths up to 90 cm, AluFix provides for excellent coverage of our customer's requirements in civil engineering and building projects. The system is significantly lighter than a comparable steel formwork system, can be moved by crane without any problems and also easily handled in our rental pool.

How do you rate the range of panels and the weight?

To form foundations, we use the 75 cm width and the flexibly deployable 75/75 panel. For heights we mainly use the 150 and 300 cm panels. The

complementary widths from 25 to 75 cm allow for an almost unlimited range of applications and adaptations – both for horizontal and vertical applications, as AluFix is not bound to a rigid grid pattern. The panels can be adapted to suit every geometrical form without additional parts. To compensate for different wall thicknesses, we use the outside corners 0 and 5. The outside corner 5 has two 5 cm long legs. This enables us to significantly reduce the number of panel widths required. The most used panel size is 300/75.

Formwork's average weight per m² is only about half that of comparable lightweight steel formwork. This is very much appreciated on the construction site as the work becomes considerably easier and can be performed a lot quicker. It is even possible for one person to perform the work continuously over a long period, as the 150/75 panel only weighs 23 kg.

Do you also use the formwork with a crane?

Yes, when forming large surface areas with repetitions. Due to the attachment of the alignment rails to the multi-function profiles by means of flange screws, we achieve a level of surface stiffness that



enables us to move gangs and relocate them by crane. The simple assembly of the lightweight panels allows us to further reduce the formwork time significantly.

Which panels are rented most frequently?

The 300/90 and 300/75 panels – these allow large surface areas to be formed with only a few tying positions. They are often used to construct lifts, also when retrofitted, and also to form concrete columns and large wall units with integrated columns. Up to heights of 3 metres we have not yet been able to determine any measurable deflection. In horizontal applications for strip foundations we generally use the same panels with underlying foundation tape and tensioning via the foundation using the tensioner for foundation tape.

How do you rate the attachment of accessories and the panel connection by means of assembly locks?

In all MEVA panels, regardless of the type of wall formwork, the multi-function profiles are designed as closed and symmetrical profiles with integrated Dywidag threads. For this reason, we use short DW tie rods with nuts or MEVA flange screws. Workmen can attach props, rails or every other type of mounting device in a single operation. The connection of the frames with the MEVA assembly lock is superbly easy and quick. It can be attached vertically or horizontally at any position on the frame and aligns itself automatically.

What have been your experiences with regard to damage and reparability?

AluFix is light, but also robust due to the closed symmetrical, and thus torsionally rigid profiles. Over the last eight years we have had significantly fewer cases of damage and thus repairs to the stock in our rental pool than was previously the case with the lightweight steel formwork. Apparently, the aluminium formwork is handled with greater care. We have thus had to spend considerably less on repairs. For us, this is a major and positive factor and means that the economic viability of our investment is much greater and the rental business significantly more profitable.

The formwork panels are equipped with alkus all-plastic facings. How does this benefit you?

The benefit for us as a rental company is enormous compared to the old days when we still had formwork with plywood facings in our portfolio. We pressure-wash the alkus facing at 500 bar. Scratches and surface flaws can be repaired very easily, very quickly and, furthermore, using the same material. In the case of plywood facings, we had to clean every damaged area, remove oil residues, grind out the flaws and then glue in wooden platelets or fill out scratches with two-component adhesive. A long and complicated process. The service life of the plywood facing was limited by the constant presence of moisture and mechanical loading.

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During eight years of constant use up to the present day, we have not had to replace a single alkus facing, and since then the repair costs in our rental pool have been 40 % lower. This makes our business substantially more cost-effective and we are able to pass the savings on to our customers. The use of the alkus facing in the MEVA frames provides us with the highest level of savings.

Which advantages does alkus provide for your customers?

The quality of the concrete surfaces is always consistently high, irrespective of the weather conditions and the outdoor temperature. They are no visible nailing hole or platelet imprints. The facing does not absorb water and does not swell – over the entire service life. The customer has far lower secondary costs due to repairs during use on the construction site.

How long is the average service life of the AluFix panels in your rental pool?

Our AluFix panels have been in constant use since 2013, i.e. for eight years, with a utilisation rate of 70 to 75% and continuous turnaround – and they are still in good condition.

How do you rate AluFix compared to systems made of steel or plastic?

