
MAURER || MAG



BAKU TOWER
The tallest building
in the Caucasus

FREEDOM ON RAILS
First Duelling Spike
Coaster worldwide

UMADUM
Munich's Observation Wheel
under a new name and
with plenty of heart

Structural Protection Systems

STRUCTURAL BEARINGS | EXPANSION JOINTS | SEISMIC DEVICES | VIBRATION ABSORBERS | MONITORING



GAZPROM-ARENA, ST. PETERSBURG, RUSSIA

Task: Support of the roof construction.

Project scope: 96 MAURER Spherical Bearings, of which 60 Uplift-/Load Bearings. Max. Load capacity: 17.500 kN, min. load capacity: – 3,500 kN (tensile load).



ARENA DA AMAZÔNIA, MANAUS, BRAZIL

Task: Unrestrained transmission of forces and rotations of the steel roof construction.

Project scope: 36 fixed MAURER Spherical Bearings from 3,300 to 6,000 kN load.



ALLIANZ ARENA, MUNICH, GERMANY

Task: Support of the roof construction.

Project scope: 96 MAURER MSM® Spherical Bearings.



STADE PIERRE-MAUROY, LILLE, FRANCE

Task: The system supports the movable soccer pitch.

Project scope: 36 MAURER special recentring Spherical Bearings.

Dear readers,

Almost exactly one year ago, we published the first issue of the MAURER MAGazine. Since then, many things have happened, in the world and in the company. The Covid-19 virus presented all of us with a major challenge.

We have well mastered the Corona crisis so far. Especially the separation between manufacturing and administration turned out to be particularly reasonable. In this way, we did not experience an enforced break in manufacturing and were able to process the orders right on schedule. It is not completely clear yet how we will weather the repercussions in the end. However, and that is a positive message for you, too: things will go on!

Now we are glad to present once again several outstanding projects which fill us with pride and joy in the second issue of MAURER MAGazine. Moreover, we are delighted that you will be able to get a true impression of some of our staff members on the following pages, who will introduce themselves with job-related and personal stories.

MAURER Rides, a company within the MAURER Group that has specialized in fun rides, gives a descriptive presentation of an important product and project that can be characterized as a thrill ride. Have an enjoyable reading experience. We are looking forward to your feedback.

With kind regards from Munich,



Dr. Christian Braun



Max Meincke



6 MAURER NEWS

MAURER's MarCom Team issues press releases on interesting projects and new products in regular intervals in cooperation with in-house product experts.

10 VDI HONORS DEDICATED YOUNG TALENT

Thanks to the outstanding cooperation with the VDI supporting member MAURER SE, the six VDI awards in the categories Bachelor, Master and Doctoral Thesis could be handed over in an impressive ambiance. High above the rooftops of Munich, at the Hoch5 in the "Werksviertel", the award winners 2019 were honored with a ceremonial act.



26 BAKU TOWER: 400-TON PENDULUM IN THE ONION

In Baku, the capital of Azerbaijan, the tallest building in the Caucasus was built. The 277-m high Baku Tower is constantly subjected to enormous wind loads. For this reason, a 400-t pendulum damper was installed on the uppermost platform. Its special feature: in case of strong wind and earthquake, the 400-t mass block moves horizontally by up to 1.3 m in all directions in a controlled manner.

30 WITH ALL DUE RESPECT

It is always the people that coin a culture together with others – also a corporate culture. This particularly applies to our Sales Manager Middle East & Africa, Raad Hamood.

MAURER | TOPICS



14 NEW FACES

We met Torsten Ebert, who, as head of the Technical Office, examines the load-bearing capacity and resilience of our products and also takes care of the wishes of customers and colleagues.



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First Duelling Spike Coaster worldwide in Ravenna, Italy. Here, it depends on the courage of the rider at what point he accelerates or hits the brakes – the best will win.



22 UMADUM – MUNICH'S OBSERVATION WHEEL

Since July, the Observation Wheel in the east of Munich has been spinning again – under a new name, with new, more favorable prices and with plenty of heart and charm.



32 WE ARE MAURER

Stefan Vollert // Development Department: His focus is on calculation.
Marcel Brielmaier // Human Resources: He takes care of the staff in our foreign locations.



34 MAURER EVENT CALENDAR

In the coming months, we will attend the conferences shown here.

// IMPRINT

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COVID-19 // MAURER GETS OFF TO A FLYING START

Munich. Covid-19 forced MAURER SE, too, to do some reorganization work. So, right at the onset of the pandemic, a crisis team was established. The necessary measures were implemented in next to no time, like, for example, the separation between manufacturing and administration, home office across the board, systematic testing of the staff in suspected cases, procurement of equipment and disinfectant et cetera. In this way, orders could be processed on schedule in order to avoid costly consequences.

However, it was inevitable to shut down the operation of the Observation Wheel on March 3, 2020. The staff were subjected to short-time work. However, this phase was also used to optimize the operator's and operational concept so that we were able to reopen in July with a new concept.

SIX LANGUAGES // MAURER WEBSITE

Munich. The website of MAURER SE is fluent in German, English, Spanish, Chinese, Russian, and now also Turkish.



Scrutinizing looks during the functional test of an MMBS element

PRATER BRIDGE VIENNA // EXCHANGE OF EXPANSION JOINTS TOOK ONLY 45 MINUTES

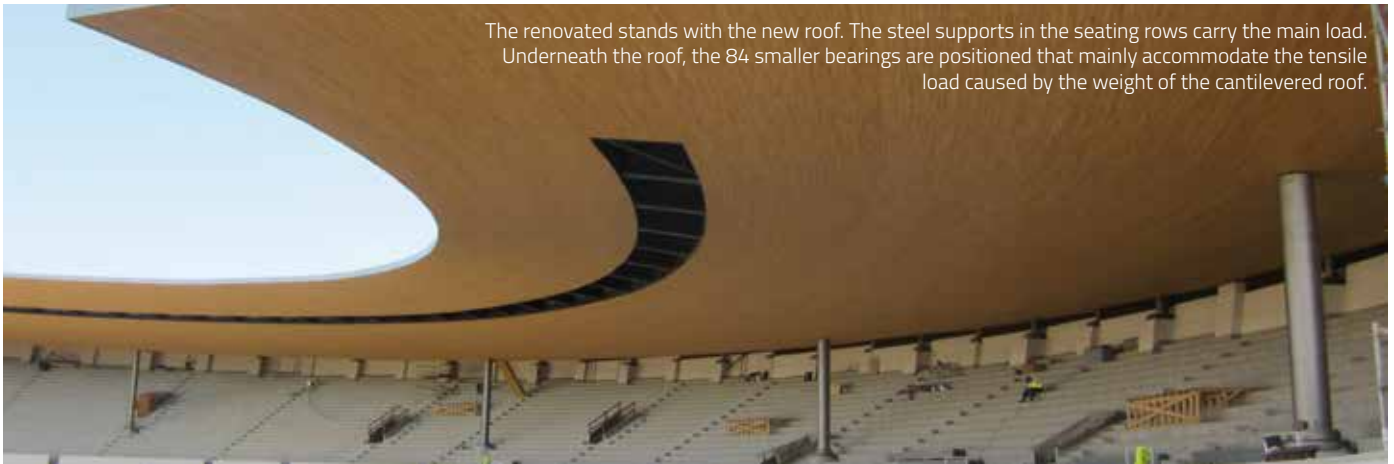
Replacement of all movable expansion joint parts without full closure.

