INTAMIN
PIONEER OF AMUSEMENT RIDES

50 YEARS OF GREAT SUCCESS
The INTAMIN company was founded in 1967 by two brothers Reinhold and Robert Spieldiener and their very close friend Ali Saiko. Over the following 50 years, Intamin has become a well-known international brand within the amusement industry. The name Intamin stands for International Amusement Installations. The sky-blue logo stands for trust, loyalty and wisdom while the bold capital letters stand for well-grounded stability. Based on the original development experiences of the founders, Intamin has been creating on average new and innovative ride systems on a yearly basis. From the start 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 hundreds of employees in many countries worldwide. Huge expansion has taken place from the first 3 products developed. From the Gyro Tower, the Drunken Barrel and the Gondoletta, the product range has now evolved into 5 major product lines of passenger rides and transportation systems, the team for each sector acting independently and with accountability but willingly sharing their expertise with the other teams. So now there are nearly 100 different products offered and almost 1000 Rides and Monorails executed and supported all over the World. Always delivered with the goal to fully meet the customer’s expectation and with the intention of generating a follow-up order in coming years. Needless to say, not all of the new rides and transportation systems developed were total winners to be sold more than 10 times - the usual rate of follow-up sales needed to pay for the initial attraction development costs. But only by trying over and over again can winners be found and some of the challenges and significant inventions and the winners were and still are:

Gyro Tower/Flying Island - Both very attractive and unique, these observation rides came with challenges that have been resolved in development - oscillating loading from high-wind created vortex frequencies on one hand and fail-safe and redundant configuration of the load lifting hydraulic cylinders on the other.

Bounty/Looping Starship - While the Bounty appears a rather simple concept, getting the motor controller to be responsive enough to create high torque in the very short time the boat was passing the drive tyre array at the bottom of swing was not an easy task. With the Looping Starship the inverted vehicle and the first passenger restraint system was developed. The restraint system safely held passengers in place fully upside down, when the ride stopped in the suspense filled 180° vertical stall position.
Rapids Ride - For the Rapids Ride the circular boat on flotation collar was innovated and complicated man-made rivers had to be designed to keep water flowing within the channels and pools at the correct but safe rates for throughput. Then ways had to be found to softly dampen the boats when bumping. To meet the demands of increased capacity by improved loading methods and times the concept of the rotating platform was invented and then successfully implemented by Intamin.

Free Fall / Giant Drop - While the first Free Fall developed by Intamin was very popular, its complexity and hourly capacity was rather low that Intamin came up with an even more popular system: the Giant Drop made possible by the use of the Intamin co-invented magnetic braking system.

DMS / MMS - Motion Simulator - Intamin was also the inventor of the first Motion Simulators used in the Amusement Industry. First with the 3 DOF Dynamic Motion Simulator and later with the 6 DOF Multi Motion Simulator.

Mega / Giga Coaster - When customers demanded to install even higher Roller Coasters and the then available chains could not cope, Intamin first invented the noiseless anti-roll-back (ARB) to tackle the noise issue followed by the, at that time, all new cable lift. Much simpler, less heavy and much faster in operation and together with the coaster magnetic braking systems co-invented by Intamin - the sky became the limit…

Hydraulic / LSM Launch Coaster - The Intamin invented Hydraulic Launch Coasters became extremely popular as alternative to lifts as the “bungee-cord like” thrust at launch is so exciting and unique. Later linear synchronous motor (LSM) technology, also first used on Roller Coasters by Intamin, became more and more efficient and almost as powerful as the hydraulic launch systems, so LSM systems are gradually replacing the more maintenance intensive hydraulic versions.

Needless to say, that with this many rides invented and all these new technologies integrated, Intamin has won accolades from organisations within the industry with many Best New Product Awards, Industry Impact Awards and Best Technology Applied Awards. But Intamin is not “resting on its laurels” and is continuously seeking new and innovative ways to improve all attractions within the five major product lines – day by day, year by year.
Points of Strength

