

INTAMIN



PIONEER OF AMUSEMENT RIDES

Over 50 years of great success



“CREATING VALUES THROUGH INNOVATION IS ESSENTIAL FOR THE CONTINUING SUCCESS OF INTAMIN. THANKS TO OUR DEDICATED TEAM AND PARTNERS, WE ARE ABLE TO PUSH LIMITS IN A WAY NO ONE ELSE CAN.”

PATRICK SPIELDIENER

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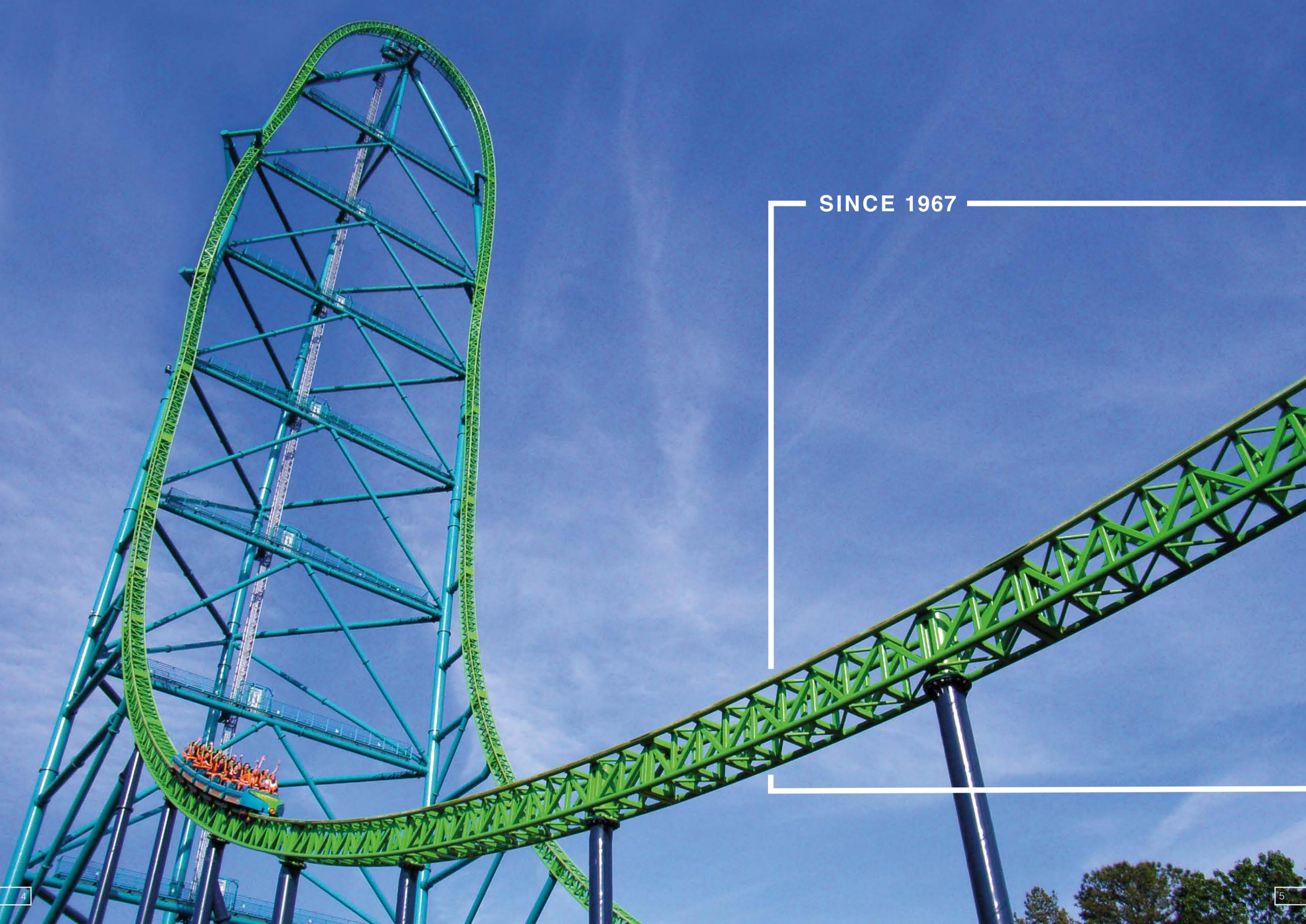
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SINCE 1967



PIONEER OF AMUSEMENT RIDES

INTAMIN was founded in 1967 by two brothers Reinhold and Robert Spieldiener and their very close friend Ali Saiko. Over the following years, **INTAMIN** has become a well-known international brand within the amusement industry. The name **INTAMIN** stands for **I**nternational **A**musement **I**nstallations. The sky-blue

logo represents trust, loyalty and wisdom while the bold capital letters stand for well grounded stability.

Based on the development experiences of the founders, **INTAMIN** has been creating innovative ride systems on a yearly basis. From the beginning these were

very positively received by the initial main market – USA. A company formed by three men sharing a small apartment as an office in Bern, the capital city of Switzerland, has now evolved into a number of independent and self-supporting **INTAMIN** companies with over a thousand employees worldwide.

Huge expansion has taken place since the development of the first three products. From the Gyro Tower, the Drunken Barrel and the Gondoletta, the product

range has now evolved into six major product lines of passenger rides and transportation systems. Teams of each sector are acting independently and with accountability and also willingly sharing their expertise with the other teams. Now **INTAMIN** offers nearly a hundred different products and more than a thousand rides and monorails have been executed and are supported all over the world. We deliver with the goal to fully meet the customer's expectations and with the intention of generating a follow-up order in coming years.