Vienna. The challenge was to organize the reconstruction without considerable traffic impairment. During the day, traffic had to continue on four lanes, and even at night no full closure had been approved. The official authorization said that the police could stop traffic for 15 minutes at most. Within these extremely short timeframes, the constructional measure, which is complex both in terms of technology and logistics, had to be completed – with high employment of staff and machines on an extremely confined construction site.

With 220,000 vehicles per day on average, the Prater Bridge as a section of the South-East expressway Vienna (A23) is the busiest highway bridge in Austria. Now the expansion joints (MAURER DS420) on the four-lane bridge have to be partially renewed. The expansion joint replacement in Southern direction was done in September/October 2019. The expansion joints in Northern direction are scheduled by ASFINAG starting in April 2020.

The police had to stop traffic only three times for 15 minutes to lift the central supports of the new expansion joints into position on the four-lane A23 highway bridge. The only way to adhere to the ambitious time schedule was the use of MMBS (MAURER Modular Bridging System). The bridging system had been tested by the client, ASFINAG (Autobahn- und Schnellstraßenfinanzierung AG), prior to its first deployment on an Austrian highway.

The renovated stands with the new roof. The steel supports in the seating rows carry the main load. Underneath the roof, the 84 smaller bearings are positioned that mainly accommodate the tensile load caused by the weight of the cantilevered roof.



MAURER SPECIAL BEARINGS FOR // THE MODERNIZED HELSINKI OLYMPIC STADIUM

The historical Helsinki Olympic Stadium is subjected to fundamental modernization and roofing while preserving its visual appearance.

Helsinki. For this modernization to be a success despite monument protection, architectural conditions, significant wind loads and high safety requirements, MAURER has developed special MSM® Uplift Bearings. They protect the new roof against uplift forces, accommodate high alternating loads and balance complex movements and rotations.



Helsinki Olympic Stadium with building site storage in front of the listed and renovated façade

The stadium, built from 1934 to 1938, was the venue of the 1952 Olympic Games. The arena is considered the most beautiful in the world – it was the result from an architectural competition with the architects Yrjö Lindgren and Toivo Jäntti as the winners.

The challenge: a roof for the historical stadium

In the future, all stands are to be roofed, not just along one straight as before, without changing the listed exterior façade. The new roof was designed as a steel skeleton structure resting on the main

supports in the stands. Instead of counterweights, the crane-like cantilevers are prolonged beyond the support point and fixed at 84 bearing points on the exterior shell of the stadium.

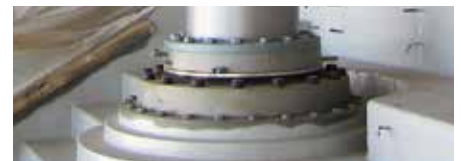
Long list of requirements for the bearings

For this reason, the building owner determined the following, here abridged, requirements on the bearings:

- Alternating vertical compressive and tensile forces
- Torsions and horizontal freedom of movement
- Temperature-resistant from -36 °C to +50 °C
- Limited geometry
- Service life of more than 50 years

MSM® resolves lack of space

The crucial components of the solution were the uplift bearings and the MSM® Sliding Material – both in-house developments by MAURER. The size of the 84 upper bearings had to be reduced in order not to disturb the exterior appearance of the spruce wood façade. Likewise, there was extremely limited space available for the bottom supports of the main pillars on the stand steps. However, the main bearings positioned there had to accommodate alternating loads of -12,000 kN pressure up to +3,000 kN tension, with simultaneous rotations up to 0.010 rad under horizontal loads. The only option to meet these requirements was the use of MSM®



One of eleven uplift bearings

Sliding Material. In comparison with customary PTFE (Teflon), it accommodates twice the loads at equal size without wear or fatigue. The main pillars in the stand curves rest on 11 uplift bearings featuring a diameter of 1,500 mm each.

Uplift spherical bearings protect against uplift forces

Due to the special wind conditions at the Helsinki stadium, which is located near the sea, and the special support structure, the roof had to be protected against uplift forces. For this reason, the MSM® Spherical Bearings were complemented by a tension core and lateral holding devices capable of sliding.

Service life of more than 50 years

The outstanding characteristic is a service life of more than 50 years. The abrasion of the “MAURER Sliding Material” tends towards zero, even at high accumulated sliding paths. In addition, MSM® meets the required temperature resistance from -36 °C to +50 °C and beyond.

The inauguration of the stadium is planned for 2021.

ROOF PROVIDES MASS FOR // SEISMIC PROTECTION

Vibration absorbers stabilize 9-story building in Peru against earthquakes

Arequipa. How can a modern building with a soft-framed structure be protected against earthquakes without investing a great amount of money in stiffening or damping systems which, on top of that, are unwanted for the architectural design? In the Peruvian city of Arequipa, Professor Simbort Zeballos from the local university has developed a solution: a roof consisting of an elastically mounted mass plate. As a well-versed partner for seismic damping, MAURER was brought in. The building owner of the 9-story building is the insurance broker Consejeros. This line of business is interested in safety per se and also in specially designed company headquarters.

Modern type of construction leads to vulnerability

The 40-m building features a slender, asymmetrical, soft-framed structure. This does not cause any trouble in normal operation since wind impact can be considered insignificant; however, in case of an earthquake, damages would have to be expected. Yet the building owner did not want to interfere with the architectural design by adding internal stiffening walls.

Professor PhD Enrique Simbort Zeballos from the Catholic Univer-

sity San Pablo, Arequipa, was consulted as an expert. Together with Eng. Luis Becerra he determined the exact behavior of the structure.

Damper on the roof

As a solution, Professor Simbort Zeballos proposed a TMD (Tuned Mass Damper) spring-mass damper, consisting of a horizontal concrete plate (mass) placed onto Lead Rubber Bearings (damper and spring). For MAURER, this was the first structural engineering project employing the TMD principle primarily for the seismic load case rather than the wind load case. The damping effect is achieved by the elastically supported mass, the vibrations of which counteract the direction of the building movement in case of displacement. However, the seismic load case requires a relatively great mass, and the crucial idea of the planner was to use the flat roof for this purpose.

Every building needs a roof

In Arequipa, the respective steel concrete plate was uncoupled from the building and calculated in such a manner that it provided the required vibration mass. Hence, the mass required no additional space and, in addition, the building mass to be dampened was reduced.



The mass plate as part of the roof



The new 9-story office building of the insurance broker Consejeros in Peru features a slender, asymmetrical, and soft-framed structure.

Moreover, this solution enabled a reduction of building costs since the vibration mass forms part of the required building structure.

Exact adjustment and tests

The exact adjustment of the bearing frequency to the real eigenfrequency of the structure was crucial. This was the reason why this frequency was measured with highly sensitive acceleration sensors only after construction was completed. The LRBs were then produced to exact fit, which means: the height and outline were designed accordingly. They were produced at the MAURER subsidiary NEOPREX in São Paulo. The bearings are designed for an earthquake expected to occur once in approx. 2,500 years (MCE). The bearings were installed in early 2019, the mass plate was ready for installation in May, and the building was ready for occupancy at the end of 2019.

A JEWEL RESTING ON // SPHERICAL BEARINGS

14 support bearings accommodating structural loads of up to 8,000 kN in Singapore

Singapore. Singapore has put a gem into its architectural crown, the “Jewel Changi Airport”. The largest single-layer steel-glass construction and the world’s largest indoor waterfall – both resting on 14 MAURER Spherical Bearings. A new showcase project of the bearing specialists from Munich.