Range of Product Knowledge
Year after year, inventing one ride after another over a period of half a century creates Intamin’s solid knowledge base behind the largest range of products available in the amusement and theme park business sector. This line of products reaches from Water Rides, Roller Coasters, Free Falls, Simulators, Observation Attractions and Wheels to Monorails. Acquired expertise on different rides is combined by the teams to push product development forward. All of this optimizing and sharing: common systems, data-bases, engineering, dimensioning, safety viewpoint, operating manuals, spare parts and customer support and follow-up philosophy. As an example the synergy achieved within the Intamin team, the same passenger restraint units, as developed and refined for Roller Coasters, are used on Drop Rides, Gyro Swings and the faster Water Rides. Another example is the magnetic brake technology developed for arresting descent on Free Fall Towers. These devices, it was realized, could be used as frictionless and low-maintenance retarding brakes on Roller Coasters or used under water to reduce speed and splash on Boat Rides. So, as new challenges and demands arise, the closely cooperative Intamin team of skilled engineers and technologists share innovation across the product boundaries as an ongoing process and as a demand of the business model established by the company’s founders.

Ongoing Innovation with Technology
With the development of products comes the refinement and continuous improvement of subassemblies used in common; from bogie assemblies, restraint locking mechanisms, retarding and block brake systems, free fall drop mechanisms, cable lift systems to hydraulic and LSM launch units. Intamin generally is the first to embrace new ideas and invent new products, put prototypes into operation and refine rides on a continuous bases - thereby leading in front of the competition.
Network of Partners

Over a dozen development and execution companies are working with and for Intamin on a close partnership basis and in many cases this has been for one or 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. Among these companies are the following as examples:

**INAUTEC GmbH**

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

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 carry out the production of the associated vehicles with manufacture of machined parts, welding and assembly of highly stressed vehicle chassis, components and running gear. Stakotra have another plant in Budapest, Hungary where they specialise in the assembling and welding of complex and heavy steel structures and tube assemblies as associated with observation towers and giant wheels or round rides for example. These large parts in many cases need to be machined post-welding on large capacity machine tools available in-house to achieve extremely high tolerances as 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.

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Located in Rüscheid (between Frankfurt and Cologne), Germany, is specialized in creation of artistic fiber reinforced plastic (FRP) vehicles and components including master modelling, tool and molding developments and production. They produce and assemble boats and roller coaster and other vehicles to the specification of customers and the specific wishes and concepts of customers. They are also specialized in prototyping, technical design and production of self-supporting composite constructions and complete passenger seat and restraint systems.
Stationed in Ebikon, Switzerland, Oelhydraulik Hagenbuch AG are responsible for most of the special hydraulics needed for Intamin products - from restraint locking mechanisms, motion simulators, fail-safe lifting cylinders to the high energy hydraulic launch systems used on Intamin catapult rides.

INDRIVETEC  Working out of an engineering office, production and high power test facility in Zurich, Switzerland, Indrivetec has developed and is continuously refining linear synchronous motor (LSM) technology. These motive-power 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.

Our partner Sinusmatik has the full and high quality capability for building electrical cabinets, control panels, vehicle electrical assemblies and control systems from a facility close to Zagreb in Croatia. Based on specifications developed by the Inautec power and controls engineering team, Sinusmatik provides full 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 for Intamin rides. From 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 Munich, Germany, the independent company of Stengel Engineering is mainly focused on modelling and perfecting layouts and structures of the finest roller coasters throughout the world. Stengel Engineering is proud of more than 50 years of joint success with all major players in the amusement business.

Listed above are just a few of the many companies keenly engaged on Intamin product developments and projects. Intamin remains forever thankful for the help of all of these partners as only with their fully dedicated efforts Intamin can deliver equipment in ever better quality, with a faster time-frame and realising economies where possible.

The Intamin Team
Lastly but probably the most important point of strength! A brand name is only as good as the team of people that stand behind it. With founder and founder’s family fully engaged and involved in the overall business, consistency of products, ongoing high quality output and company guiding philosophies are maintained. Highly motivated heads of companies and heads of departments are pushing forward with their teams, to improve efficiency, to assure steady and successful growth and to stay ahead with innovation. With this ever faster cycle of improvement and innovation a lot of credit must be given to the exceptionally capable team of site advisors - always having a quick and effective answer as how to resolve any initial challenges.
How We Do It

Safety
As Intamin’s products are used and enjoyed by millions of guests and passengers worldwide on a daily basis, safety is always of the very first consideration for the Intamin team and partners from development to installation and testing of every project.

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 3.6 m and eventually the largest version had over 14 m difference. The first Giant Drop was of 54 m, the tallest built so far over 120 m and now on the drawing board - well, we are not entitled to say! First came the Mega Coaster at 60 m of height now we are talking well over 100 m. The first hydraulic launch was of 90 km/h and Formula Rossa is 240 km/h.