OUR STRENGTHS

RANGE OF PRODUCT KNOWLEDGE

Year after year, inventing one ride after another over a period of more than half a century, **INTAMIN** has created a solid knowledge base behind the largest range of products available in the amusement and theme park business. This line of products range from roller coasters, vertical rides, water rides, immersive rides, swing rides, observation attractions to monorails. Acquired expertise on different rides is combined by our teams to push product development forward. This leads to optimizing and sharing common systems, databases, sophisticated engineering, dimensioning, safety aspects, operation and maintenance manuals, common spare parts philosophy, conscientious after-sales service. As an

example of the synergy achieved within the **INTAMIN** team, the same passenger restraint units, as developed and refined for roller coasters, are used on vertical rides and even on faster water rides. Another example is the magnetic braking technology developed for decelerating vehicles on vertical rides. These devices can be used as frictionless and low-maintenance brakes on roller coasters or used underwater to reduce speed and splash on boat rides. So, as new challenges and demands arise, the **INTAMIN** team of skilled engineers and technicians share innovations across the product lines as an ongoing process and as a response to the business model established by the company's founders.



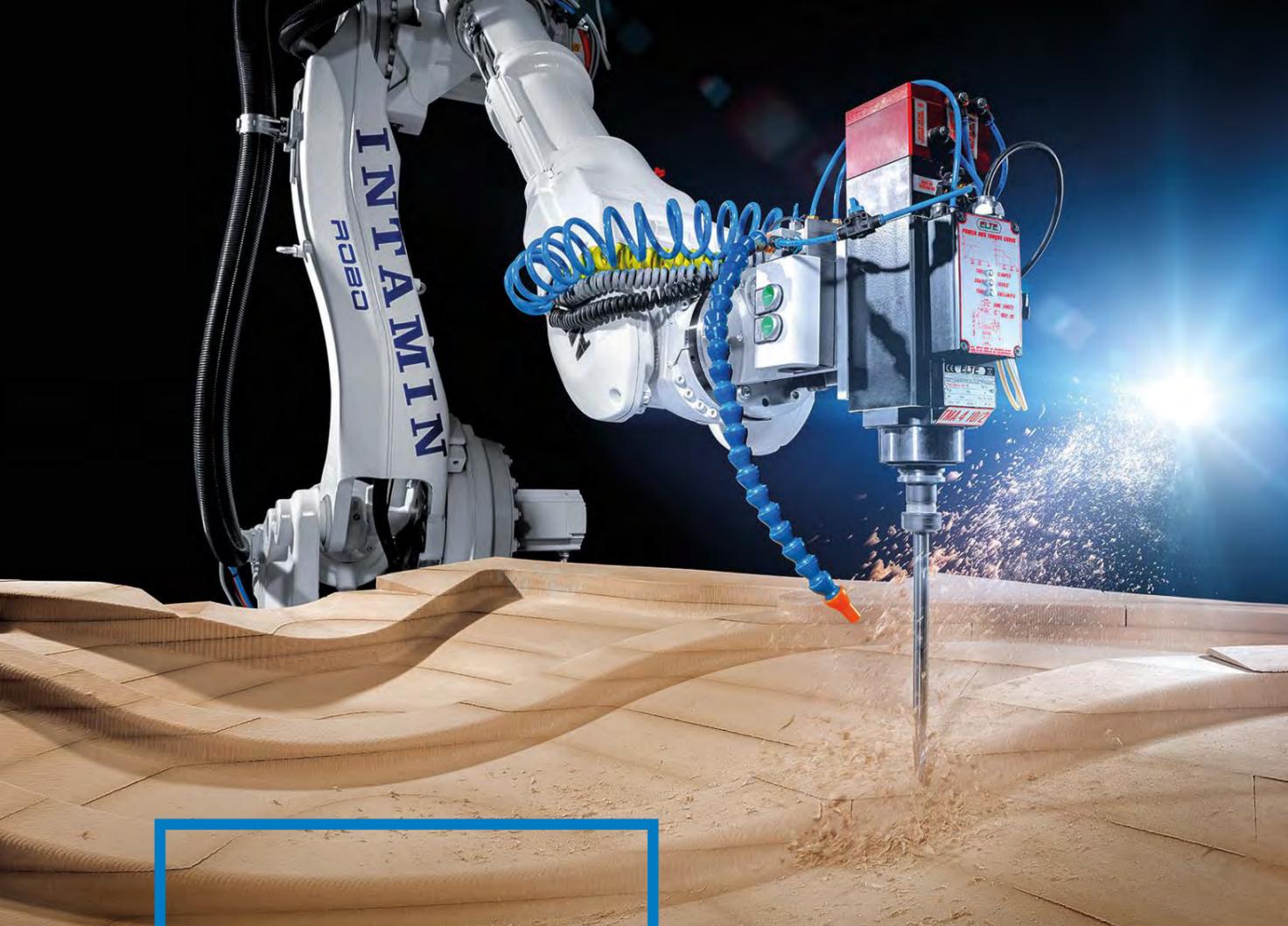
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CONTINUOUS INNOVATION

With the development of products comes the refinement and constant improvement of sub-assemblies, from bogie assemblies, restraint locking mechanisms, retarding and block brake systems, free fall drop mechanisms, cable lift systems to hydraulic and linear synchronous motor (LSM) launch units. **INTAMIN** generally is the first to embrace new ideas and invent new products, put prototypes into operation and refine rides on an endless basis – staying ahead of the competition.