The large steel-glass construction measuring 137,000 square meters is situated like a slightly oval donut between terminals 1, 2 and 3 and connects them. In the center, quasi in the “eye” of the donut, the world’s largest indoor waterfall drops 40 m – during the monsoon season with a flow rate of about 40,000 liters of rainwater per minute.

As project manager at MAURER, Dipl.-Ing. Peter Günther travels around the globe and has seen many things – however, even he admits: “This is really impressive: the forest, the waterfall, the entire dimension and atmosphere – beyond comparison.” On ten stories, the Jewel hosts a 130-room hotel, 280 shops, bars and restaurants, a movie theater, an amusement park, check-in counters, baggage check-ins, and a jungle with over 60,000 trees and bushes.



The world’s largest indoor waterfall drops 40 meters in the Jewel at Changi Airport in Singapore. The waterfall and the roof and façade structures are supported by 3- or 4-armed pendulum supports that can be seen at the upper right of the picture.



GUIDED CROSS-TIE // WORLDWIDE FIRST ABSOLUTELY EARTHQUAKE-PROOF RAILROAD BRIDGE EXPANSION JOINT

Complex seismic protection system for two viaducts in Mexico

Mexico City. The railroad line Toluca–Mexico City is scheduled to become operational early in 2021. The special feature is the MAURER seismic protection system for two long viaducts. For this purpose, so-called guided cross-ties, the first absolutely earthquake-proof railroad bridge expansion joints, are installed at the ends of the individual bridge sections.

Together with a complex system consisting of bearings, dampers, and elastomeric spring isolators they ensure structural stability, function, and safety for various load cases: from braking and acceleration forces in normal operation to the Maximum Considered Earthquake (MCE).

The frame conditions present a challenge. The two largest bridges, viaduct 2 (3,865 m long) and viaduct 4 (1,448 m), are situated in the mountains. Moreover, the region is highly earthquake-prone. The piers feature distances of up to 64 m and a height of up to 65 m. It is the first Mexican railroad project that includes viaducts of such dimensions in a region with extremely high seismic accelerations. In view of these seismic forces, customary reinforcements by concrete and steel in the

structure would have been neither sufficiently safe nor economically reasonable.

Instead, a combination of different structural protection systems was used that allow for controlled movements and completely accommodate them, thus alleviating the seismic impacts. The very individual adjustment of the single structures to the influencing variables from an earthquake could only be realized in close cooperation between MAURER and the building planners. It is required that trains can safely cross the viaducts even immediately after a severe earthquake.



The guided cross-tie in the test lab: these worldwide unique railroad expansion joints are capable of transmitting and accommodating fast, pulsed, and large seismic movements – without causing damages to the structure and the expansion joint.

ABOVE THE ROOFTOPS OF MUNICH // VDI HONORS COMMITTED YOUNG TALENT

Thanks to the outstanding cooperation with the VDI supporting member MAURER SE, this year the six VDI awards in the categories Bachelor, Master and Doctoral Thesis could be handed over in an impressive ambiance.





Herzlich willkommen zur Verleihung des VDI Preis 2019

Festvortrag
Kraft in Bewegung
Dr. Braun
Maurer SE

Grußwort und Moderation
Prof. Dr. Peter Pfeffer
Vizepräsident BV München





Dr. Christian Braun
MAURER SE

Munich. With its annually awarded prizes, VDI München, Ober- und Niederbayern e. V. honors excellent engineering achievements from all technical-scientific fields. The VDI award serves to motivate young talent and to emphasize the significance of engineering for the progress and further development of society and economy in public.

High above the rooftops of Munich, in the Hoch5 in the "Werksviertel", the award winners 2019 were honored with a ceremonial act – exceptional achievements at an exceptional location.

After the welcome address given by Professor Dr. Peter Pfeffer, Chairman of VDI BV München, Ober- und Niederbayern, Dr. Christian Braun, CEO of MAURER SE, impressed the audience with his lecture "Forces in Motion", an entertaining world trip across the products of the steel construction company from Munich, before about 160 invited guests entered the ballroom for the award ceremony and the celebratory banquet.

One of the awards was presented to Kieran Oswald, B.Sc., who dealt with the optimization and new construction of vanadium-redox flow batteries (VRFB).

Sabrina Wagner, B.Eng., developed in her thesis a test model for soluble factors of the biofilm of the bacterium *Staphylococcus aureus*, the most frequent pathogen causing osteomyelitis (chronic bone inflammation).



An interested audience
and an inspired
exchange of views





Fandi Bi, M.Sc, researched in her master thesis the phenomenon of "Technical Debts" (TD), which are caused by "rotten compromises" made in technical solutions and result in extensive and thus long-term damages to the system.

Award winner Felix Naser, M.Sc, dealt in his master thesis with the topic of object identification for autonomous vehicles that also cover the blind angle. For the "hadoCar" sensor developed by him the Toyota Research Institute has already filed a patent application.

Dr. Jan-Christoph Edelmann has written his doctoral thesis on the development of an ear-to-ear link for networking and better signal processing of hearing implants. Minor capacities and antenna dimensions must be sufficient here to transmit great amounts of data.

In the doctoral thesis of Dr.-Ing. Martin R. Pfaller, the focus is on a new approach to reduce the model order and accelerate the model assessment to enable a long-term prognosis of the heart function.

An excellent menu and a spectacular night ride on the MAURER Observation Wheel Hi-Sky, the largest mobile Observation Wheel in the world, rounded off this extraordinarily successful event.

For more information and impressions visit www.vdi-sued.de



Award ceremony for the prize winners



The orga team of VDI and MAURER in the VIP cabin

TECHNICALLY OUTSTANDING // HUMAN SKILLS EXCELLENT

MAURER MAG met Torsten Ebert, who, as head of our Technical Office, not only examines the load-bearing capacity and resilience of our products but also takes care of the wishes of customers and colleagues.

Normally, time is the scarcest resource at MAURER – this also applied when we wanted to make an appointment with Torsten Ebert. Finally, we succeeded in doing so.

Mr. Ebert, according to MAURER standards you are still a newcomer.

Torsten Ebert: "Well, I have been a project engineer for structural bearings for four years, was in charge of the design and dimensioning, for issuing workshop documents, and I underwent training as a storage specialist in 2016 to be able to support external planning offices in issuing bearing relocation plans and bearing exchange concepts."

That was only warming up, wasn't it?

TE: "You might say that. Since October 1, 2018, I have been the head of the Technical Office. Since then, the focus of my daily work has been on capacity planning and on-schedule processing of the orders. The coordination with other departments, which is made, among other things, by regular meetings (jour fixe, NCR meetings, development meetings, project meetings, ...) is among my core tasks. In addition, I engage in active cooperation in the "Verband der Hersteller von Fahrbahnübergängen und Lagern" (Association of manufacturers of

roadway expansion joints and bearings for structures), VHFL."