Subassembly Testing
As entire rides, in the sizes Intamin is now building, cannot be set up in the factory for testing, only certain key subassemblies can be tested and in some cases on special test benches. Such a bench test was with a rotating magnet wheel used to verify magnetic flux saturation and temperature effects on the magnetic braking technology and devices on a 40 tons and 40 passenger capacity Gyro Tower Drop vehicle. Another test-rig was for a fast actuated under-water switch for a boat ride operating at a ride dispatch interval demanding a switch operation under 14 seconds. Mounted upon a 6 DOF simulator test bench, vehicle chassis parasitic vibration frequency cycle testing has been performed. Loading and cycle loading components with the use of computer controlled and monitored test-rigs, integrated with strain gage measuring equipment, is routinely used to verify expected design life.

FEM-Analysis
Nowadays, every passenger load bearing structural element is modeled in 3D AutoCAD 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 closely equivalent ASTM standards and associated codes or local standards, with specific client requirements where applicable. Samples of such analysis are as follows:
3rd 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 3rd party review process implemented to assure the in-house design verification. This would typically be by partners such as TUV, Büro Veritas or Jacobs and CSEI for Chinese projects, all well respected agencies of design assurance within this industry.

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 certificate or process record documentation, in all the factories involved.

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 dummies to prove reliability. Only once all of this is completed, the system can be handed over to the customer - ready for successful public use.
Operation and Maintenance Manuals
At the equipment delivery and with any required updates before the final handover, Intamin provides the in-house produced operations and maintenance manuals, which are to be followed by the client team for safe operation. From time to time, bulletins are issued to make customers aware of adjustments and updates based upon information from similar systems in operation elsewhere.

After Sales Support
Over the entire lifetime of the attraction, Intamin is available for advice and consultation on any given issue on the delivered equipment. This is through representative offices in different continents and countries and via the service hotline.
The Product Lines

Roller Coasters

Representing the key attraction in most amusement and theme parks many types of roller coaster have been developed with varying levels of thrill and excitement as described here and with this product line in continuous refinement by Intamin.

Family Coasters are designed with ride motions and acceleration forces suitable for all ages so can be a shared family experience with some systems created even for the smallest passenger to join the fun. These are normally configured as a train of 5 vehicles each seating 4 passengers but variations are possible, determined by required capacity and track size. 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 coloured track structures. Intamin has the specialists available to develop customer’s creative concepts, create maquettes 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 large population 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 lifts in the track layout. As an option the seating can be themed with vehicles configured for each individual passenger 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 boost of energy given from a horizontal loading level position by a friction drive array integrated into track or a fly-wheel launch system. Similar devices can be used to augment train speed and kinetic energy to negotiate inclines and extend the ride time.

A next “must have” is represented by the Looping Coasters taking the thrill for riders to another level. Looping Coasters are typically pulled up a lift hill by a hook below the drive vehicle indexing with drive chain loop integrated into track and motivated by electric motor. As required by all standards a silent anti-roll-back system is integrated adjacent to the main drive to sustain the train in all circumstances.
When released into the ride track gravity run, the train passes through single or more usually, multiple inversions as it maneuvers through multiple looping track sections, cobra elements and spirals all put together by additional level track geometries. Passengers experience an exhilarating ride and unusual accelerations being exposed to g-loads in the ranges from negative 1g to short periods up to 4.5g. Because of the inversions and the ranges of acceleration the passengers are experiencing, the seats are each configured with a code compliant restraint system to assure safe containment within the vehicle.

From Family to Family Launch as well as Looping Coasters they can all come in different arrangements of passenger seating. Be it from 2 across to 4 across, be it traditional or a wing arrangement with passengers extended each side of vehicle beyond the track. In addition, restraint and seating can be configured for passenger inversion. It is possible to combine two track systems as a Dueling Coaster with vehicles passing through a loop or other track geometry in parallel or opposite motion at the very same time!

A higher level of rider excitement is achieved by the Mega and Giga Coasters. These are coasters that come at heights of 60 meters and more. The trains are typically pushed up 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 transit huge zero to negative gravity air-time summits to hills, s-curves and carousels to the total thrill of the passengers.