- 1 **LSM Double Launch Coaster**, Taiga, Linnanmäki Amusement Park, Finland
- 2 **Spillwater, Anaconda & Rapids Ride**, Jungle Adventure, Energylandia, Poland
- 3 **LSM Triple Launch Coaster**, Soaring with Dragon, Wanda Hefei, China
- 4 **Parachute Towers**, Rainforest Drop Tower, Zhuhai Chimelong, China
- 5 **Giant Wheel**, The Wheel at Icon Park, Orlando, USA



The main factory and headquarter of Stakotra is located in Piestany, Slovakia. This company, with an industry wide reputation for high quality production, is specialized in the assembly, welding and finishing of the very smoothest roller coaster track, manufactured to the precision needed for high speeds guaranteeing a very comfortable ride experience and maximum safety. Stakotra also produces the associated vehicles including manufacturing of machined parts, welding and assembly of components such as vehicle chassis, seat containments and running gears. Stakotra has another plant in Budapest, Hungary where they specialize in assembling and welding of complex and heavy steel structures and tube assemblies associated with observation towers, giant wheels or round rides for example. These large parts often need to be machined post-welding on a large capacity machine tools available in-house. With such machine it is possible to achieve the extremely demanding tolerances required by the engineered design as set out on **INTAMIN** drawings and specifications. Supporting manufacturing operations, Stakotra also has a large drafting and engineering team available at each production location.

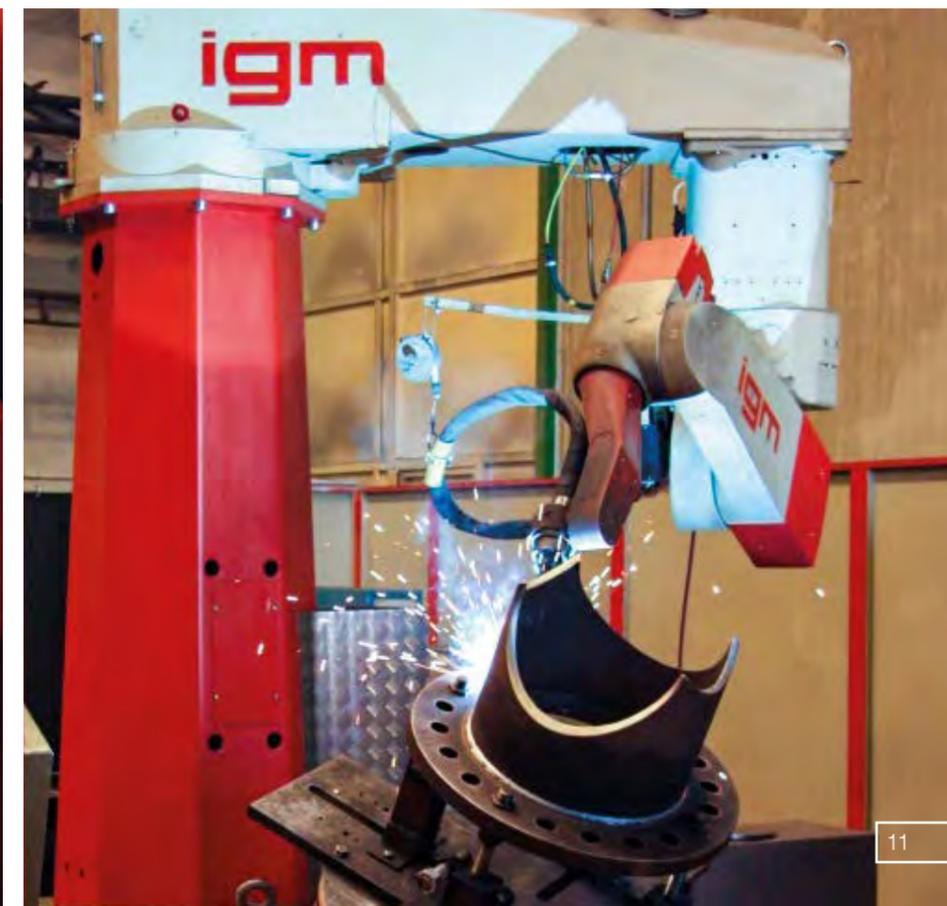
INTAMIN Deutschland

Located in Rüscheid, Germany, Intamin Deutschland is specialized in the creation of artistic fiber reinforced plastic (FRP) vehicles, boats, and components including master modeling, tool and molding developments. They produce and assemble boats, roller coaster and other vehicles to the specification of customers and their own concepts. They are also specialized in prototyping, technical design and production of self-supporting composite constructions, complete passenger seat and restraint systems.

NETWORK OF PARTNERS

Over a dozen development and manufacturing companies are working with, and for **INTAMIN** on a close partnership basis and in many cases over several decades.

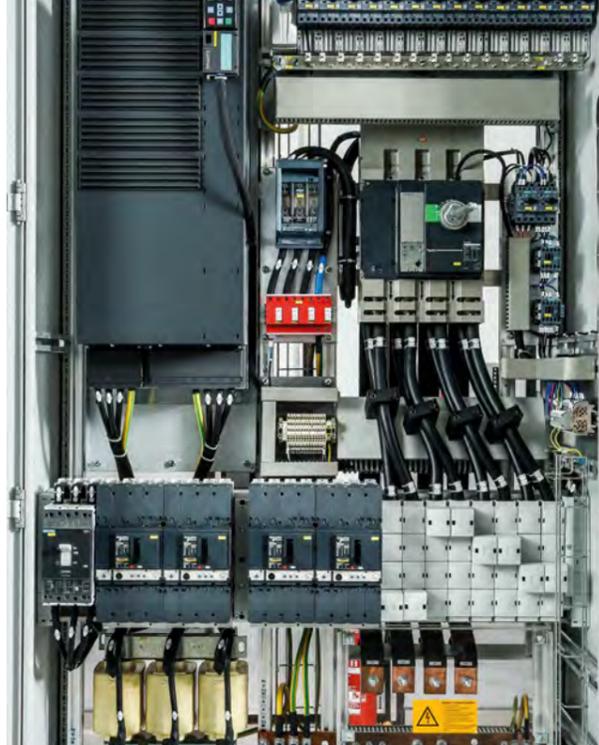
Subcontracting to these partners is not focused on the matter of price quoted but more importantly based on high quality of output, the service provided and unconditional support in resolving any challenges encountered.