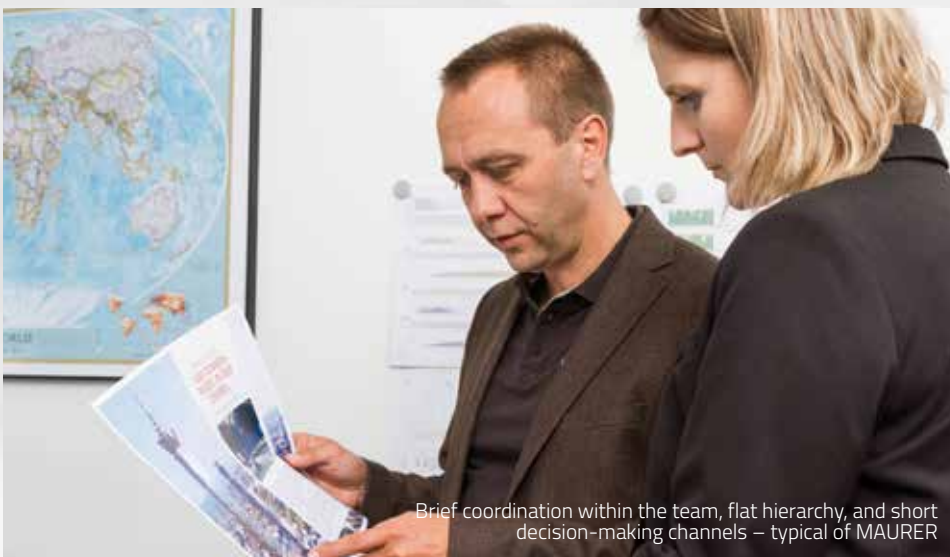
What encompasses your area of responsibility, and how is it structured?

TE: "The Technical Office is divided into our two main product groups, expansion joints and structural bearings. In bearing construction, some colleagues have specialized in seismic and vibration protection as well as vibration absorbers. In addition, there is a testing department, particularly for the orders in the field of seismic protection that, besides the technical processing, require a wide range of testing. This department is led by my colleague Dr. Mano. Besides the colleagues in the company headquarters, staff of the Technical Office Munich are working at the manufacturing sites in Bernsdorf and Torbali. In total, we are staffed with 38."

What training did your staff undergo?

TE: "They are technicians or engineers in civil engineering or mechanical engineering, respectively."

What are the biggest challenges in your department and in your daily work?



Brief coordination within the team, flat hierarchy, and short decision-making channels – typical of MAURER

TE: "The capacity planning in the Technical Office. There are seasonal fluctuations that can be predicted, for instance, by the market radar. Furthermore, there is a reliable 2- to 3-week prognosis. It applies to all orders that can be processed within the standard processing time.

And then there are the unforeseeable short-term developments that require, besides a reliable priority setting, a high degree of flexibility and agility.

However, in the end it is always about the implementation of the corporate goals, taking under consideration customer wishes, and in conformity with the needs of the staff. And that is an exciting task."

What does your typical working day look like?

TE: "My day in the office starts shortly before 8 a.m. First, I thoroughly plan the upcoming working day, make urgent phone calls and e-mail correspondence, and then handle important small tasks. Almost always a meeting has been scheduled in the morning which has to be prepared and evaluated afterwards.

About noon, there is mostly one or another brief project meeting where the staff present the current status and discuss the next steps. Moreover, there is a fixed coordination appointment with Mrs. Schnellinger, the project coordinator of the Technical Office.

Early in the afternoon, I mostly have a second meeting for which I schedule one to two hours depending on the topic and the group of participants. The timeframe in which I work on the larger packages that require a longer undisturbed working time starts from

4.30 p.m. Thereafter, I process e-mails, issue documents for project meetings or advanced training of the staff in the Technical Office, personnel management, prepare business trips, etc."

What fascinates you in your job and with MAURER?

TE: "I enjoy working with other people, I am fond of coordinating and I have fun when pushing things forward and shaping them. My job as head of the Technical Office permits to do so. Moreover, I am fascinated by the fact that we sell technically advanced products, the development, design and manufacture of which is completely made in-house."

What could MAURER do better?

TE: "Ranking among the hidden champions as a medium-sized company and being market leader with your products clearly shows that you are doing many things right.

The long company history is also a proof that you are able to respond to changes in the market and – if necessary – can adapt the structure and/or the portfolio to the new situation.

I assume that – also due to the global megatrend of digitalization – we will have to make changes in the years to come. What matters to me personally is to include the staff at an early stage in these change processes since through an esteeming and open communication all staff members will back the change. The know-how of the staff and their commitment is an indispensable mainstay of the company's success."

Can you make time for hobbies, if so, which ones?



DIPL.-ING. TORSTEN EBERT // HEAD OF THE TECHNICAL OFFICE

- From 1995 to 2007 officer with the Federal Armed Forces (branch of service: military engineer)
- During time of duty studies of civil engineering at the University of the Federal Armed Forces in Munich and training as a welding engineer
- From 2007 to 2014 doctoral candidate and research engineer at the University of the Federal Armed Forces in Munich, among other things, test support for MAURER products
- With MAURER since July 1, 2014
- Until 2018 project engineer for structural bearings
- Since October 1, 2018 head of the Technical Office
- Motto: To a soldier, punctuality means arriving five minutes early.

TE: "Riding a bike because that can be very well connected to the daily commute. Hiking and skiing with my family. From Starnberg, the mountains are not far away. Sadly, other excursionists know that as well, which forces you to start early to avoid that the trip takes longer than the stay."



THE NEW FREEDOM // ON RAILS

First Duelling Spike Coaster worldwide

Ravenna/Italy: Mounting the motorcycle, putting on the waistbelt, hands on the throttle grip, watching the lights, ... green – and off we go! Indescribable 1.2 g catapult me and my machine out of the station, a scream right behind me, my pillion passenger likes it as much as I do, and yes, I promise, it will be her turn on the second ride. But now I open the throttle, through the first right-left combination, a racetrack junction – oh, my buddy is on

his way on the racetrack running in parallel. Now the fun really goes off.