A wall formwork made of aluminium, designed like AluFix, is clearly the better, more cost-effective alternative to steel. With a panel height of 3 metres, the system is unbeatable. No other system can match this – whether made of steel or plastic. AluFix is very light and has few tying positions, but is also robust and highly resilient. The panels do not have to be connected in a predefined and restricted grid pattern. Formwork panels from other manufacturers, on the other hand, have to

be connected by means of precisely aligned holes; they lack the flexibility required to adapt the panels to suit different geometries.

And with regards to economic efficiency?

A use-by date is stamped into plastic formwork. That means every purchaser sees that he has to take his formwork out of service and have it recycled after ten years at the latest due to the ageing of the plastic. AluFix can be used indefinitely and can be repaired. Furthermore, it requires fewer parts and, as we have been able to observe, saves time during use. This has a very positive effect on the cost-effectiveness.

How would you summarise the differences between a steel frame formwork with small surface areas and AluFix?

We consider the significantly lower panel weight and the long service life of both the frame and the alkus facing to be fundamental for the cost-efficient use of AluFix in our rental pool. To the best of our knowledge and also according to evaluations performed by construction companies that rent our formwork, there is presently no wall formwork system on the market that can be used anywhere near as easily and quickly as the aluminium AluFix system. We are generally able to use AluFix at least 25 to 30% quicker than formwork panels – whether made of steel or plastic – with predefined panel connection holes that are subject to a fixed grid pattern. This has enabled us to very successfully expand our business over the course of the last few years. We are able to offer our customers shorter formwork times and thus, all told, significantly more economical use of the formwork.

What developments are you expecting with regard to formwork services?

Our customers expect us to offer an all-in-one package that covers all necessary services rather than a list of individual services – including formwork planning; economic viability studies; secondary costs that occur after return; and transport and return transport. This creates a high level of customer trust, as it enables him to calculate his output more reliably. We have been running our formwork rental pool in Brandenburg with this service very successfully for 30 years now.

Foundation formwork made simple

Internal tie holes as additional AluFix refinement

40 years ago in 1981, MEVA caused a sensation with a new aluminium formwork system. Christened "Alu-Wand + Decke" ("Alu Wall + Slab"), the novelty combined unusually low weight with nonetheless high stability. After various refinements in the early 1990s, the universal hand-set formwork was given the name it has kept to this day: AluFix. Consisting of only a few standard components, the system simplifies operations on site while shortening assembly times. Even today, these merits are greatly appreciated by builders working on residential, commercial, refurbishment, infrastructure, garden architecture and landscaping contracts.

Since its introduction, AluFix has been progressively optimised and carefully adapted in line with customers' requirements. One striking feature of the freshly launched new generation is the colour of the high-grade powder-coated finish. To make

it more easily distinguishable from AluStar and other systems, AluFix is now supplied in RAL 7023 "concrete grey". One key technical innovation, however, only reveals itself on closer inspection: all 90 and 75 cm wide panels, whatever the height (350, 300, 270, 250, 150 or 135 cm), are provided with additional internal tie holes set back from the edge by around 20 cm.

These are particularly useful for casting foundations. Users require less material to fix the formwork panels, which in turn reduces the work effort. Ties, plastic tubes and articulated flange nuts, all readily available on site, can be quickly assembled in the usual way without any obstruction by the metal waterstops and without any need for foundation tape, trolleys or tensioners. As AluFix is easy to set up with MEVA brace brackets, e.g. SK 80, it is permanently ready for use. No tools or materials are required to saw boards to size or place wooden stakes.

Fewer parts – greater cost-effectiveness

The best components on a building site are those that are not needed in the first place. For the simple reason that they do not have to be purchased, transported, hunted down, installed, cleaned or replaced if lost or damaged. This equally applies to the above-mentioned foundation formwork ancillaries. Here too, AluFix scores impressively, above all in relation to plastics formwork. As a comparison for a specimen floorplan with a 26 m perimeter and 2.70 m formwork height shows, AluFix requires far fewer panels, assembly locks, ledgers, flange nuts, tie rods, alignment rails and stop-end brackets than a standard plastics formwork system: in all, only 611 parts instead of 1,311.



The additional internal tie holes in AluFix panels simplify the assembly, for example, of foundation formwork. Users consequently require fewer components.

You can rely on us wherever you are.

With 40 offices on 5 continents, we are
on the spot wherever you need us.

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