Sinusmatik has full capability for building high quality electrical cabinets, control panels and vehicle electrical assemblies from a facility close to Zagreb in Croatia. Based on specifications, Sinusmatik provides complete construction service, including developing detail cabinet and equipment engineering

and layout drawings, parts sourcing, rapid production, quality control and factory acceptance testing for all control panels of **INTAMIN** rides. Within the skilled team, manpower is also available to assist customers prior to start of commissioning with the on-site installation, termination and testing of electrical equipment.



Located in Ebikon, Switzerland, Oelhydraulik Hagenbuch AG are responsible for most of the special hydraulic systems needed for **INTAMIN** products – from restraint locking mechanisms, platforms and motion simulators to failsafe lifting cylinders.



INAUTEC GmbH

International Automation Technology

All control systems and software used on **INTAMIN** rides come from Inautec GmbH in Wollerau, Switzerland, a company clearly focused on **INTAMIN** rides and transportation systems. This way a common high standard on soft-

ware, safety philosophy, documentation, commissioning, site acceptance testing and software update support over the life of each ride and transportation system is guaranteed - seamlessly.

INDRIVETEC

Innovative Drive Technologies AG

Working out of an engineering office, production and high power test facility in Zurich, Switzerland, Indrivetec has developed and are continuously refining linear synchronous motor (LSM) technology. These transmission devices utilizing magnet arrays on vehicles

are increasingly integrated into **INTAMIN** rides as a frictionless and readily controlled system to move roller coasters or custom ride systems. Indrivetec is not only providing and assuring production quality for the LSM stator units, but also the associated powerful

LSM drives, super-capacitor storage units and controllers as well as the sensor and communication network to manage the safe application of drive power, all delivered as an integrated and optimized package.




STENGEL GmbH

INGENIEURBUERO

Located in Munich, Germany, Stengel Engineering is mainly focused on modeling and perfecting layouts and structures of the finest roller coasters throughout the world.

Stengel Engineering is proud of more than fifty years of joint success with all major players in the amusement business.

INTAMIN

HOLLAND

Intamin Holland is an engineering office supporting **INTAMIN** as a competence center. Being located in Apeldoorn, the Netherlands, Intamin Holland has decades of experience in mechanical design, structural,

and fatigue analyses of dynamically loaded structures. In close collaboration with the **INTAMIN** team, Intamin Holland puts its efforts on further elaboration and development of attractions from conceptual to fi-

nal design by using the most sophisticated 3D CAD and CAE simulation software. Intamin Holland is dedicated to push the boundaries and contribute to keep **INTAMIN** ahead worldwide.



THE INTAMIN TEAM

A brand name is only as good as the team of people that stands behind it. With the founder and his family fully engaged and involved in the overall business, consistency of products, on-going high quality output and company guiding philosophies are maintained. Highly motivated heads of companies and departments are pushing forward

with their teams to improve efficiency, to assure steady and successful growth and to stay ahead with innovation. With an ever growing cycle of improvement and modernization, a lot of credit must be given to our exceptionally capable team of site advisors – always having a quick and effective answer on how to resolve any initial challenges.

SCALABILITY

When new products are being developed, **INTAMIN** has always insisted on first having a smaller version built, prototype tested and put into first article use before gradually scaling up the size of the final product. The first Rapids Ride had a height difference of 3.6m and Sea World's Infinity Falls has over 14m height difference. The first

Giant Drop was of 54m, the tallest built so far is over 120m. First came the Mega Coaster at 60m, the highest coaster built so far reaches 139m. The first hydraulic launch reaches a speed of 90km/h and Formula Rossa, the world's fastest roller coaster, achieves 240km/h.



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INTAMIN PRACTICES



SAFETY

As **INTAMIN**'s products are used and enjoyed by millions of guests and passengers worldwide on a daily basis, safety always comes first for the **INTAMIN** team and our partners, from development to installation and testing of every project.



SUBASSEMBLY TESTING

Entire rides in the sizes **INTAMIN** is building cannot be set up in the factory for testing, only certain key sub-assemblies can be tested and in some cases on special test benches.

For example, such a test bench was executed with a rotating magnet wheel to verify magnetic flux saturation and temperature effects on the magnetic braking technology for a 40 tons 40-passenger capacity Gyro Drop vehicle.

Another test-rig was done for a fast actuated underwater switch for a boat ride operating at a ride dispatch interval of 14 seconds.

To test vehicle chassis by vibration frequency cycles, we mount them on a six degree of freedom simulator test bench.

To verify expected design life, integrated strain gage measuring equipment are routinely used to load and cycle load components with the use of computer controlled and monitored test-rigs.

