

 **Amusement**

November 2007

Dear Readers,

XPRESS is celebrating its fifth anniversary! Over the past five years, it has become a fixture in the yearly cycle. In addition to providing information on our products and current developments, we have also consistently tried to make our philosophy apparent: Clear, reliable information and close cooperation with



our customers make it possible to create extraordinary rides, which are convincing to all those involved, and, beyond that, continuously extend the technological range of the roller coaster. The new X-Car launch coaster in Drievliet is an outstanding example of this. Thanks to the innovative spirit of the park owners, our collaboration has resulted in the birth of a future-oriented product class, which has impressively spurred park growth. Let yourself be inspired!

Jörg Beutler, Managing Director
Maurer Söhne

X-FACTOR!



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Looping, Formule X

Drievliet Debuts X-Car Launch Coaster

Dutch family park Drievliet has just opened the world's first X-Car launch coaster. Built by Maurer Söhne using an LSM (linear synchronous motor) launch, it's thrilling a wide variety of guests. Owen Ralph visited The Hague to experience a new kind of launch coaster.

Formule X includes just 319 meters of track, but it's been put to good use. Not for this launch coaster a giant hump that gobbles up all the ride time and acceleration. In keeping with the park's target demographic, the launch is family-friendly

and the ride that follows is fun not fear-some. It's also exceptionally smooth. A rolling start out of the station gives guests little time to contemplate what lies ahead and soon they are rushing at 65km/h into a compact loop with an

acceleration of 0.8G. This is followed by an Immelmann curve, a sharp Camelback, a half Cuban Eight, a heart roll and finally a 127° banked curve before returning to the station.

"It's 47 seconds from the station to the brakes," details Jos Faaij, one of three brothers that own and run the park. "That's quite short, but we didn't have more space, and we don't have any more money!" Formule X is Drievliet's fourth coaster and complements the existing three well. "We asked Maurer not to do a helix section on the end because we already have that on Dynamite Express, so we have put in the sharp curve instead," explains Jos.

Dynamite Express, a powered mine train from Mack, was added last season and joins TwisTrix, a prototype spinning coaster from Switzerland, and Kopermijn, a Maurer Söhne Wild Mouse that began the park's relationship with the German manufacturer in 1996.

Open for Easter – and on time – Formule X now sits at the heart of the park and replaces a spinning coaster that was on loan from Maurer for the past few seasons. Even if the park had wanted to keep that

ride, they wouldn't have gotten planning permission.

Since it opened in 1938 in Rijswijk, just outside The Hague, the residential population has grown steadily around the park and you must now drive through an industrial estate to get there.

A 25-meter Ferris wheel constructed years ago by the Faaij family was allowed as a one-off. "The municipality said 'Don't ever do it again,'" we are informed by Wim Faaij. "So now we have this 15-meter limit." It's a familiar story for parks the world over, although 15 meters does seem particularly restrictive. "We don't like some of the buildings here, but that doesn't matter," adds Wim, and, sure enough, a new office block that probably exceeds 50 meters or more is taking shape on the horizon and casting its shadow all around.

With a maximum height of 14.9 meters, Formule X will appease the authorities. The ride's footprint, meanwhile, is just 50 x 50 meters, built around a base frame. "When we put in the mine train, we spent the same again on foundations."

Shaped by budgetary constraints and



Formule X LSM launch start

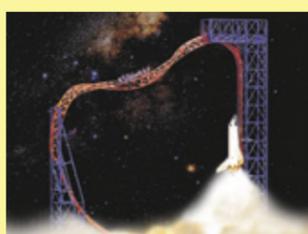
NEW PRODUCTS



NEW: Coupleable spinning coaster for high capacities



NEW: X-Seat with integrated audio and video system



SkyLoop with vertical launch: Great interest after the trade fair presentation in 2006

Continued on page 2 » » »

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planning regulations, Formule X is still a thrilling ride. The X-Car vehicles and their open seating mean riders perform the two inversions without the need for shoulder restraints.

Maurer Söhne's Sales Director Horst Ruhe believes it is one of the few launch coasters practical for a park the size of Drievliet, hosting between 400,000 and 500,000 guests a year. "We've been able to make the ride so compact by using just one car at a time, although we can supply launch coasters with combinations of up to four X-Car vehicles," he tells us.

"When we developed the first X-Car coaster, we always considered the possibility of a launch. We examined a lot of different systems and decided the LSM would be best to deliver a fantastic family-friendly launch that does not push onto the backside. Using LSMs also keeps the maintenance down compared to other launch coasters because it is contact-free."

Working with Intrasy in Munich, Maurer Söhne has developed a system using tried-and-tested technologies. An energy store, supplied in a container together with the control system, enables an output of 400 kVA in spite of the park's power supply of only 125 kVA.

"We have so far delivered four X-Car coasters, five with this one, Dr Rosner, has delivered nearly 20 launch systems, and the energy store has been supplied hundreds of times to different industries; so the biggest challenge was to bring it all together and make it successful," says Horst. "The feedback is that we have got it right, and this is a good park that has been very co-

operative in helping us realize the first one."

According to Jos Faaij, choosing Maurer Söhne was a 'no-brainer' for his other brother, Piet. "If he didn't work here, he would work for Maurer I think!" Piet says he loves the fact that the new ride is so quiet, but that this in turn creates a small problem. "We have to sound a siren before we launch the car so any maintenance people on the track know it is coming."