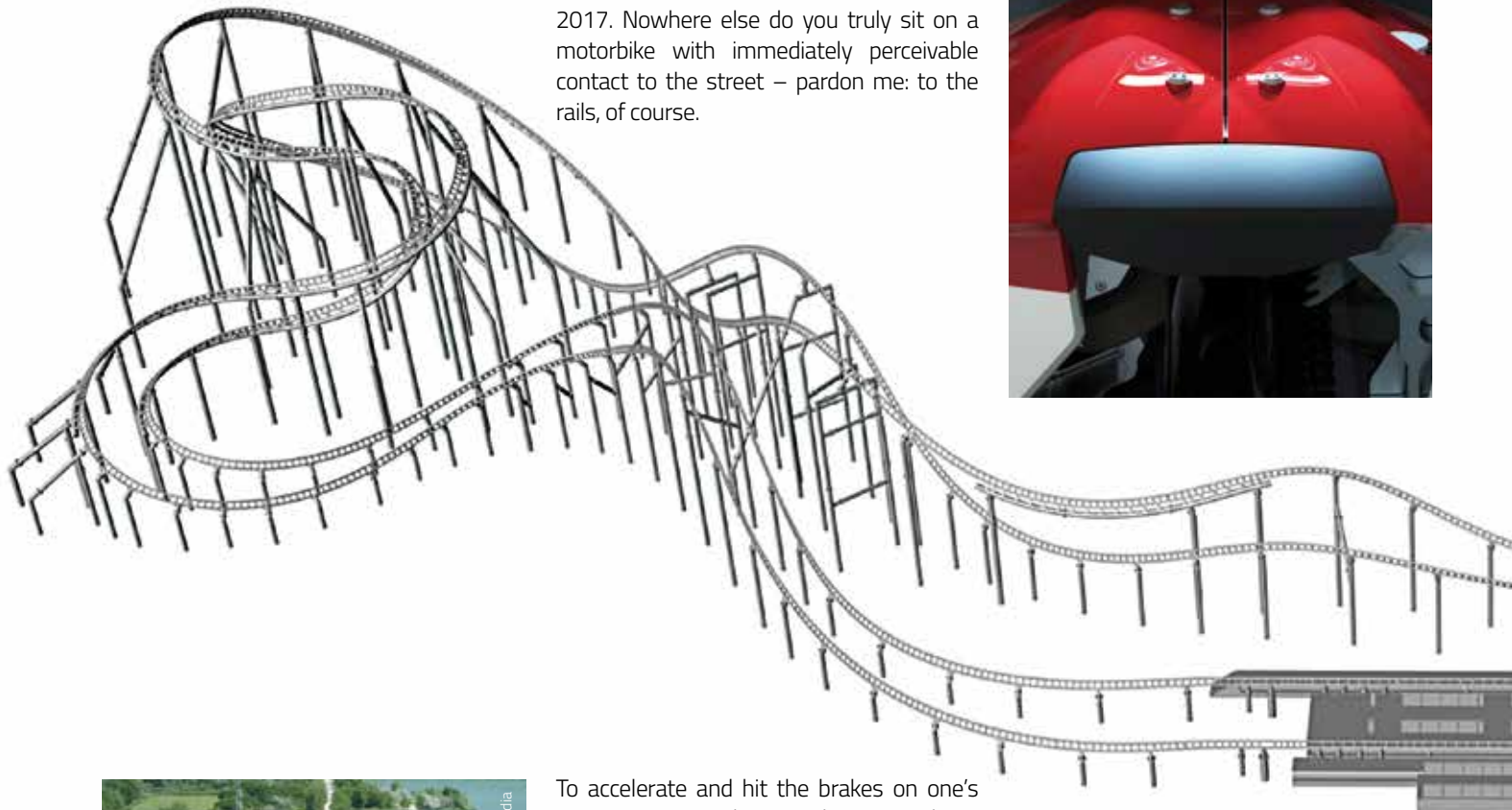
Duelling is no promise controlled by an external source here, in fact, where I accelerate, how late I hit the brakes, and what I trust myself to do in tight curves solely depends on my rider's courage when riding the new "Desmo Race" Coaster – the better will win. [read more >](#)



©Mirabilandia

A worldwide first in interactive duelling with motorcycle feeling ...

... this is how the new coaster in Ravenna is promoted, and indeed: MAURER Rides has put a sensation on the rails – and that with several worldwide firsts. It is not for nothing that the so-called “SPIKE COASTER” received the IAAPA Best Product Award in 2017. Nowhere else do you truly sit on a motorbike with immediately perceivable contact to the street – pardon me: to the rails, of course.



To accelerate and hit the brakes on one's own, no matter where on the racetrack, no matter whether uphill or downhill, into or out of the curve, that is unique and a true thrill.

Ducati World with the “impact mole” Panigale V4

The “Ducati World” that opened in 2019 is a new theme area in the Mirabilandia Park near Ravenna, the number 2 of the Italian amusement parks with 1.4 million visitors per year. It belongs to the Parques Reunidos Group. The Ducati World with its 35,000 m² is the first theme area worldwide inspired by a motorcycle brand.

The Italian manufacturer not only lent his name but also a bunch of original motorcycles (exhibition!) as well as technology and even components. There are merry-

go-rounds, various driving simulators and a merchandising shop – you may debauch in the Ducati feeling. Yet Desmo Race is the undisputed main attraction.

This strong appearance simply results from a close cooperation of Ducati, Mirabilandia and MAURER Rides. The name “Desmo” is derived from “desmotic”. Experts know this special forced-control valve actuation that has lent the Ducati Panigale V4 the sobriquet “impact mole”. Panigale V4 belongs to the most recent Ducati motorcycle generation. The machine was the role model for Desmo Race both in terms of optics and feeling.

The engineers of MAURER Rides have put an “impact mole” on the rollercoaster rail.

In fact, original Ducati components from the Ducati Panigale V4 are built in – lights as well as the display indicating gear and speed – and they are fully functional. The front with its striking lights, fuel tank, windscreen, and taillights have been faithfully reproduced and integrated into the design. The surfaces and elegant edges convey the sporty-aggressive look of the Ducati brand. In addition, a sound generator provides the full Ducati sound when accelerating.

Accelerating out of the curve

And that is the feeling that gets me through the racetrack. It runs past the queuing area and right into a 270° turn – now the challenge is on. Immediately accelerate out of the curve and speed up. Uphill over the station – first jump, wow! Then even higher over the monorail – only flyyyyying gets you higher.

► FACTS AND FIGURES ON THE RACETRACK

INAUGURATION:	.....2019
TRACK LENGTH:	..... 2 x 525 m
MAX. TRACK HEIGHT:	.....22 m
ENGINE:	..... electric drive
POWER TRANSMISSION:	..... 100%
TRACTION:	..... 1.2 g (11.7 m/s ²)
TORQUE:	..... 1.050 Nm
SPEED:	..... 80 km/h
BRAND:	.....Ducati
TYPE OF VEHICLE:	.....Panigale V4, two-seater (from 6 years, from 120 cm)
NUMBER OF VEHICLES:	..... 12 (2 x 6)
CAPACITY:	..... 1.000 Pph (ride time 60 sec)
OPERATOR:	..... Mirabilandia, IT
BASE AREA:	.....225 m x 60 m



Tight curves require an extreme lean angle and I push up to the highest point. 22 m, then downhill at full throttle – now it matters: alongside the banks right into a narrow chicane, passing below the monorail, finishing straight – oh nooo!

My buddy outpaced me. Should I really let my pillion passenger handle the throttle grips next time?

[read more >](#)



On two parallel racetracks the guests can truly compete in a race.



- Reliable supplier of rollercoasters and transportation solutions for 28 years
- 40 employees at the site in Kirchheim near Munich
- Development, planning, production, assembly, commissioning, training & service
- Contact:
Torsten Schmidt
Business Development
E-mail: t.schmidt@maurer-rides.de
Phone: 089 215 4030 31
- Motto: "Passion for the new"

MAURER RIDES GMBH

The cog is crucial: SPIKE® Racing

After such inspirational ride feeling the question arises: How does MAURER do that? The answer: the rollercoaster specialists from Munich have gone to the cog. SPIKE® is the name of the new drive technology that has been developed since 2009 and meanwhile has been secured by numerous patent applications.

The initial idea was the good old cog railroad, but even though this technology made it onto the highest German mountain – for a thrilling rollercoaster, the bar had to be set much higher. Finally, a gearing technology that was newly developed from scratch turned out to be the solution.

This drive technology is now included in every vehicle as an extremely high-performance electrical drive: with a torque of 1,050 Nm, the drivers can catapult themselves to top speed within a few seconds only. Through a cog-wheel, the torque is transmitted directly on the rail. Thus, no slippage can occur, and no energy is lost due to frictional losses.

Always under traction

"100% traction", this is what it is called by technicians, "always under traction" – that's how I would describe the incredibly direct ride feeling. Anytime, anywhere you can accelerate with a propulsion of more than 1 g: even right out of the curve or in vertical segments.



The same applies to hitting the brakes that can sometimes be abrupt, since the braking also works via this innovative gearing technology.

Spike® frees racetrack layouters

In the construction of rollercoasters, the customary block brake and fixtures can be dispensed with, thus making many restrictions obsolete on where and how highlights can be placed on the racetrack. Gravity, energy potentials, block brake sections, drive straights, and angular acceleration – all that does not matter anymore for Spike® racetrack layouters.