FEM-ANALYSIS / CALCULATION

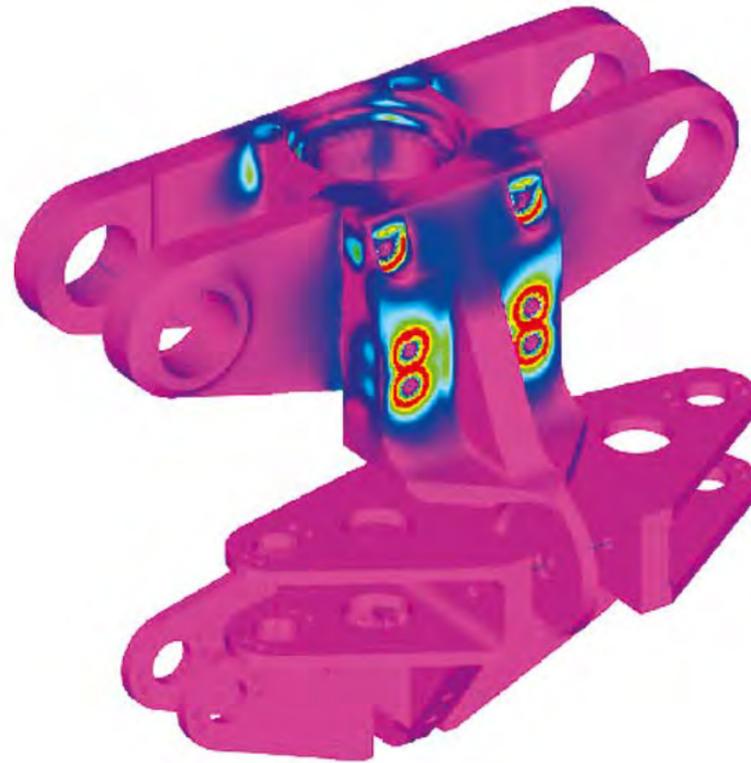
Nowadays, every passenger load bearing structural element is modeled in 3D CAD and analyzed by Finite Element Modeling and Analysis with design assurance based safety factors derived from a specific risk analysis. This due diligence analysis is typically verified and accepted in accordance with requirements of EN, DIN and equivalent ASTM standards, and associated codes or local standards, including specific client requirements where applicable.

QUALITY DOCUMENTATION

For the equipment manufacturing phase of any project, **INTAMIN's** Quality Assurance department is approving the work procedures, the weld details, the acceptance test plan forms and verifies NDT inspections and checks certificates and process record documentation – in all the factories involved.

THIRD PARTY REVIEW

If not stipulated by the customer or required by the local authorities of the country where the equipment is being operated, **INTAMIN** would routinely have a third party review process implemented to assure the in-house design verification. This would typically be by third-party inspection authorities such as TÜV, Bureau Veritas or Jacobs and CSEI for Chinese projects, all well respected agencies of design assurance within the industry.



SITE ACCEPTANCE

During installation, **INTAMIN's** site advisors cross-check the works in progress and completed as carried out by the ride installation company. Advisors assist in final adjustments, oversee the start-up of all systems and train the maintenance and operator staff. Once completed, site acceptance tests are executed to an

acceptance protocol test plan and the equipment is then endurance tested for hundreds of cycles with loaded dummies to prove reliability. Only once all of this is completed, the system can be handed over to the customer – ready for successful public operation.

OPERATION AND MAINTENANCE MANUALS

At the equipment delivery and with any required updates before the final handover, **INTAMIN** provides operations and maintenance manuals produced in-house, which are to be followed by the client team for safe op-

eration. From time to time, bulletins are issued to make customers aware of adjustments and updates based upon information from similar systems in operation elsewhere.



JACOBS



AFTER SALES SUPPORT

Over the entire attraction life cycle, **INTAMIN** is on hand to assist on any given issue of the delivered equipment. This is done through representative offices in different continents and countries and via a 24/7 service hot-line.



Mega Coaster, Hyperion, Energylandia, Poland

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OUR PRODUCT LINES

ROLLER COASTERS

Representing the key attraction in most amusement and theme parks, many types of roller coasters have been developed and are in continuous refinement by **INTAMIN**, with varying levels of thrill and excitement as described here below.



Family Coasters are designed with ride motions and acceleration forces suitable for all ages. Trains are typically moved up the lift hill by friction wheels, these being quiet and easy to maintain. The trains are then released into a gentle gravity run, with ups and downs, left and right turns before reaching the station or approaching the next lift hill to continue again through more track geometry. To enhance marketing potential and give more excitement, these coasters are often produced with themed vehicles and specially colored track structures. **INTAMIN** has specialists available to execute customer's creative concepts, create marquette and master models and integrate bodies and decoration into engineered and safe vehicle systems.

Next in line come the **Family Launch Coasters** and although these are targeted at the family with teenagers, demanding more excitement and the chance to test courage, they are enjoyed by a very wide range of guests as the ride is not

too extreme. These coasters have more speed, tighter turns and can have an extended ride length by intermediate launches in the track layout. As an option, the seating can be themed with vehicles configured for each individual passenger such as a jet ski or quad, with handlebars to grip and an exciting seat-straddling sitting position just like the real thing. Instead of a lift, the train gains the initial energy from a horizontal launch system by a friction wheel array integrated to the track. Multiple launch devices can be used to augment train speed and kinetic energy to negotiate inclines and extend the ride time.



1 Family Coaster, Mine Train Coaster, Happy Valley OCT, Shanghai
2 Family Launch Coaster (ATV), Juvelen, Djurs Sommerland, Denmark



A next “must have” is represented by the **Inversion Coasters** taking the thrill for riders to another level. Inversion Coasters are typically pulled up by a chain lift driven by an electric motor. As required by all standards, a silent anti-rollback system is integrated adjacent to the main drive to maintain safety in all circumstances. When released into the gravity run, the train passes through a single or more usually multiple inversions as it maneuvers through vertical loops, spirals as well as state-of-the-art inversion elements like inverted airtime hills or figure-8-loops. Passengers experience an exhilarating ride and exciting accelerations in the range from negative 1g to short periods up to 4.5g. The passenger seats are configured with a code-compliant restraint system to assure safe containment within the vehicle throughout the varied ride experiences. Family Coasters, Family Launch Coasters and Inversion Coasters are all available in different arrangements of passenger seating, be it from two abreast to four abreast, be it traditional or a wing arrangement with passengers extended each side of the vehicle beyond the track. It is also possible to combine two track systems to create a Dueling or Racing Coaster with trains passing close to each other in “fly-by” or racing maneuvers!