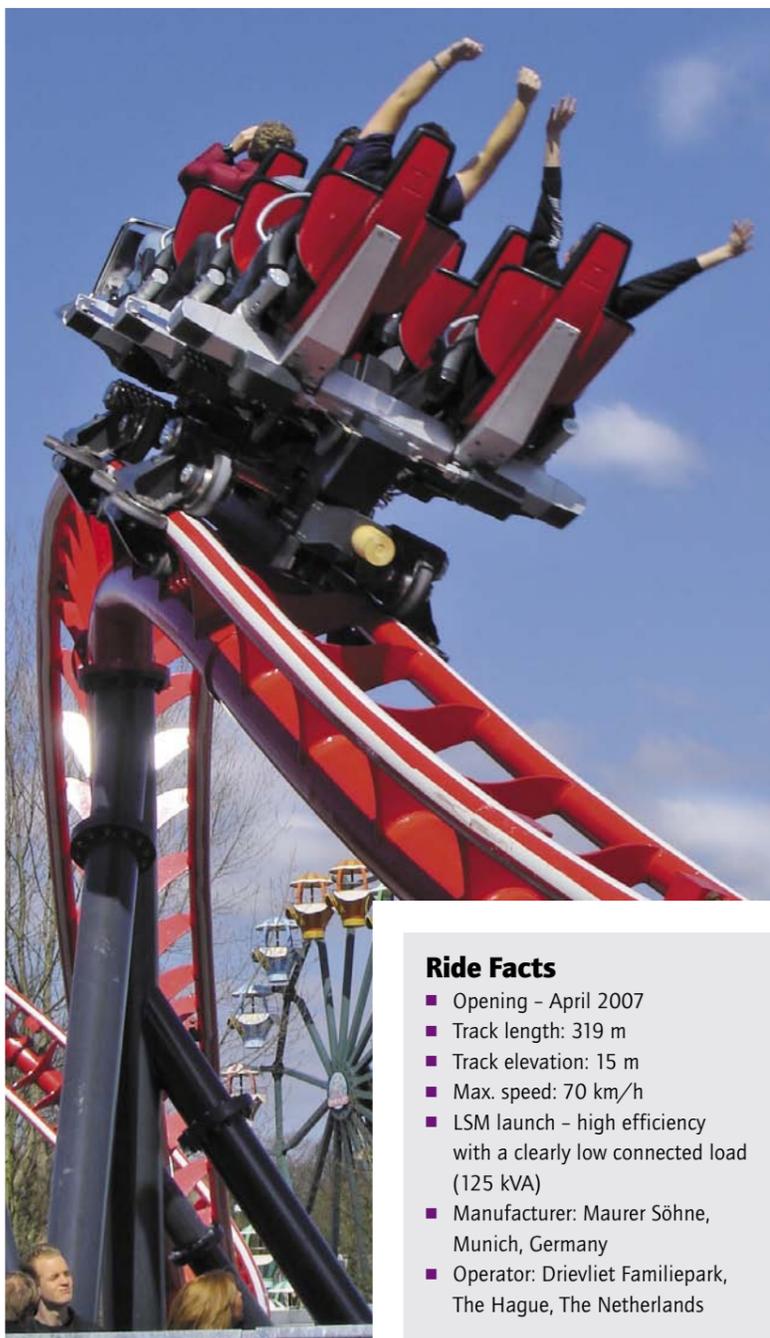
It is hoped Formule X will help deliver an attendance increase of up to 10% for Drievliet, pulling guests from surrounding cities like Rotterdam, Utrecht and Amsterdam, as well as The Hague. "One of the reasons for building the new ride was to cater for an older age group, because the structure of the family now is different," says Wim. "The youngest child may be four, and the eldest child may be 14, and for all of them we have to have the ride that they like. Last year we did the mine train and the tea cups from Mack, but before that we put in the KMG Afterburner. If we have any more April days like this, I think in future it might be wise to put in some more water attractions."

During a bright, warm Easter operating period, queues of over an hour were forming to ride Formule X. "It's been very, very good, we have just had so much publicity, and we've had some of the best days since 1938," concludes Wim. "We hope to get a lot more days like that as the year goes on."

Let's hope the sun keeps shining!

Park World, May 2007

Sharp Camelback providing plenty of airtime



Ride Facts

- Opening - April 2007
- Track length: 319 m
- Track elevation: 15 m
- Max. speed: 70 km/h
- LSM launch - high efficiency with a clearly low connected load (125 kVA)
- Manufacturer: Maurer Söhne, Munich, Germany
- Operator: Drievliet Familiepark, The Hague, The Netherlands



An aerial view showing the compact layout of Formule X

Interview with Piet Faaij, Drievliet

How big is your park? How many visitors do you have? What makes your park special?

Our park has an area of around 10 hectares big and we have about 500,000 visitors a year. The special thing about this park is that it has rides for all ages. Drievliet has been a family business for 70 years. Since 1990, it has been run by three brothers: Jos, Wim and Piet Faaij.

How long before your decision did you start thinking about a new ride? What were your planning steps?

About 6 months before we signed the contract. We already wanted another coaster instead of the Extreme, which was rented. Maurer was the obvious choice because we were charmed by the X-Car. By the negotiations Maurer came with the best proposal for a coaster in the available space.

What is the most important factor when you decide in favour of a certain manufacturer?

We already had three coasters from Maurer, so we were familiar with the quality and the service.

Why did you decide on the X-Car launch coaster? Which qualities were especially important for you?

We decided to purchase a X-Car launch coaster because:

- Like we said before we wanted a X-Car.
- It is a coaster with LSM drive.
- The 125 kVA can be changed into the needed 650 kVA, so it is no extra load on the electricity network.
- It was a totally new concept.

What, in your view, were the real innovations of the Formule X coaster?

The fast start, the sharp curves, airtime and the positive and negative G-forces form a good experience all together.

The time frame for the coaster was tight. How did the project go?

The project went well and everything was finished in the end. It could have been a little faster and more economical if all the parts had been delivered in the right order.

What, in your view, were the main factors that contributed to the project being completed on time?

The good cooperation with Michael Werth, Project Manager, and Carsten Stock, Supervisor.

What factors were given special consideration during the implementation of the project? What factors were of particular importance to you?

To have so many diverse figures on such a small space.

What, in your experience, is important for the successful implementation of projects in general?