In 2017, the first Spike® racetrack opened in the "Allgäu Skyline Park": with one racetrack only, however, even there the riders can control speed and acceleration on their own through the throttle grip. Desmo Race now shows a lot more of the potential of this pioneering rollercoaster technology:



Despite the 2-seater vehicles, the Duelling Coaster achieves a capacity of 1,000 pph with two racetracks. This is, among other things, due to the fact that Spike® racetracks allow for starting intervals of 14 seconds only.

Slender and economical

In terms of optical impression, not only the motorcycles but also the rails are worth looking at. With this newly developed vertical rail, the driving tubes are not arranged next to each other, but on top of each other.

In this way, the seating position of driver and pillion passenger could be lowered to just above the upper driving tube. That means the legs are standing on the left and on the right of the rail, you literally sit on the rail and directly feel the speed.

An economically interesting side effect of the vertical rail is its favorable statics. It enables large

support distances, i. e. reduces the number of supports and foundations. In addition, the smaller and thus lighter 2-seaters allow for an easier steel construction with small foundations.

Spike® racetracks are also economical when it comes to operation since the drive technology works at an exceptionally high coefficient of performance. At full throttle, a vehicle engine can tap up to max. 130 kW.

When braking, energy is generated that is fed back into the busbar with almost no losses and is used by the next vehicle. A long-term measurement with three vehicles in full-load operation showed an energy consumption of the entire facility of 15 kWh only.

Since there are no brakes and lifts, the maintenance work focuses completely on the vehicles and can be done during ongoing operation at any time.

When to accelerate and how much is to a large extent the decision of the front-seat driver.

In terms of safety, the Spike® control can also hardly be topped: the system knows the position of every vehicle and can safely stop all vehicles at any time in case of a problem.

TÜV-Süd has certified the innovative seatbelt restraint system with safety class 5 so that no restrictions result from the EN/ASTM safety standard. The vehicle is designed for high compressions and high lifting and shear forces, which means ride enjoyment at its best!

Hello!



umadum

The Munich Observation Wheel



Finally, this is again where the fun starts in the "Werksviertel Mitte"! Since July 10, 2020, the conspicuous Observation Wheel has been spinning again in the East of Munich – under a new name, with new, more favorable prices, and with plenty of heart and charm.

[read more >](#)



© Ivana Bliz

Anja Bußmann,
Managing Director of
Umadum GmbH and
genuine native of Munich
with plenty of heart
and enthusiasm for
the Observation Wheel



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© Ivana Bilz

Now the Observation Wheel is called Umadum, a true Munich name. MAURER SE and „Werksviertel Mitte“ aim to offer the inhabitants of Munich and the visitors of the city unique experiences throughout the year. Be it for the sundowner in the evening, the after work, a dinner, or the Weisswurst breakfast on the weekend ... many ideas are coming up. At the start in summer 2020, the decision which of these can be realized – and how – still depends on the current developments in the Corona pandemic.

Look at that!

Day by day, the highest mobile Observation Wheel in the world offers the probably most spectacular view of Munich. From the Umadum, at a height of almost 80 meters, you first catch sight of the constantly changing „Werksviertel“ before the view opens towards the Church of Our Lady,

the Olympic Tower, or the Allianz Arena. If you turn around by 180 degrees in the air-conditioned cabin – given the weather gods smile upon you – you may be rewarded with a fantastic view of the Alps.

The concept – from Munich citizens for Munich

The wish of MAURER SE as a Munich family-owned company to be socially committed and to make the wheel available for all inhabitants of Munich could now be realized.

For example, the Umadum participates in the „Munich Pass“ project. The Munich Pass offers all low-income inhabitants of Munich a variety of benefits. For a ride on the Munich Observation wheel, this means: every person having a Munich Pass has to pay 6 Euros only.

► FACTS AND FIGURES

- ✓ 78 METERS TOTAL HEIGHT
- ✓ 27 CABINS
- ✓ 422 SEATS
- ✓ OPERATED WITH GREEN ENERGY AND ENERGY RECOVERY
- ✓ LISTED IN THE GUINNESS BOOK OF RECORDS AS THE HIGHEST MOBILE OBSERVATION WHEEL IN THE WORLD

► UMADUM OPENING HOURS

Monday	closing day
Tuesday	noon – 8:00 pm
Wednesday	noon – 8:00 pm
Thursday	2:00 pm – 10:00 pm
Friday	2:00 pm – 10:00 pm
Saturday	2:00 pm – 10:00 pm
Sunday	noon – 8:00 pm



The Umadum, a Munich Kindl at least until 2022

The new „Werksviertel Mitte“ has seen a variety of interim uses during the past two decades. Starting in 2022, the new Munich Concert Hall is to be built here.

Until then – summer 2020 – the Umadum will spin in „Werksviertel Mitte“ in Munich and go on tour thereafter. Being the largest mobile Observation Wheel, it can go for a spin at any beautiful place all over the world.



BAKU TOWER // 400-TON PENDULUM IN THE ONION

Concrete-steel mass block damping vibrations in the Baku Tower



The complete TMD (Tuned Mass Damper) with diagonally docked hydraulic dampers that limit the amplitude to 1.3 m in case of an earthquake. Three pendulum cables at each of the four suspension points are manufactured as fully locked cables with a smooth surface.

In Baku, the capital of Azerbaijan, the tallest building in the Caucasus was built. The 277-m high Baku Tower is constantly subjected to enormous wind loads. For this reason, a 400-t pendulum damper was installed on the uppermost platform. Its special feature: in case of strong wind and earthquake, the 400-t mass block moves horizontally by up to 1.3 m in all directions in a controlled manner. This pendulum damper ensures living and working comfort and effectively reduces the strain on the structure.

The mass block consists of a massive steel box that was filled with concrete on site. MAURER not only manufactured the steel construction but also supervised the entire assembly and put the vibration damper into operation.

The Baku Tower features 49 above-ground floors plus roof and observation platform and is mainly intended for providing office space. In addition, stores, a VIP nightclub, an upscale restaurant, a fitness and spa center as well as an observation platform, the highest in Azerbaijan, are envisaged.

Eyecatcher and air trap

Eyecatchers are an oriental-style 3 D steel decoration element stretching 50 meters upwards from the bottom of the tower, and the tower cap that remotely reminds of baroque-style onion domes. A special video and lighting system is intended to impressively illuminate both tower and decoration element and to display videos on the façade.

[read more >](#)



Four workers move the 400-t mass block to measure the pendulum frequency.

Challenged by wind

The name Baku (city of the wind) already points to the challenge in high-rise building. The capital of Azerbaijan is situated at the Caspian Sea from where the wind blows unrestrained every day more or less strongly.

A vibration expertise calculated an acceleration of 13 milli-g for a wind load occurring at least once a year. The comfort zone, however, ends at approx. 10 milli-g. The wind experts suggested a TMD (Tuned Mass Damper) as a solution, the 400-ton mass of which consists of a steel box weighing 160 tons and 240 tons of concreted filled in on site. Therefore, the complete construction had to be performed and adapted in such a manner that quick assembly and safe filling at a height of 220 m were rendered possible. The manufacturer had to ensure safety and proper function since comfort was given highest priority to prevent the people in the tower from getting "seasick" because of the vibrations.