A higher level of rider excitement is achieved by the **Mega Coasters** and **Giga Coasters**, which are built with heights of 60m and more. The trains are typically lifted up along much steeper hills by means of the **INTAMIN** patented cable lift – much faster and easier to maintain than chain drives. The trains are then released into steep drops, to traverse huge zero to negative gravity airtime hills, s-curves or side banked figures, all leading to a totally thrilling experience for all passengers.

LSM Launch Coasters are similar to Mega Coasters as they also provide a thrilling and most exciting ride experience. However, instead of the traditional lift, the initial speed and energy of the vehicle is gained by launching a train along a straight horizontal track section. From a standing launch position the train is suddenly accelerated to the speed required to enter the next track section geometry, this being a hill or a giant loop for example.

INTAMIN is the leading company for the application of LSM technology with top speeds over 200km/h already achieved and the strongest LSM acceleration in the market. In addition, we have already developed new launch configurations, including the triple launch, where the train is launched first forwards, then backwards along a spike element, and then forwards into the following track sections as well as our new rocket launch configuration, which propels riders vertically upwards, facing the sky, to the top of the ride track, for an intense first rush of adrenaline.

With the incorporation of LSM technology, **INTAMIN** has also created a wide range of **Impulse Coasters**. These are especially suited to small footprint locations where space may be at a premium, such as a shopping mall or a small underdeveloped corner of a park with insufficient space for a full coaster. For their size, they bring a lot of excitement as well as seemingly endless theming and creative possibilities. Using LSM drives, the ride vehicles are moved from the loading position forwards and backwards along a U-shaped track. The swinging motion continues with an exciting pendulum effect increasing with intensity as the vehicles reach the peaks at either end of the track. Our popular **Surf Rider Coaster** was created when we fitted free-spinning rotating gondolas to the train, adding a new fun dimension to the exhilaration.

The **Vertical Lift Coasters** and the **Zac Spin Coasters** are special types of rides. Both use double chain mechanisms to raise the trains or vehicles along a vertical lift before releasing them into the gravity run. The Zac Spin's passenger seats are mounted in a back-to-back

configuration and can freely rotate around the horizontal axis, providing exciting head-over-heels sensations for the passengers, as the vehicle traverses the undulating track. The free-spinning nature of the gondolas make each ride experience unique, based on the variable loads of passengers in each seat position. The newest version of this ride replaces the chain drive with an LSM lift that allows the vehicle to lift and launch, giving a moment of suspense before the descent.

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WORLD
RECORDS



- 1 **LSM Double Launch Coaster**, Taron, Phantasialand, Germany
- 2 **Giga Coaster**, Intimidator 305, Kings Dominion, USA
- 3 **Wing Coaster**, Flying Aces, Ferrari World Abu Dhabi, United Arab Emirates
- 4 **Dueling LSM Triple Launch Coaster**, Dueling Dragons, Guangzhou Sunac Land, China
- 5 **Multi Inversion Coaster**, Altair, Cinecittà World, Italy
- 6 **Surf Rider**, Wet'n'Wild Gold Coast, Australia



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In the **Spinning Coasters**, vehicles are travelling normally on a track system but the passenger platform is fixed to the chassis by a rotating bearing allowing the guests to spin as the vehicle negotiates the elements. The bearing can be configured as freely spinning under inertial effects or motor driven to spin or move the vehicle according to a motion profile through show sections. For loading/unloading the spin bearing is configured with a brake to secure the vehicle from turning. If required to maintain a safe and comfortable passenger experience in the free-spinning configuration, a governor device can be installed. The vehicles usually have four seats and can be configured facing inward or outward and can be assembled as a train of several vehicles according to customer requirements. Spinning coaster trains can be propelled by a chain lift, launches, boosts or even a triple launch system.

The **Wooden Coasters** are of a very special design. Tracks do not use the classic assembly of wooden planks laid on top of each other and nailed, but are

made out of laminated wood elements milled to the exact track geometry. This results in a wooden coaster built to exact tolerances with excellent ride quality easily maintainable over time. These tracks are resilient enough to accommodate cable lifts, LSM launch assemblies or re-boost LSM elements requiring fine guiding tolerance only available with such laminated wood constructions.

The **Multi Dimension Coasters** feature special track elements such as free fall drops, teeter-totters or any combination. These kind of attractions are typically installed indoors and are developed with customers following a special creative concept often based upon an intellectual property theme, associated with movie or other media content, to be projected within the show space in coordination with the ride elements. The system would often commence with a basic transport system based upon the significant range of coaster elements and vehicle moving systems as needed to achieve what passengers will eventually see as “the impossible”.

WATER RIDES

What is an amusement park without a **Rapids Ride**, and best from the company that invented and installed the first? The Rapids Ride with its round spinning boats holding 6, 8, 9 or 12 passengers is certainly one of the most popular family water rides. Starting from a lazy river experience the rides can be designed to systematically increase the rider's thrill with wild rapids, boat chutes,

switches, whirlpools, vertical lifts, backward runs and drops available. These elements are combined as determined by the available landscape and as directed by designers, so that each layout is totally unique.

One of the oldest water rides is the **Flume Ride**, which is being continuously refined by **INTAMIN**. Originally ranging from 4 to 6 passengers per boat, we can now accommodate up to 8 passengers per boat if desired by the customer. Boats can be equipped with lap bars avoiding customers from standing up.

Both Rapids Rides and Flume Rides can be delivered with straight stop/go stations, continuous moving stations or with a rotating turntable allowing higher throughput by a more efficient load/unload cycle, as reaching capacity is often a key consideration. It is possible to incorporate switches in Flume Rides so that boats can be turned to maneuver ride sections or down chutes in reverse direction. **INTAMIN** is especially proud of the fast switches which are capable of moving a boat every 14 seconds. This is fundamental for achieving exceptionally high hourly capacities.