To have a good cooperation.

How did visitors respond to the new roller coaster?

Very positive and enthusiastic.

Were you able to increase the number of visitors in your park after opening? Have your expectations been met?

Yes.

Were there any surprises for you?

We knew the coaster would be quiet, but we were utterly surprised that it is so quiet: it is almost completely silent.

How is the advertising accent on the Formule X?

We added a special part about the Formule X in our television commercial.

How important is it for a park to have something first?

It's very important because of the promotional aspect.

What potential do you still see in your park? In what direction are developments going?

We want improvement of quality.

What requirements does the ideal family roller coaster need to fulfill?

A lot of excitement, smooth figures, little noise but most of all safety.



Brothers and park owners Jos, Wim and Piet Faaij

Crush's Coaster



Even the slow-ride section has its special appeal

Around 40 million Euro was invested in the theme area "Toon Studio" at Walt Disney Studios, which stretches between the "Art of Disney Animation" and the "Flying Carpet" attractions, and is part of an investment offensive on the occasion of the 15-year anniversary of Disneyland Resort Paris.

This new theme area contains two new attractions: "Rally Cars" from Zamperla (see KPR 6/2007), and "Crush's Coaster" from Maurer Söhne. The last mentioned attraction is located in the new "Studio 5" area, a hall construction, which, with a size of 23 by 45 meters has the ground measurements of the standard version of this coaster type. The station area and the 125-meter-long "offshore" theme-ride section are located in adjoining buildings.

A Trip through Waters

Disney Imagineering from California, the name given in those days by the company founder Walt Disney personally for the established creative section within the Disney enterprise, was responsible for the theming, and worked on the realization for three years. The individual scenes have been taken from the successful Disney-Pixarfilm "Finding Nemo", with the objective that all passengers have the feeling of getting lost in the rapids of Nemo's water world – and that's exactly what has been attained with "Crush's Coaster".

This roller coaster offers a ride experience unknown up until now, although – and this is what makes it even more astounding, a large section is almost identical to the track layout of the well known transportable construction type "SC 2000" from Maurer Söhne (for example "Spinning Race" from Bruch). Only the final braking section is slightly different. Who would have thought that the effects of darkness would have such a dramatic impact? Moreover, in addition to the actual coaster ride, there's also the outside upstream sequence, and the passage through Nemo's fantasy world, which doubles the ride duration.

A Threesome is more Fun

Especially when one person is lucky enough to have one's own vehicle not

occupied by four passengers, which results in an unbalanced weight distribution. The endlessly many "whirlpools" and vortices rob one completely of orientation, resulting in the dizzy feeling of joining the ocean residents.

Every eighteen seconds a gondola leaves the very short-time loading area. The chaises, designed as turtles, don't come to a stop at all but continue to move ahead through the station during passenger entry and debarking. When the team is really well attuned, the start continuity should only take about 14 seconds – a reduction of four seconds, which means stress for the station personnel, but a very important factor for a mega park like Disney. These four seconds would increase the capacity once again by 200 passengers, which would result in a respectable 1,000 persons per hour. There are enough



The outside sequence makes it clear to every visitor that this attraction is definitively a roller coaster



single cars on hand: 13 all told. It would have been better however if Disney had ordered the double track example from the start, such as that which was realized by Maurer Söhne for Phantasialand in Germany (see KPR 5/2002), which produces a capacity of 1,440 passengers without any great stress, even though Phantasialand has reached a visitor number of "only" two million per annum, and not twelve million as is the case here. Therefore, there can be a waiting time of up to two hours sometimes. Unfortunately, the almost obligatory pre-show at Disney was also waived, so guests must wait outside the building, before the line leads into the station area in the last 20 minutes. The sta-



A short but spirited moment outside



Crush mostly enjoys the Paris sun shining on his thick shell

Ride Facts

- Opening – 16th May 2007
- Track length: 545 m
- Track elevation: 19.5 m
- Max. speed: 60 km/h
- Ride duration: 1 min 55 sec
- 13 cars for 4 pass. each
- Capacity: 1,000 pph
- Manufacturer: Maurer Söhne, Munich, Germany
- Operator: Walt Disney Studios, Marne-la-Vallée, France

tion area in this instance has been modelled on the old harbor in Sydney. The two lifts within the track course are somewhat loud due to indoor operation. The first smaller lift could have at least been equipped with a friction drive system, although the mechanical noises from the second lift that leads through a sunken U-boat are quite fitting.

The Ride on a Turtle's Back

The exit from the station area and the small lift is immediately followed by a zippy and speedy approximately four-metre deep drop that leads outside, passing startled passers by, who apparently don't expect a turtle with four passengers to be quite so fast. Only seconds later, we're swallowed by a cluster of blue buildings, in other words the ocean, and dive into Nemo's fantastically colored underwater world. Moved on by friction drive wheels at a walking speed, we travel past colorful coral reefs, and jellyfish gently moving to the rhythm of the music, almost touching our heads with their tentacles. After a directional change, we meet up with Crush's friends Nemo and Squirt, who are swimming towards us on a screen, thanks to the latest computer technology. By the way, there are two of these types of projection areas, so that all four passengers can enjoy the spectacle. Suddenly however we are surprisingly caught in a rapid that carries us in a spirited and curvy drop to approximately two meters, that leads us directly to the nadir of the larger lift construction. Up until this point, 55 seconds of the ride have lapsed, and in only another ten seconds, we have climbed the 15.5-meter fast lift, past Bruce the shark, who has selected the sunken submarine to be his favourite hiding place. Following a right curve, we speed into a deep drop right across the hall, after

which the free rotating mechanism of the gondolas is released. Familiar ride figures from the "SC 2000" such as sharp curves, Immelmann turn or Halfpipe respectively, helixes and drops follow. These elements however have a completely different effect in the dark, and are much more intense and totally disorientating. Unfortunately, there are no other lighting, water, or special effects in this huge hall, nevertheless the completely surprising ride experience compensates for everything missing. It appears that the wild water can do what it wants with us, but only after one minute, Crush has done it again: we escape from the huge and dangerous rapids. Almost two minutes after leaving the station area the final brakes grip dauntlessly and after a 90° curve, the silhouette of Sydney harbor appears in our field of vision again.