The solution was found in the SOCAR tower, only 500 meters as the crow flies away from the Baku Tower. "There, we successfully installed a 450-t TMD in 2014, this being the reason that the building owner contacted us," reports project manager Dipl.-Ing. Peter Huber from MAURER. The design was optimized in terms of technology and cost effectiveness

in consultation with the RWDI. "The biggest challenge was not only to optimize the system but also to obtain approval for the changes from all stakeholders."

Strong steel box for the cast-in-situ concrete

The basic planning for the steel box plus cast-in-situ concrete was not allowed to be altered since that would have rendered the entire preparatory work of the experts obsolete. However, liquid concrete in a box exerts considerable pressure on the surfaces of the steel box, which therefore had to be very stiff and stable. MAURER modified the planning in order to make that technically possible. The steel box, featuring several individual chambers, now weighs 160 t. It was manufactured in Munich, rigged up at the plant on a trial basis and – including cable suspension – tested as a pendulum beforehand. In this way, problems during final assembly at a height of 220 m could be avoided and the fitters were able to perform a test run of the assembly.

Challenging assembly

15 trucks transported the approx. 500 individual components to Baku. The assembly on site was an ordeal: the parts had to be lifted slowly to a height of approx. 220 m, standing clear of the façade by 10–15 m. Each crane load with individual components weighing

up to 12 t took an hour and a half. Swaying already started at minor wind loads, therefore mostly the lee side was used. Work was rendered impossible for one or two days a week due to too strong wind, partly that strong that nobody could stay on the platform – despite of brilliant sunshine. This caused the installation to last approx. five weeks in June/July 2018.

Fully locked cables

The planned pendulum cables for the suspension of the 400-t box were optimized as well. For this task, MAURER cooperated with FATZER AG. The Swiss company manufactured, among other things, the cables for the new Zugspitze cable car, so-called fully locked steel cables. These coiled cables feature several layers with intertwined Z-profile wires, resulting in a smooth and locked cable surface, considerably increased sturdiness, and higher corrosion resistance. With a diameter of 70 mm, the pendulum cables are relatively thin; however, they have enormous load-bearing capacities and reserves.

The mass block in the Baku tower has four suspensions with three cables each, that makes 12 cables in total. This construction features a considerable redundancy for safety reasons, in terms of figures four cables would have sufficed. However, it had to be avoided by all means that the 400-t mass plummeted and breaks through the ceilings.

Concrete filled in on site

When the mass box was properly suspended, 240 t of concrete were pumped up and filled in: during a 2-month period.

Experts might ask why concrete was chosen as a mass instead of steel plates. "There would have been no considerable difference in costs," confirms Huber. "However, in terms of ecological balance, the concrete filled in on site proved

to be more favorable. This was particularly important to the building owner.”

Vibration test and alignment to the eigenfrequency

Basically, a TMD only works if its vibration frequency is exactly aligned to the eigenfrequency of the structure. To this end, the tower’s eigenfrequency was measured and the TMD aligned thereto in summer 2018 when the tower was essentially completed. The setting was made via the cables that had to be “elongated”. For this purpose, a mechanical clamping device, a so-called tuning block, was used which could easily be moved downward at the steel box so that the free pendulum length at the top was elongated thus slowing down the vibration of the pendulum.

The 400-t pendulum TMD now reduces the accelerations to 7 milli-g, which is considerably less than the required 10 milli-g.

Seismic hydraulic dampers

After the vibration test, a total of ten hydraulic dampers were docked. They are attached diagonally all around the mass block and are intended to limit the pendulum deflection to max. 1.3 m with stronger load cases. Here, it is not about the winds mentioned above – they cause amplitudes of up to approx. 1 m only – but mainly about earthquakes. For a 1,500-year earthquake, an amplitude of 3–4 m was calculated, which had to be limited to ensure that the pendulum mass does not damage the building.

The hydraulic dampers respond speed-dependent

In case of small pendulum movements (wind) they hardly respond at all, while heavy impacts (hurricane, earthquake) trigger a strong response. All hydraulic dampers were individually tested by Ruhr-Universität Bochum to prove the damping properties required by the building owner. As a side effect,

► THE GENERAL ADVANTAGES OF THE MAURER MASS DAMPERS ARE:

- ✓ The different types of mass dampers enable the best possible solution for the vibration problem.
- ✓ Optimal design of all types of mass dampers as a service by MAURER.
- ✓ Vibration measurement at the structure by MAURER.
- ✓ Quality assurance through measuring the dynamic properties of the mass dampers at the factory and at the structure.
- ✓ Thanks to precise manufacture and quality controls, all types of mass dampers are robust, maintenance-free and have a long service life (> 20 years).
- ✓ MAURER offers the optimal type of mass damper with a mass of up to 1,000 t for each and every vibration problem.

the TMD reduces seismic impacts by 10–15% in total. However, this does not sufficiently stabilize the tower since the 400-t mass – related to the dimensions of the building – is not capable of converting a sufficient amount of energy from the structure. This is why Buckling Restrained Braces (BRB) were installed as additional seismic protection.

Our specialists on site

The Baku Tower is scheduled for opening in 2020. For being awarded the contract, in the end it was crucial that MAURER was not only able to plan and manufacture this

complex project with its mixture of steel construction and mechanical engineering but also to install and adapt it to the conditions of the structure.

“To ensure this, we have coordinated, supported and supervised the installation phase in 2018 that lasted several months through three of our own specialists on site. The number of about 500 individual parts requires meticulous and appropriate connections of the components,” explains Huber. “In the end, we delivered a fully functional and perfectly adapted component from one single source to the building owner.”



View from the tower top into the chambers of the steel box. At the bottom, the steel reinforcement of the concrete can be seen: 240 t of concrete were filled in.

WITH ALL DUE // RESPECT

He loves the Bavarian way of living, treasures his Arabic roots and regularly visits his family in Iraq and Greece; besides Arabic, he speaks German, English, and Greek, and he knows the best dates, pistachios, and spices: Raad Hamood.

It is always the people that coin a culture together with others – also a corporate culture. As different and individual as each of our staff members is, as exciting is the individual career of each of them. At an advantage – if you like – is everyone who is on his way a little bit longer. This particularly applies to our Sales Manager Middle East & Africa, Raad Hamood.

His personal history commences in Iraq. Let's start in 1983. Iraq and Iran fought against each other in the First Gulf War. At that time, Raad Hamood was already at the thick of it, as were many of his 16- and 17-year-old fellow countrymen – as so-called "action force in the second front line". They were pupils and students and they had to help with the transportation of

weapons, injured persons, and "martyr coffins".

For Raad Hamood, however, this was the prerequisite to get a scholarship from the Iraqi government – as one of the best high-school graduates of his age group. He was allowed to travel abroad and study in Germany. The FRG, to be precise. After all, that was before the turnaround. He chose Germany because back then more than 70% of the technologies used in Iraq came from the FRG.

Having arrived in Germany, first he had to learn German to finish another advanced training year for university entrance. A hard time for a young Iraqi abroad, but also a time during which he first fell in love with his adopted country and then with his wife-to-be, Simela.

Whilst others pledge eternal love in

Venice or Las Vegas, for him and the Greek student the venue was the dormitory on Schleißheimerstraße in Munich.

After these elementary issues were settled, his career path led

»Those who want to get something must be prepared to abandon something.«

him – via the Technical University of Munich and the University of the Federal Armed Forces in Neubiberg – to MAURER. His friendship with Hans Distl, Head of R&D at MAURER, whom he met during his studies, was certainly conducive to this decision.