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5

- 1 Spinning Coaster, Tornado, Bakken, Denmark
- 2 Multi Dimension Coaster, TH13TEEN, Alton Towers Resort, United Kingdom
- 3 Wooden Coaster, El Toro, Six Flags Great Adventure, USA
- 4 Rapids Ride, Infinity Falls, SeaWorld, USA
- 5 Flume Ride, Chiapas, Phantasialand, Germany

Taking the Flume Ride another step further in terms of lift height and drops are the **Spillwater** rides with 20 passenger boats. The **Mega Splash**, featuring even higher lifts and steeper drops, seats 24 passengers with individual restraints to safely contain the passenger up-lifting forces as they are experiencing during the down chute. As the boat reaches the end of the run out, it performs a controlled entry into deeper water, normally in a lagoon designed to create a huge and impressive splash, best watched from a pedestrian bridge. This controlled entry is often enough to slow down the boat to a safe cruising speed into the station. If required, magnetic braking technology can also be added to decelerate the boats.

In **INTAMIN**'s portfolio there is also a series of **Cruise Boat Rides** that are self-propelled using specialized electric motors, or by the flow created by booster pumps that generate a water flow to move the boats at desired speeds along a flume. The boats are typically continuously guided by underwater rail in order to avoid any on board operator.

One of the first inventions by **INTAMIN**, regaining significant popularity – especially in ever larger zoos – is the **Gondoletta** or **Tow Boat Rides**. Boats are attached to a closed loop cable, located underwater and guided around a series of pulleys. An electric motor drives the cable around the pulleys, towing the boats gently along the loop. The cable moves constantly but the boats can be disconnected from it and stopped in the station for safe load/unload before being smoothly re-engaged for the next circuit of the ride.

Our newest developments include the **Ultra Splash** and the **Giga Splash**. The Ultra Splash also utilizes 24 passenger boats, which are swung higher and higher along a U-shaped track, similar to the Impulse Coaster, before creating a big splash at the crescendo of the ride experience. The Giga Splash also features three 24 passenger boats which are lifted by a rotating panoramic elevator and dropped from a record height of 40m to reach the speed of approximately 100 km/h, creating an enormous wave on the run out.



TOWERS AND DROPS

One of the first observation attractions conceived by **INTAMIN** was the **Gyro Tower**. As the climate-controlled cabin moves up and down the center tower, it rotates slowly to give guests a 360 degree view of the surrounding. The Gyro Tower is available in various sizes: from 50 m height with a 50 passenger cabin to 150 m height with a 100 passenger cabin. **INTAMIN** recently developed a double-decker version with an open-top deck on top of the enclosed cabin.

For some parks – where a permit cannot be obtained for a permanent vertical structure – the **Flying Island** is the answer. A rotating platform holding up to 100 passengers is gently lifted up to a height of 45 m on a counter-weighted lift arm actuated by large hydraulic cylinders. This is a unique ride experience with a very smooth motion as the passengers gently fly over the surroundings.

Following the original Free Fall, **INTAMIN** has developed a wide range of drop towers such as **Giant Drops**, **Ring Drops** and **Gyro Drops**. With heights of 40 m up to 140 m or even beyond, and seating 4 to 50 passengers, the cabins are lifted to the top of the tower with a steel cable winch system. After a few moments of suspense, the cabin is mechanically disengaged from the lift and drops in true free fall before reaching the innovative **INTAMIN** designed magnetic braking system to bring riders to a smooth stop back at the load/unload area.

Very popular is the Giant Drop 4 x 4 with brand new decorative theming and four different vehicle options: “sit down”, “sit down tilting”, “stand-up tilting” and “suspended tilting”. Floor-less versions of some vehicles are also possible.

Also available is the **Combi-Tower** where Giant Drops can be integrated with the Gyro Tower, with the supporting structures for both efficiently shared and distributed along the tower. The combination of “views and drops” is perfect to maximize the appeal and use of the tower.

New in this category is the **Sky Jump** with vehicles seating 4 or 8 passengers abreast that are pivoted forward so that passengers are facing down before and during the fall in a “skydiving” position!

One specialty of **INTAMIN** is the integration of 4 or 8 passenger Giant Drops to existing buildings and structures. This has started with one “**Giant Drop on Building**” in Japan and progressed to three, integrated onto the imposing structure of the world’s highest roller coaster in USA.

- 1 Spillwater, Anaconda, Energylandia, Poland
- 2 Water Coaster, Divertical, Mirabilandia, Italy
- 3 Super Gyro Tower, Top o' Texas Tower, Texas State Fair, USA
- 4 Giant Drop, Zumanjaro Drop of Doom, Six Flags Great Adventure, USA
- 5 Sky Jump, Ikaros, Gröna Lund, Sweden



WHEELS AND ROUND RIDES

INTAMIN designed and built the tallest conventional Giant Wheel featuring modern cabins and with structures able to resist challenging typhoon conditions as mandated in Japan, Vietnam or Florida. The 120m **Giant Wheel** comes with an innovative hydraulic mechanism to rotate partly completed sections of the wheel to allow systematic and safe ground level assembly. The state-of-the-art 120m Giant Wheel is equipped with spacious 15-passenger gondolas designed and built by **INTAMIN** featuring a fully automatic and fail safe floor leveling mechanism and automatic door drives. In addition, safety glazing, multi-color interior lighting, video screen and sound systems for advertising and ride commentary are installed.