A Successful Extension to the Park

Apart from the fact that there are only two roller coasters in Disney Studios, both of which are operated as indoor coasters (the second is the "Rock 'n' Roller Coaster" from Vekoma), the new attraction is a fantastic creation – made possible by the successful interaction of perfect track construction on the side of Maurer Söhne, and the successful design by Disney. And, at the very latest with the upcoming openings of the two other novelties for 2008 – "Tower of Terror" and "Stitch Encounter", the 2002 opened Walt Disney Studios will become a full-value theme park, offering enough variety with twelve rides and experience attractions for almost a complete visiting day.

Kirmes & Park Revue, August 2007
www.kirmesparkrevue.de.

Text: Frank Lanfer; Photos: Disneyland Paris, Frank Lanfer, Oliver Misof

Coasters pull in the crowds with breathtaking views



Freedom on the Tracks

Having Dreams Come True

Easy and Effective Steps toward the Perfect Roller Coaster

Building a new roller coaster involves decisions of critical importance to every amusement park. The main aim is to offer a high level attraction as well as a maximum appeal to park visitors and to retain new groups of visitors in the long-run. The stakes are high because of substantial investment costs, large space requirements and demanding construction works. All this requires careful planning and preparation.



Artist - each ride development starts with a creative sketch

Maurer Rides, manufacturer of innovative roller coasters such as the X-Car Coaster, utilizes a special procedure model, enabling the structured and goal-oriented planning of the new roller coaster, from the initial idea to the completed installation. This model is based on the concept of the four phases of creativity - explorer, artist, judge, and warrior - developed by Roger von Oech and also successfully employed by Walt Disney.

Explorer - Be Intrigued!

At the start of each coaster project, there should be an "explorer" who gathers all the necessary information to support the following development phases. It is the task of the explorer to collect available data and to search for all information that is not directly at hand. This step should be accomplished thoroughly in order to live up to all the expectations regarding the project. Here, the explorer should also venture off the beaten track. For example, it is important to find out the pros and cons of the different potential development areas. Moreover, one must identify any conflicting requirements that may result from the desired specifications as to size, rider capacity, and budget. In addition, it has to be clarified which target groups are to be attracted by a special coaster type, what the restrictions are when it comes to drafting the layout, and which characteristics are put forward to advertise the uniqueness of the coaster.

Most of the specifications to be dealt with during the explorer phase are closely connected with technical requirements. Therefore, it is recommended to include special expert knowledge right from the start. For this purpose, Maurer Rides has developed a workshop model, allowing the participants to discuss and develop a complete set of roller coaster specifications. The workshop discussions also include technical restrictions and the latest trends and developments. Experience has shown that it is particularly helpful to describe the objectives as clearly as possible and at an early stage, so they can serve as project guidelines. This offers the best preconditions for workshop participants to come

distinctive attraction. In this context, it is equally important to be able to take one's time to test and try all variations. The greatest danger during this stage consists in going for the familiar and well-tryed variants. For, the more often something is done the old way, the more difficult it becomes to consider a unique view from a different angle. Or, as Picasso once said: "Every child is an artist. The problem is how to remain an artist once we grow up."

The design process at Maurer Rides takes this perception into account by grouping an interdisciplinary team, consisting of engineers, industrial designers, architects,

marketing experts, and graphic designers. The sketches are discussed among team members, before being further developed, with the aim of creating something special, turning the new ride into a distinctive and unique attraction. However, this is not enough: There must be harmony between the overall creative concept and the emotional storyboard, so that the coaster offers an unforgettable experience from the start to the end of the ride cycle. The best results are reached when the owner or the assigned planner cooperate as closely as possible with developers and designers. To achieve this, Maurer Rides again relies on the effectiveness of a workshop, during which new and creative ideas

can be developed directly on the computer, including special client requests. This is ideally supported by the high-performance software XTRAC™, specifically developed by Maurer Rides for calculating roller coasters. Its convenient editor module enables the user to rapidly enter any modifications and verify them on the basis of 3-D views and animations. Compared with other programs, XTRAC™ offers a great advantage: Both the dynamic calculation and the examination of the accelerations can be carried out immediately and in real time. The program also allows the integration and visualization of further elements such as park surroundings, existing structures, terrains, and - if necessary - special architectural solutions regarding the column structure.

Judge - The Better Solution Is The Winning One

During the third creativity phase, it is up to a "judge" to evaluate what has been achieved so far. The artist's work has to undergo an examination, whereupon the "judge" decides whether to follow up or discard the presented ideas and whether a certain idea needs to be revised. The first step consists in verifying to which extent the specifications drawn up during the explorer phase have been fulfilled by the artist's concept. An exact simulation by Maurer helps to determine the attainable capacity, the riding time, and the available time for loading and unloading. By analyzing the dynamic forces, it already becomes



Explorer - making decisions thoroughly: Rides for various target groups, yet always an exciting experience

up with the diverse and plentiful ideas, using the guideline "too much is not enough". It represents a fascinating process that will result in a feasible concept combined with expert guidance.