Hydraulic and LSM Launch Coasters are typically associated with the Mega Coasters as they enhance the ride experience greatly. With all launch systems the initial speed and energy of the vehicle is gained by catapulting a train along a straight and near level track section. From a standing position in loading station or from a launch position the train is moved into to extend the suspense, the train is suddenly accelerated to the speed required to enter the first track section geometry this being a hill or spiral for example. For the exhilaration of riders a very dramatic bungee effect can be experienced with the rapid increasing speed. The magnets associated with the LSM launch system already integrated into vehicle chassis make it possible after the initial launch to use additional liner motors integrated into straight sections of track to give several re-boots to vehicle energy to extend the ride time and negotiate track geometry requiring more energy for transit.
With the incorporation of LSM technology, Intamin has also created a range of Impulse Coasters. Requiring only a limited area for installation, these are very viable for small foot-print locations where space may be at a premium, such as a shopping mall or a small unused corner of a park with insufficient space for a full coaster. Despite this, these are still very exciting installations and with creative input offer a lot of theming possibilities. Using the LSM drives the vehicles are moved from the loading position forwards and then backwards along a U-shape track. This movement continues with a pendulum effect until vehicles reach their top heights on both ends of track. Equipped with rotating passenger seating assemblies, with integrated restraints into each seat and mounted to a themed vehicle the Surf Rider was created.

A special group of rides are characterized by the Vertical Lift Coaster and the Zac Spin Coaster. Both use double chain mechanisms to push the trains or vehicles up a lift vertically before release into the gravity section. The Zac Spin’s passenger seats are facing forwards and backwards and can freely rotate in the horizontal plane making each ride different, the spin being subject to variable loads of passengers in each seat position. Newest version of this ride launches the vehicles up an inclined slope using LSM drives with enough energy to only just make it over the crest to give suspense before the descent and ride commences.

This brings us to the family of Spinning Coasters. For these rides the vehicles transit a track system as normal but the vehicle body is fixed to the chassis by a rotating bearing assembly on vertical axis, approximately on vehicle center, allowing the passengers to spin as the vehicle negotiates the elements of the track. The bearing can be configured to be freely moving under inertial effects or a motorized drive can be integrated with power from an electrical bus bar and collector system between track and vehicle.
For load and unloading, or for sections where vehicles must be aligned to pass facility or scenic obstructions, the spin bearing is configured with a brake to secure the vehicle from turning. Additionally, where free spinning vehicle seat rotation rates will cause the allowable accelerations for riders to be exceeded, a governor device is installed within the bearing. The vehicles usually have 4 seats and can be configured facing inwards or outward and can be single or in a train of vehicles as required by customers.

Intamin’s **Wooden Coasters** are of a special construction. They do not use the classic assembly of wooden planks laid on top of each other and do not use steel track. Intamin’s wooden coasters are made out of laminated wood elements milled to the exact geometry of the structure and track and assembled with specialized hardware. This results in a true wooden coaster built to exacting tolerances and excellent ride quality maintained over time. These structures are resilient enough to accommodate cable lifts or LSM launch assemblies or re-boost LSM elements requiring fine tolerance guiding available with such laminated wood constructions.

Intamin’s **Multi-Dimensional Coasters** are normally in a closed show space and developed with customers following a special creative concept and often based upon an IP (intellectual property) associated with a film or other media content, to be projected within the show space in coordination with ride elements. They generally require the input at the start from the Intamin experts in selecting equipment and systems that fully achieve the “story-line” but meet the project pro-forma plan with regard to attraction size and budget. Intamin would plan to join the project team early on a consultancy basis and can be on location within project team offices as the most efficient way to progress the best ideas and options within the defined constraints. The system would often commence with a basic transport system based upon the significant range of coaster elements and systems and then be supplemented with devices from other product lines such as motion bases - in multiple options on DOF, vehicle vertical lifts, drop platforms 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 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 Log **Flume Ride** which is being continuously refined by Intamin. Starting from 4 passenger boats, to 5 passenger boats and now a new 6 passenger boat. This largest boat has an individual restraint to each seat which has been developed in order to keep the characteristic sitting position between the legs of each passenger, like in the old days but with deterrent to standing. Naturally, if this “nested” seating is not desired, boats are available with passengers sitting next to each other.