The **Coaster Wheel** comes with a twist: some gondolas are fixed to the outer wheel structure and others move by gravity within the structure along a closed loop track depending on the wheel position. Development options include a gondola to be restrained for part of the wheel rotation cycle to then be released at the top position to drop up to 3m along the spoke into magnetic brakes.

INTAMIN has also gained fame in developing and building the **Wall Mounted Giant Wheel**, consisting of a closed loop slow moving chain to which gondolas with a self-leveling mechanism are attached. Taking that concept a large step further is the “Golden Reel” in Macao where the

vehicles, each carrying up to 15 passengers, and the entire structure, in which the heavy duty chain links are moving, is fully suspended between two high rise buildings without any ground mounted supporting structure.

INTAMIN is also proud of having developed the concept for the latest refinement of the **Gyro Swing**, where passengers are facing outwards, away from the center carrier. The newest version is driven by a very powerful single direct drive motor with no slew ring gear box or pinion drive. The seats and restraints are the latest roller coaster design and the swing motion of the vehicle is able to be easily programmed to create an optimized ride experience without nausea issues. Another ride is the **Suspended Twin Hammer** which is offered with the latest technology and set on a large slew ring to create another sensational experience.



SIMULATORS / IMMERSIVE RIDES

Many of **INTAMIN**'s rides, such as gentle flume rides, closed loop dark rides, tow boat rides and also coasters with controlled motion, are ideally suited as the base for full immersion experiences.

INTAMIN is well prepared to upgrade any existing ride with high fidelity audio, seat shakers, decorative lighting systems, water misters and other special effects. Specially developed and with some protected design, the full media or show immersion rides are as follows:

The **Multi Motion Dark Ride** is an especially well suited ride system to be combined with full immersion shows. The Jeep-like vehicles are able to cruise gently through show scenes and also accelerate to “escape” rapidly through tight turns, enhanced by the 6 degree of freedom movements of the motion platform, that the guests are in reality transported on.

The **Dome Ride Theater** is developed and offered together with the company “ATTRAKTION GmbH” and is a spectacular dome system combined with a ring mechanism supporting 80 passengers and rotating and tilting in a shared show space, offering 360-degree immersion. In this attraction, it's not just about the show but also the shared experience and enjoyment together.

The **Ultra Tower** is developed and offered together with the company “Raven Sun Creative”. The 6 degree of freedom motion platform for 24 passengers moves vertically along a 30m tower synchronized with the projected images on screens mounted beside the device.

A lower cost spin-off from this configuration is the **Vertical Accelerator**. Here passengers are moved up and down and can be tilted forwards. Riders face a large vertical screen with media and movements again in full synchronization with the action as projected or alternatively can wear VR head sets. Needless to say, any of **INTAMIN**'s rides can be upgraded for use in combination with VR-Virtual Reality Technology of any brand, either as a special feature of a new system or to breathe fresh life into an existing attraction by adding a new dimension to the fun.

- 1 **Giant Wheel**, The Wheel at Icon Park, Orlando, USA
- 2 **Coaster Wheel**, Hello Kitty Park, Anji, China
- 3 **Gyro Swing**, Loke, Liseberg, Sweden
- 4 **Suspended Twin Hammer**, Doomsday Destroyer, Warner Bros. Movie World, Australia



INTAMIN TRANSPORTATION

As parks become larger and larger in size, with more and more visitors to handle, the issue becomes how to transport guests from the parking lot to the park or to connect hotels to the park, with the added intention of giving the guest a controlled bird's-eye view of rides and facilities available.

That is the context in which **INTAMIN** gradually developed and refined its three types of Monorail systems. The bigger versions have now outgrown the requirements of an amusement park and are more and more becoming mass transport systems, connecting airports with train stations or servicing an entire Olympic village.

The **P6** system is characterized by its small size, lower speed, small clearance envelope, tight turns and steep uphill climbing capability. The vehicle body is set on a steel frame and can be themed to customer requirements. Like all monorail types, it is of modular design, and trains of 3 cabins up to 11 cabins have been built in the past.

The P6 system is regularly installed, operated and then disassembled after up to 120 days of use at International Garden Festivals in Germany. This is possible as the track design is light and of modular construction and the foundations needed are very small. With a climbing possibility of 15–20%, the station platforms can be constructed at ground level.

The **P8** is larger and of more modern design with fiber glass bodies with large safety glazing on all sides. Also modular in terms of vehicle numbers,

it runs at higher speed over a more robust track and is equipped with automatic doors and powerful air-conditioning. It is typically used for connecting parking lots with shopping centers or connecting several hotels with a park entrance or bus terminal. It can be operated by a driver but is also available under fully automatic and safety monitored control.

The **P30** is the biggest of all currently available and as the name indicates, each cabin is holding 30 passengers. Vehicle consists of a composite aluminum body structure, is air-spring suspended and leveled and is typically running from station to station at speeds of up to 80 km/h on a track with colloidal track transitions to bends and super-elevation for excellent passenger ride comfort.

The trains as well as the station platforms are typically equipped with CCTV surveillance and monitoring and the station platform doors work in synchronization with the train doors.



- 1 P6, Sun World Danang Wonders, Danang, Vietnam
- 2 P8, Xi'an, China
- 3 P30, Ashgabat, Turkmenistan
- 4 P30, Bologna, Italy



THIRD GENERATION

Patrick Spieldiener – the son of Reinhold – has been guiding the company successfully forward for more than 30 years. The time is approaching to prepare the **INTAMIN** brand for the future. For the sake of continuation of a respected family business, much hope is put in the next generation to take on the company leadership and so maintain **INTAMIN**'s continued innovation, growth and success for the next 50 years.

Lukas Spieldiener, Patrick Spieldiener and Kevin Spieldiener



Rheinhold Spieldiener, Robert Spieldiener, Patrick Spieldiener and Ali Saiko

06

INTAMIN



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