Artist - Creating Uniqueness

Having collected all necessary data and determined the specifications for the new coaster project as an "explorer", the next phase of creativity can start. Here, the best use must be made of the gathered information, in order to create something really new. The time has come for the developers and designers to create the layout. A large amount of experience is required to design a perfect track. Moreover, there are many boundaries to be taken into account. The preexisting specifications have to be implemented as best as possible. However, creativity is also an indispensable factor in designing a unique and



The column structure - architectural challenge and important expense factor



Judge - realistic representations of the tracks facilitate decision making, thanks to the latest software technology

possible to determine approximate values for the complete supporting structure. It provides an excellent means to calculate the costs for the entire track and it helps to keep an eye on the available budget. Thus, various layout concepts can be evaluated and compared to each other. However, unlike quantifiable parameters, e.g. rider capacity, riding time, track length, etc., there is a decisive evaluation parameter that cannot be expressed in numbers. There is more to discover in amusement rides than their technological features: Specifically "emotions". A few questions need answering here: What sensations does the ride produce? What is the ride experience like? Is there an interesting sequence of track features? Other questions revolve around aesthetics: What does the course look like? Are the track features appealing? Does the ride fit into the park surroundings? What will be the track's level of attraction?

The above questions can be answered by providing the customer with graphical material: Photorealistic representations and accurate models reflecting all the details of a track integrated into a park make a valuable contribution to layout discussions. Realistic animations and videos give the impression of a real and intense ride experience. The interpretation of the acceleration diagrams generated by the track designers using XTRAC™ gives detailed information on what the rider can finally expect from the attraction. No judge is perfect; however, long-standing experience and an active exchange of ideas facilitate the decision-making process a lot. In addition to sophisticated analyses and representations, Maurer Rides also offers comprehensive guidance on most various coaster projects. Their team of creatives will have reached their objective when they manage to design an exciting and unique course that meets with the given requirements.

Warrior – Implementing the Idea

The creative process is finalized as soon as a decision in favor of a certain concept has been reached. At this stage, the roller coaster project awaits implementation. The "warrior" is the doer who takes all the necessary steps to realize the idea. The task of this last creativity phase consists in planning the overall project activities as accurately as possible. A detailed schedule, defining the various milestones serves

As for security and documentation matters, a certifier in charge of the acceptance of the completed installation should be involved at an early stage. This is an effective approach, helping to avoid any ambiguities and delays later on. Besides technical and scheduling matters, there are often issues relating to the financing of the project. Tackling these issues in good time often leads to interesting solutions which best suit the requirements of all parties. Moreover, it is important to

implementation very much depends on an early and detailed coordination and definition of the relevant tasks.

Custom Design Exploiting Potentials

Roller coasters offer unbeatable possibilities for meeting with individual park requirements and for realizing customized installations. With custom designed layouts every roller coaster can be turned into something special and unique. This

sess all the resources required for building this roller coaster type: An experienced team of creatives and planners, the outstanding integrated XTRAC™ software, and a broad range of available technologies. The whole value added process takes place within the Maurer plant, from sketching tracks, conducting dynamic and static calculations through the complete engineering, the production with quality assurance to the assembly and commissioning. This guarantees an extraordinarily



Launch – one of many inspiring features



Warrior – smooth project implementation and on-time completion through preparation and planning in good time

as planning basis. Furthermore, it is of great advantage for the assigned project managers to get to know each other and to jointly coordinate their activities at the earliest possible stage. It is vitally important to precisely describe the deliverables. For example, it must be clarified which items have to be delivered by a certain party or which persons will be responsible.

determine the point in time for the ride's market launch. It can be worthwhile to start with the editing and production of information sheets and graphical material as early as possible, in order to support the various marketing activities. This can also be helpful when it comes to choosing the color of the vehicles, tracks and columns. A smooth and successful project

potential should be exploited to make the investment a success. Thanks to state-of-the-art technology and sophisticated planning tools, custom designed coasters can be realized without additional development risks, within a short time and at comparatively low costs. Maurer Rides specialize in the development and manufacturing of custom designed installations and pos-

high level of planning reliability and flexibility and it also leaves room for innovations. Combined with a trustful and reliable working relationship, these are the best conditions for making every coaster an exciting experience and for making dreams come true.

Funworld, November 2007

Icy Challenge: The 20th Spinning Coaster Maurer Söhne to erect Spinning Coaster during polar night

Maurer Söhne has taken on quite an icy challenge. The Munich-based roller coaster specialists are set to realize their 20th Spinning Coaster in the polar winter: The SC 3000 will see the light of day at Linnan-

mäki Amusement Park near Helsinki in Finland. As for the decision in favour of the Munich-based manufacturer, Park Director Risto Räikkönen gives a simple reason: "We have tested the Maurer Spin-

ning Coaster and it convinced us in terms of quality, comfort and seating."

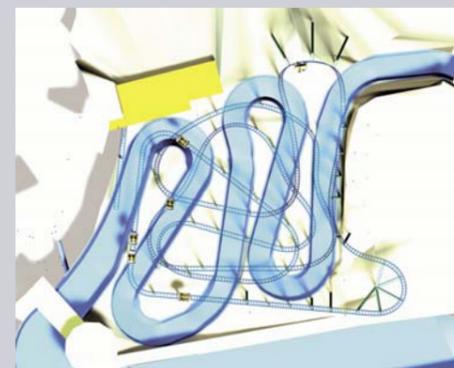
The first challenge to meet is the markedly hilly site as well as the fact that the new SC 3000 will be installed above an exist-

ing water ride. But it is meanwhile widely known that Maurer equals challenges with opportunities. The challenge begins right in the station: It is located directly above the water ride and provides for a diversified experience for both the queuing coaster guests and the passengers within the water ride.

At various positions, the coaster's 420 m (1380 ft) long tracks run near the water ride layout, whereas the regulations in view of distance and safety are of course strictly observed. Right after the start in a 17 m (56 ft) high lift, the Spinning Coaster tracks run extremely near the water ride as passengers experience the first S-curve.