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 more efficient load/unload cycle, as reaching capacity is often a key consideration. Also it is possible to incorporate switches in Flume Rides so that boats can be turned to maneuver sections of ride or down chutes in reverse direction. Intamin is especially proud of the **fast switches** developed that are capable of moving a boat in less than every 14 seconds as is demanded to achieve hourly capacity for larger rides.
Taking the Flume Ride one step further in terms of lift height and drops are the **Spillwater** rides with 20 passenger boats with one lap bar restraint shared across 4 persons. These progress to the **Mega Splash** with 24 passengers each with individual restraints required as passengers are experiencing up-lift forces during transit of the down chute often configured with a decorative and exciting waterfall effect.

Boats are slowed down at end of chutes by controlled entry into deeper water in the run out, normally in a lagoon and usually designed to create a huge and exciting splash, best watched from a pedestrian bridge. And if needed, even magnetic braking technology can be added to slow down the boats.

In the portfolio Intamin also has a series of **Cruise Boats** that are self-propelled using specialized electric motors, or by the flow created by booster pumps that move the water and thereby boats at desired speeds along a flume. The boats are typically continuously guided by underwater guides underneath boat or left and right of the boats, so do not require a driver.

One of the first inventions by Intamin, regaining significant popularity - especially in ever larger Zoo’s - is the **Gondoletta** or **Tow Boat Ride**. A closed loop cable located underwater in a lagoon is guided around a series of pulleys while driven by an electric motor. The boats, attached to the cable, are gently pulled around the path of the cable. The cable moves constantly but the boats can be disconnected from the cable and stopped in the station for safe load/unload before being indexed back onto the cable for the next circuit of the ride.

The newest developments are respectively the **Speed Boat Ride** and the **Ultra Splash**. On the Speed Boat Ride 20 or 24 passenger boats are parallel launched over the water surface by LSM motors and are racing against each other. The Ultra Splash also utilizes 20 or 24 passenger boats, which can be in stand-alone operation or integrated with the Impulse Coaster. System boosts vehicle fore and aft until reaching maximum speed and height before creating a big splash and afterwards coming to a safe standstill back at the station.
Towers and Drops

One of the first observation attractions as conceived by Intamin is the **Gyro Tower**. While 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 comes in different sizes; from 50m height with a 50 passenger cabin to 150m height with a 100 passenger cabin. New, there is a double decker version available with an open roof deck on top of cabin. Also available is the combi-tower where Giant Drops can be integrated around the central mast coordinated with and passing through the observation cabin structures.

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

Following the original Free Fall, Intamin has developed an entire range of options for **Giant Drops** and **Gyro Drops**. From heights of 40m to 140m, from 4 to 50 passengers, the cabins are lifted then hook released and dropped in true free fall before reaching the innovative Intamin designed magnetic braking systems 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 4 different vehicle options: “sit down”, “sit down tilting”, “stand-up tilting” and “suspended tilting”.

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**INTAMIN**
New in this category is the **Sky Jump** with 4 passenger rows that are pivoted forward so that passengers are facing down before and during the fall - in a position like a skydiver!

One specialty of Intamin is the **Integration of 4 or 8 passenger Giant Drops** to existing buildings and structures. This has started with the “Giant Drop on Building” in Japan and progressed to 3 Giant Drops integrated onto the structure of the world’s highest roller coaster at Six Flags Great Adventure.

In early days of the company, Intamin developed further tower rides that could be interesting for a “retro-ride” themed area of a park. These rides include the **Barnstormer** - airplanes moving up/down a tower while turning around it, the **Flight Trainer** where passengers become pilots using a joystick so they can move their airplane themed vehicle up and down and even make 360 degree barrel-rolls and the **Parachute Tower** where passengers, standing in a cage, are lifted up a 60 m tall tower before being rapidly lowered while the large parachute canopy above the cage is decoratively opening. Some of these have already celebrated a revival.
Wheels and Round Rides

Intamin designed and built the tallest conventional Giant Wheel configured with modern cabins and with structures able to resist direct typhoon wind conditions as mandated in Japan or Florida. The **120m Giant Wheel** comes with an innovative hydraulic pusher mechanism used to rotate partly completed sections of wheel to allow systematic and safe ground level assembly. The recently completed 120m Orlando Eye, setting new standards, is equipped with spacious 15 passenger Gondolas designed and built by Intamin featuring a fully automatic and fail safe floor levelling mechanism, automatic door drives, full aspect safety glazing, multi-color interior lighting, video screen and sound systems carrying media for advertising and ride commentary.