Now, almost 20 years later, we are sitting opposite one another at MAURER SE on Frankfurter Ring, and right from the start we experience what we had already heard from colleagues: Raad Hamood is one of the most polite and kind persons we ever met, lauded for giving his opinion even in the most delicate situations with the introductory words: "With all due respect..."



Mr. Hamad AlMutawa, Regional Director of Louis Berger in Kuwait, and Raad Hamood at the Roads & Rails Conference 2016 in Dubai.



RAAD HAMOOD // HEAD OF SALES MIDDLE EAST & AFRICA

Mr. Hamood, you have been with MAURER for quite a long time. Do you still enjoy remembering your first projects?

Raad Hamood: "Sure, that was the AlTalbia Interchange in Iraq in 2005/06. Bearings and expansion joints. I remember that as if it were today, shortly after the Second Iraq War or the Third Golf War. It was important to me to contribute to the reconstruction in my old home country."

And in your capacity as Head of Sales Middle East & Africa, what were the highlights?

RH: "Oh, the Grand Mosque in Algier, Algeria, and the Shaikh Zayed Bridge in Abu Dhabi, UAE."

Where do you see the challenge for MAURER in your sales region for the coming 5–10 years?

RH: "In my area of responsibility, it is the railway projects. They are the future on which we should concentrate at MAURER."

Would you reveal to us your biggest passion, of course after the family and strolling between the cultures?

RH: "Soccer, clearly soccer. Ever since my studies and still today, I have been active – always in Daglfing, first with SV DAGLFING e. V., now with SV HELIOS-DAGLFING."

Which position?

RH: "The number 10, 'playmaker' behind the striker."

Thank you for the interview.

- 27.12.1965** born in Kanan, Iraq
- 1983** to Munich for studies
- 1983 – 1984** language course (German)
- 1984 – 1985** study course of lectures, preparation year for studies at Munich Technical University
- 1986 – 1991** Studies in Mechanical Engineering, Dipl.-Ing. (UNIV)
- 1993 – 2000** Project engineer at the University of the Federal Armed Forces, Neubiberg
- 2001 – 2003** Project engineer for analysis and optimization of graphite electrodes in the steel melting process at SGL Carbon
- 2004 – 2007** Technical sales at MAURER Söhne for all Arabic countries
- 2008 – 2017** Sales Manager MENA (Middle East and North Africa) at MAURER AG
- Since 2018** Regional Sales Manager at MAURER SE

STEFAN VOLLERT
//DEVELOPMENT



Stefan Vollert simply cannot let go crossings. In his leisure time, the dedicated sport climber loves to be on his way in the mountains, and, during the week, roadway expansion joints are the subject that needs optimal MAURER products.

Mr. Vollert, how long have you been with MAURER?

Stefan Vollert: "For seven years."

And what is your job?

SV: "I work in the development department with a focus on computation. In our working area, we provide the computational proof of static stability and material fatigue, e.g. for roadway expansion joints and bearings. Moreover, I give support in the dimensioning of new components for special designs or new developments. For this purpose, often tests are required that are conducted in the MAURER lab or at different universities."

What captures your imagination in your job and with MAURER?

SV: "The design of components and thus the responsibility for their solid performance in operation is an exciting job, in which I have lots of contacts with customers or auditors, both domestic and abroad. With MAURER, my field of activity is widespread with ever new challenges.

In the development department, we are a mixed team of materials scientists, mechanical engineers and civil engineers – each of them provides his expert knowledge – and this cooperation is fun."

What are the biggest challenges in your daily work?

SV: "Quite often we have customized products for large-scale projects abroad, for instance, roadway expansion joints for the largest cable-stayed bridge worldwide in Turkey that is presently under construction. There, also national regulations apply, which often leads to extensive need for coordination."

»Monitoring systems will become a market of the future for us.«

How important are new ideas in the development department?

SV: "The development department is expected to regularly supply new ideas and products. A large share of the ideas comes from the sales department that knows

the needs of the customers and talks to them. Many standard products were initially customized for projects for which the market did not yet offer a solution. For instance, I think of MMBS (MAURER Modular Bridging System). We develop such ideas to the production stage."

Where is the development work headed, can MAURER stay an important player with new products and/or services in the long term?

SV: "At the moment, development work has a strong focus on monitoring systems enabling building owners to keep one eye on the condition of their buildings at any time. I think this will become an important market in the future."

What are the fortes of MAURER?

SV: "From my point of view, the high quality and custom-made products. A lot of money is invested in development. Particularly abroad, many low-price providers edge into the market. If, many years later, it turns out that they delivered insufficient quality, the damages have already occurred."



MARCEL BRIELMAIER //HUMAN RESOURCES

return from our colleagues quite often.”

What fortes does MAURER have in their favor?

MB: “With MAURER, I particularly appreciate short decision-making channels. You can reach the decision-makers directly and get through to them.”

Can you make time for hobbies, if so, for which ones?

»Travelling
is the only thing
you must pay for
and yet
get richer.«

MB: “I am a passionate amateur actor and scriptwriter. Creating stories that amaze people and make them share the thrill has been a source of joy for me for more than 20 years.

Moreover, travelling is a huge passion of mine, however, not the classical recreation vacations but rather the destinations remote from the tourist centers. Diving into other cultures and exploring what is truly characterizing the country.”

It is no surprise to anyone that a HR manager should be interested in people. However, our HR manager is also very fond of the Far Eastern culture, especially the Japanese one.

Mr. Brielmaier, how long have you been with MAURER?

Marcel Brielmaier: “I have been with MAURER SE in the human resources department since November 2017, that is almost three years.”

Well, a lot has changed with MAURER during that period.

MB: “Yes, that also applied to me personally in my area of work. Until not so long ago, I was in charge of our colleagues in the workshop. Today, my range of duty is by far more extensive but also more versatile.

Currently, I take care of our colleagues at the sites abroad under the roof of MAURER SE, I advise them and give support in the implementation of the management of these smaller subsidiaries. I am responsible for the reporting system of Human Resources of the MAURER Group and the system maintenance of IFS.”

That sounds like a lot of office work in the first place.

MB: “Oh well, I am a person that loves to lend a hand. In my opinion, MAURER invites the staff to help shape the company instead of just administrating it. Good ideas and suggestions are gladly accepted, further elaborated and also implemented.”

What are the biggest challenges in your daily work?

MB: “Our working environment is versatile, fluctuating, and new on every single day. Sometimes even several times in the course of the day. The setting of priorities, taking care of our staff members.”

In your opinion: what are the most important abilities required for work in Human Resources?

MB: “The ability to think analytically plus a share of gut instincts, and the heart in the right place. In other words: you must like people and want to perceive what drives them.”

And what brings a good mood to the job?

MB: “We surely like to laugh sometimes. However, basically I would rather say that we are capable of creating nice moments through our work, and we get them in



In the coming months, we will participate in the following conferences:



Brückenkolloquium
Esslingen, Germany

// **Sept. 8–9, 2020**

IABSE
Wroclaw, Poland



// **Oct. 7–9, 2020**



Le Pont
Toulouse, France

// **Oct. 13–14, 2020**

We wish all colleagues being on duty for us lots of success, good conversations and a safe journey.



MAURER

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LOGY PROTECTING
AGAINST
EARTH-
QUAKES

Photo: New Acropolis Museum, Athens/Greece

MAURER SIP®-Adaptive

NEWEST GENERATION SLIDING ISOLATION PENDULUM

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Reduced starting resistance, reduced structural acceleration, reduced wear:

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forces in motion



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