Pleasure of a Twisty Ride

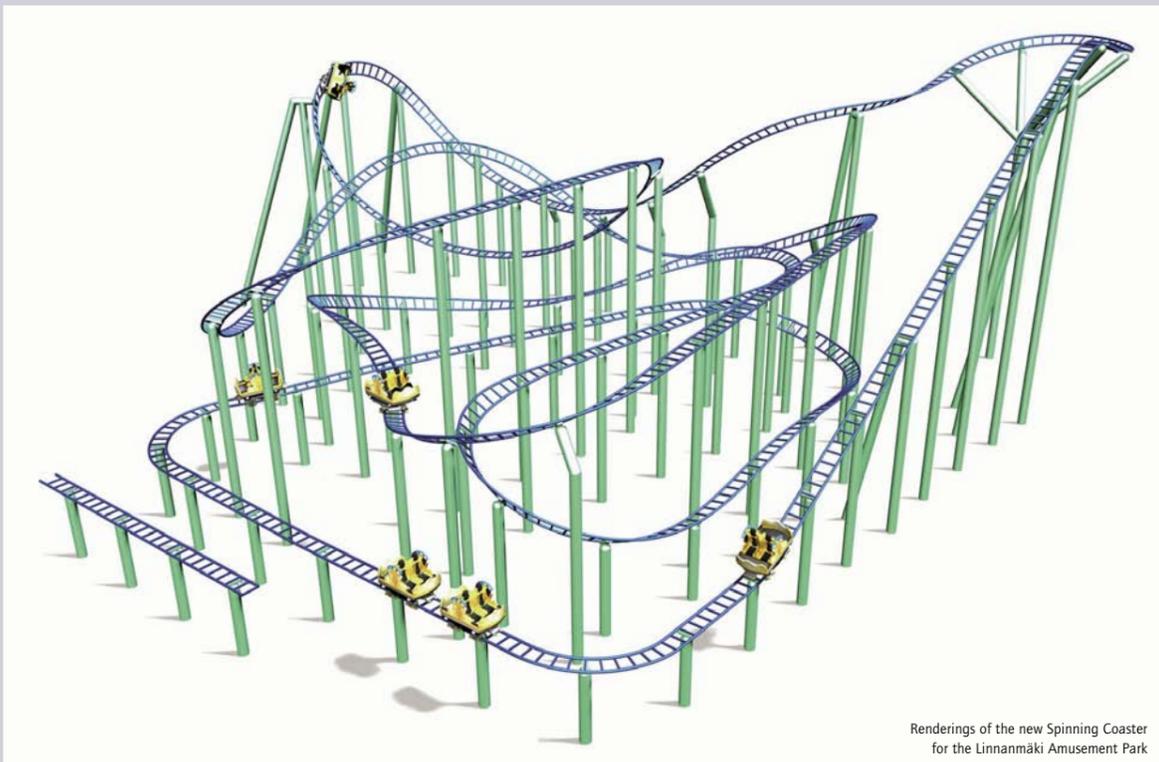
The coaster's track curves seem endless and after an intensive spinning fun and several "crossings" with the water ride, not but a few of the riders may have lost their sense of orientation. To make the roller coaster fun complete, riders enjoy a spectacular Immelmann turn and a gorgeous flip turn. The vehicle travels along a meandering track that runs around a few columns, before making its way up into a left curve. After a short airtime, the passengers plunge down to the valley



again on the right, while going through a slalom course on their way down.

The curvy layout embedded in challenging surroundings is clearly aimed at creating a great deal of spinning effects. The coaster features a compact construction and can manage a capacity of 600 persons per hour with its six four-seater gondolas.

The place where future riders will be swirling around with enjoyment is, for the time being, the working site for roller coaster technicians who are expected to perform high-precision work under extreme conditions. The coaster will be erected in the middle of the polar night on a hilly site above the existing water ride. The foundations must be put into the ground in September. The steel construction will begin as from January 2008. Maurer Söhne rely upon their high-precision manufacturing quality and are convinced that the 20th Spinning Coaster can be delivered in due time. The opening is scheduled for April 2008.



Renderings of the new Spinning Coaster for the Linnanmäki Amusement Park

Rescue Systems for the Vertical Lift – A Special Challenge

A vehicle stopped on a steep section of the route – that is an event least desired by roller coaster operators. Maurer Söhne has a convincing solution ready for this problem: A rescue system for the vertical lift.

Evacuation from an uphill ride can already pose distinct problems at lift inclines greater than 30°; at an incline of 40°, many passengers have great difficulty just getting out of their seats. How can this problem be solved for vertical lifts with inclines of 90° and more?

Of course, the first thing is to minimize the probability that a vehicle could become blocked during the ascent, leading to an evacuation situation. Suitable and necessary measures in this area include installation of redundant drive motors for the drive chain and the use of emergency electrical power units. However, defective gearing or serious damage to the chain, for instance, can never be excluded completely and can lead to vehicle blockage and an evacuation situation.

Freeing passengers from the vertical sitting position should be excluded from the outset. When you consider that the seat back is already inclined distinctly downward in a vehicle in the vertical position, it is easy to imagine what it means when helpers open the safety bar, when it is the only thing keeping passengers from falling to the ground. Another impairment is that it is very difficult to put on safety belts et cetera on roller coasters in which passengers are secured by shoulder bars.

Simple, but Critical: The Winch System

The simplest and most economical rescue option is a winch system, which can be used to "tow" the blocked vehicle. In order to fasten the vehicle to the winch cable, however, employees of the operator have to put themselves in very exposed positions. Especially under poor weather conditions, this can take a great deal of time and lead to precarious situations. Once the vehicle is attached to the cable, the usual anti-rollback systems only permit upward movement. If the passengers are not to exit the vehicle at the highest point on the whole roller coaster, from where



The SkyLoop's Vertical Lift

they can only descend under great stress – depending on the design of the stairs or ladder – then systems must be available there, for example, wheel-and-disk drive systems, which enable the vehicle to continue its journey. Here again, however, the presence of service personnel is necessary, along with the attendant problems already described. And a continued journey is permissible only when it can be ensured absolutely that the vehicle has sustained no damage.