In parallel, Intamin developed and built the **Coaster Wheel** where some gondolas are fixed to the outer wheel structure and others move within the structure along a closed loop track depending of wheel position. Development options include for a gondola to be restrained for part of the wheel rotation cycle to then be released at the top position to fall under control up to 3 m along a spoke into magnetic brakes.

Intamin has also become famous from developing and building the **Wall Mounted Giant Wheel**, consisting of a closed loop slow moving chain to which Gondolas with a self-levelling mechanism are attached. Taking that concept a large step further is the **Golden Reel** in Macao where the vehicles are not for 4 but 15 passengers and the entire structure, in which the heavy duty chain links are moving, is fully suspended between two high rise buildings with no ground structure support.

Intamin has also been contracted for numerous engineering studies for special wheels such as the **120m Star Wheel**, the **140m Giant Wheel** and the **Spokeless Wheel**.
A somewhat tamer but not to be underestimated wheel is the **Chinese Wheel**. In each gondola passengers are sitting in a circle facing outwards. While gondolas are going around the wheel they are swinging and rotating from time/time - especially pretty when installed over a pond area.

As for **Round Rides**, Intamin has early on developed the Drunken Barrel - a teacup ride on a tilting platform, the 60 passenger Bounty, the 120 passenger Super Bounty and the Looping Starship - still available within the product line and with upgraded technology.

Intamin is also proud of developing the concept for the latest refinement of the **Gyro Swing** where passengers are facing outwards, away from the carrier center. The new version is driven by a single direct drive motor with no slew ring gear box or pinion drive, the seats and restraints are to 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.

Also a new development is the **Suspended Twin Hammer** - offered with latest technology and set on a large slew ring to create another sensational ride.

**Simulators/Immersive Rides**

With content and hardware for projection systems progressing so rapidly while becoming more and more affordable and also readily available in 3D format and with VR/AR - full immersion rides have become and will continue as a major trend.
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Many of Intamin’s rides, such as slow flume rides, closed loop dark rides, towboat rides and also coasters with controlled motion, are fully viable as the basis for full immersion experiences. Intamin is well prepared to upgrade any existing ride with Hi-Fidelity audio, sub-woofers, vehicle 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 following:

The MMDR - the Multi Motion Dark Ride is an especially well suited ride system to be combined with full immersion shows. The Jeep like vehicles are not only able to go slowly through scenes but also then to “escape” rapidly through tight turns enhanced by the 6 DOF movements of the motion platform, the guests are in reality transported upon.

The Dome Ride Theater is developed and offered together with the company “Attraktions!” Gmbh and is a spectacular dome projection system combined with a ring mechanism supporting 80 passengers and slowly rotating and tilting in a shared “theater” space. Not only is there the show from the media but the guests sitting opposite are part of the experience.

The Ultra Tower is developed and offered together with the company “Raven Sun Creative”. The 6 DOF motion platforms for 24 passengers are moved up and down a 30 m tall structure in synchronisation with the projected images on screens integrated into the facility space. The vertical transition on tower is so extensive that the projector moves on track systems with the vehicle.

A lower cost spin-off from this configuration is the Vertical Accelerator. Here passengers are moved up and down and can be tilted fore and aft. Riders face a large vertical screen with media and movements again in full synchronisation 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 – as a special feature of a new system or to get a second marketing opportunity from an existing attraction.

Monorails

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, this 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 lines 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 lines 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 design 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 aluminium body structure, is air-spring suspended and levelled 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 synchronisation with the train doors.

The P45 is the next in line to be developed and is still on the drawing board. It will be similar to the P30 but with walk through capability from cab to cab and be able to hold more passengers in order to cope with hourly capacities of 10’000 pph and more.

As the customer base for Monorails has altered significantly, all Monorail activity is handled by the company Intamin Transportation Ltd. Please see: www.Intamintransportation.com for more details.
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Intamin expresses its sincerest appreciation and gratitude to all of the company’s worldwide customers for the continual trust and repeat business. Additionally, many heartfelt thanks are extended to its loyal engineering and manufacturing partners, and most importantly, to the devoted, assiduous staff and management.

It is the precious union of these 3 independently essential groups, customers, partners, and employees that brought the Intamin brand to where it stands today and will continue to maintain its position of leadership in the industry.

Intamin will continue its best efforts to ensure another 50 years of great success, imaginative innovations, and prosperous relationships with its development partners and worldwide patrons.