Requirements for Vertical Lifts

Therefore, vertical lifts and similar systems should meet the following essential requirements:

- In case of a malfunction that leads to a stoppage of the vehicle in a position that can cause stress to the passengers, further transport should be provided as soon as possible.
- Evacuation from positions in which the passengers cannot exit the vehicle through their own power and mobility must be avoided.
- For further transport, no person should be placed in exposed and/or dangerous situations.
- Further transport during evacuation should not lead to an exposed position but if possible back to a low point.

Vertical Lift of the MAURER SkyLoop

For the vertical lift of the MAURER SkyLoop, which even leads to an upside-down

position and thus an incline of over 180°, all these requirements have been met in an extremely comfortable way. All measures are aimed at getting the passengers out of an unpleasant and possibly dangerous position and back to the station as quickly as possible. Even the primary chain and control system encompasses many options: From special control modes, which address malfunction situations directly, to manual lowering of the vehicle using the lift chain, in which case, thanks to a backup battery, the control system continuously monitors the speed of lowering even in case of a power failure.

Beyond that, for evacuation situations, Maurer has also developed a completely redundant catch-car system that is independent of the actual lift system. It can be used to transport the vehicle almost completely automatically either forward into the station or back to a lower point. The catch-car system has its own rails and its own means of propulsion and conveyance. It can be operated with power from the mains network or with emergency power via its own control system, which is independent of the main roller coaster control system. The result is trouble-free rescue within just five minutes.

The task of the operator is merely to provide the organizational resources in order to take advantage of all these features. Employees must be trained, and resources must function: For instance, when there is an electrical power outage, it must be possible to put the catch-car system into operation quickly using the emergency power unit.

Maurer Customer Support Provides Flexible Support for Annual Service and for Repairs

All the parts of a layout that are especially important to safety have to be checked regularly. In particular, the so-



Complete overhaul of a Spinning Car at the Maurer Factory

called Non-Destructive Tests (NDT) are essential and indispensable components of quality management. More and more, parks are outsourcing these and other maintenance tasks to external entities. Maurer Customer Support offers various interesting combinations. For instance, vehicles can be delivered to the Maurer plant in Munich, where all the necessary repairs can be carried out quickly by qualified personnel, and the vehicle can even be given a complete overhaul. If requested, Maurer handles all the necessary NDT and provides a complete warranty for all the measures it carries out. To

save costs, it is also possible to integrate the service personnel of the amusement park directly into the work. As the work is being done, the park personnel then receive extensive instruction and training from the qualified Maurer employees. A certificate confirms successful participation and qualifies personnel to carry out the work themselves in the future. For these purposes, Maurer Customer Support is available flexibly year-round and upon request would be happy to prepare a non-binding offer customized to specific needs.

Coming up: AIMS 2008 Safety Seminar, 13. – 18. January 2008, Tulsa, Oklahoma, USA. Maurer's Customer Supports Department will give a talk on NDT and other service topics.

Review of Fairs



EAS, Sevilla 2007; Steve Boney, Maurer Rides; Martin Booth, Tussaud Group; Jan van Morkhoven, Maurer Rides; Greg Hale, Disney; Horst Ruhe, Maurer Rides



EAS, Sevilla 2007; Veneciadora which Sherry pours out and Hermann Bockhorni, Maurer Rides

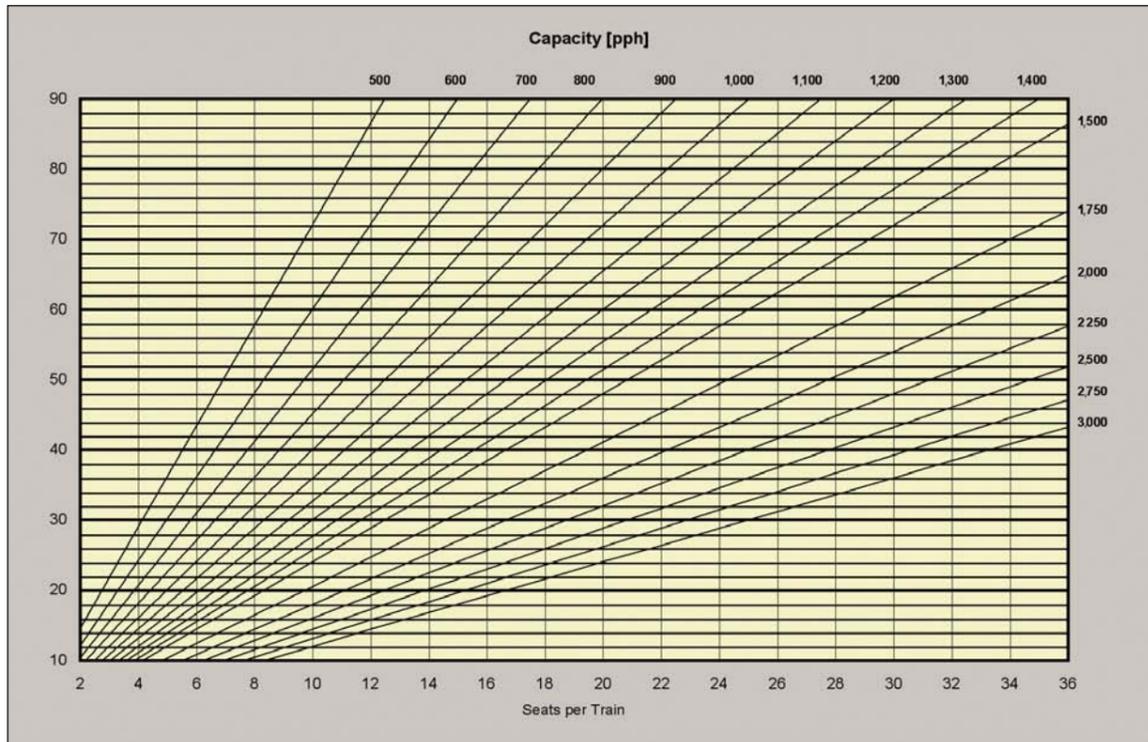


EAS, Sevilla 2007; Roland & Helmut Fischer, Erlebnispark Tripsdrill; Horst Ruhe, Maurer Rides; Angela M.Bruch; Arne Hoy Nielsen, Bakken Denmark



IAAPA, Atlanta 2006; Eric Jany, Tivoli Copenhagen; Horst Ruhe & Jörg Beutler, Maurer Rides; Rob Norris, Seabreeze USA

Capacity Calculation Made Easy



Capacity Diagram

Capacity, expressed in "persons per hour" (pph), is a decisive design criterion for any roller coaster. It is derived from the dispatch time in the station and the number of seats per train. The more often trains leave the station and the more seats they have as they depart, the higher the capacity of the roller coaster. Both factors are

influenced by the layout of the roller coaster and can therefore be varied only within narrow limits.

For each prescribed dispatch interval and for each number of seats, the diagram shows the associated capacity at the upper edge and the right edge. The reverse also

applies: From the desired capacity, follow the associated line down to the left: Where it crosses the number of available seats, you can read the dispatch interval, enabling you to determine the time available for changing passengers.



Website in a New Design

Discover the world of Maurer! Learn more about us and our philosophy. Have a look through our product range and let yourself be inspired by our new coasters.

<http://www.maurer-soehne.com>



Quantum Leap Technology



BMW Welt, Munich, Germany; Photo: © MarcusBuck.com

From the onset of construction, Maurer Söhne delivered the entire steel structure for "BMW Welt", or "BMW World" in Munich, the new experience destination and delivery center of the BMW Group.

The "floating cloud" presented extraordinary challenges to engineers and designers. The implementation of the ambitious project can justly be called a technological quantum leap, setting

new standards in innovative steel construction. The structure began operations in conjunction with the big opening ceremonies on October 17th 2007.



Steve Boney

Welcome, Steve Boney!

It is with great pleasure that I announce that Steve Boney has joined Maurer Rides USA, Inc. Steve takes over the position of President as of now and is responsible for the area United States, Canada and Mexico. Prior to joining Maurer, Steve has worked for Disney World, Florida, for nine years and has worked technically with rollercoasters for the last five years with Klüber Lubrication. His office is based in Orlando, Florida, and he will

be working with parks, consultancies and designers.

Steve Boney
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SkyLoop – What is the True Height? A Comparison. **FAN Opinion**



Maurer Söhne SkyLoop Award

IAAPA Attractions Expo – 2006 in Atlanta/USA MAURER SkyLoop was awarded the prize: "Honorable Mention Best New Product".

The award for the SkyLoop at IAAPA Show is on the road to success together with previous awards.

The roller coaster vehicle X-Car was already awarded the prizes "Best New

Product" and "Impact Award" at IAAPA Show 2005 and as a matter of fact the jury judged the SkyLoop as unique innovation.

The dominant innovation SkyLoop at Magic Springs / USA beats the records: A ride with the highest inversion worldwide with -1g effect on the passengers – without shoulder restraints.

The Magic Springs SkyLoop is the first

X-Car ride in the US and at the same time the tenth coaster produced by the Munich roller coaster maker, looking forward to open up the American market, the world's largest roller coaster market.

Mr. Harold Hudson, member of the IAAPA committee, presented the award. Many famous branch of industry representatives congratulated Maurer on this success.



Harold Hudson presents the IAAPA Award for the MAURER SkyLoop to Jörg Beutler and Horst Ruhe

This letter reached Maurer in copy and was sent by the ECC to the IAAPA.

Dear Melissa Charity,

My name is Oscar Abbenhuis and I am a member of the European Coaster Club (ECC, <http://www.coasterclub.org>). For the ECC I am the dutch representative.

It has come to my attention that "Formule X" at Drievliet has been nominated for "Best New Product".

I would like to share the view of the ECC regarding Formule X with you. Of course this view will be taken into account. :-)

Personally I have ridden Formule X a dozen times by now. The roller coaster is still as silent and smooth now as it was when it opened in April. When guests are not screaming out of sheer enthusiasm for the ride, you would not even know it is in operation. It is that silent.

The launch is stunning. On Formule X you are not stopped and positioned first and then launch. No you leave the station and you are launched from that motion. This is both fun and clever. It is clever because it reduces the strain on the first stage of the launch system. As when launched from stand still it would cost the electromagnets much more energy to launch to train and therefore generate more heat. And that heat causes more wear on the system.

And the launch system has low energy consumption as well, it draws no high current peaks. (Hope I explained that right...) As the launch system makes use of a large fly-wheel to store energy. Upon launch this energy gets released into a generator that generates the power needed for the launch. Therefore I think Formule X is both a unique and innovative new product.

The restraints in place on Formule X are excellent as well. They allow for a great freedom of movement of the upper body and they do not get locked down tighter as the train goes around the track. (Like the one in Drayton Manor, UK)

When you watch Formule X, you can only see people with smiles. And once they exit the roller coaster they speed back to queue up for another go. And that is exactly what the ride does, making you want to have another go!

I can imagine only one drawback to Formule X and that is its length. However considering the park, Drievliet, where it is located Formule X makes an excellent addition to the broad selection of rides they have. And it seems to fit the park just right.

Kind regards,

Oscar Abbenhuis
ECC Dutch Representative

Response

For more detailed information, please select one or more of the following options:

- MAURER Spinning Coaster
- MAURER X-Car Coaster
- MAURER X-Car Launch
- Maurer Customer Support

Other _____

Please contact me

_____ Last name, first name

_____ Company

_____ Department

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Complete the form, cut it out or copy it, and fax it to Maurer Söhne!

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MAURER SÖHNE
Innovations in steel



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