

**Freedom on the tracks...**

**...the X-Car turns five**

**MAURER SÖHNE**  
forces in motion



Since 1876



Freedom on the tracks

# The X-Car turns five

*Above: SkyLoop XT450  
"Abismo", Parque de Atracciones,  
Madrid, Spain*

*Right: XV2000 "Dream Coaster",  
Iraq; Opening: June 2010*

In recent years, hardly any other vehicle has influenced the roller coaster world as much as the X-Car. A trendsetter in terms of design, technology, and ergonomics, it received numerous awards in all three of these categories. But particularly revolutionary was the unique and innovative seat safety system. Performing inversions without a shoulder bar for the first time ever gave an entirely new meaning to the statement "freedom on the tracks."

The X-Car is the embodiment of this new freedom. The term "revolution" is not so far-fetched, either, since it is far more than just a technical development. The X-Car offers passengers an entirely new kind of ride experience. Where shoulder bars used to offer constricting safety when it came to inversions or negative g forces, the X-Car – allowing for an unrestricted torso – now offers an entirely new kind of coaster experience on several well-known track designs.

*Below: SkyLoop XT450 "Abismo",  
Parque de Atracciones, Madrid,  
Spain*



## Revolutionary roller coaster designs

The X-Car's success is also related to a masterful combination of its strengths with perfectly appropriate track layouts. The first location to push the X-Car into the spotlight had to be truly one of a kind. Thus developed the idea of the world's highest inversion: compact and innovative to the max. Out of that vision, the SkyLoop was born and quickly established itself as a unique attraction in the world. Since then, SkyLoop numbers five and six are being planned and will be ready to guarantee unforgettable experiences as of 2011. The new ride inspired the roller coaster designers to create new highlights by combining conventional roller coaster elements with the new X-Car. For example, take a straight vertical lift and give it an arc, and you have got a loop lift that leaves passengers with their hearts heading towards their stomachs. The X-Car Coaster XV2000 has since been realized twice and has been thrilling coaster fans in both England and Iraq.



## X-Car Coasters

2005 SkyWheel	SkyLine Park	Germany
2005 G-Force	Drayton Manor	UK
2006 X-Coaster	Magic Springs	USA
2006 Abismo	Parque de Atracciones	Spain
2007 Formule X	Drievliet Family Park	NL
2009 Rip Ride Rockit	Universal Studios	USA
2010 G-Force	Amusement Park	Irak
2010 SkyLoop	Knight Valley	China
2011 Freischütz	Bayernpark	Germany
2011 SkyLoop	Linnanmäki	Finland
2011 Launch Coaster	Rainbow Magic Land	Italy
2011 Launch Coaster	Knight Valley	China

### X-Car launch coaster loop

Yet another successful combination: launch technology in combination with the X-Car. For passengers, this idea takes off like a rocket. They experience the launch or additional thrust on the track as if it had come out of nowhere – and with a free upper body, the feeling is dramatically more exciting than when cramped in between two thickly padded shoulder restraints like our competitors' designs. Maurer Rides also combines the extreme agility of its X-Cars with particularly tight course layouts.

As individual vehicles – another special feature of the “freedom on the tracks” – X-Cars are also much more nimbly than conventional roller coasters. This allows for the creation of new, more fascinating layouts with tighter, steeper curves, and a more rapid sequence of different ride elements. In other words: very attractive coasters can even be

built in small spaces. The first design of this kind, an extremely varied and compact coaster was opened at the Drievliet Family Park in 2007; the second is being built for Knight Valley, China, and is scheduled to open in 2011.

It goes without saying that the X-Car plays off its strengths, even in larger layouts. One example is the innovative launch coaster set to open at Rainbow Magic Land Italy (picture below) in 2011. Unique course designs, such as the Non-Inverted Loop and preceding dark ride sections, increase the excitement and turn the ride across the tracks into an unforgettable experience packed with numerous unexpected highlights.

### Operating efficiency: LSM saves and saves

But nowadays, good ideas alone are no longer enough for ensuring the success of new coaster

*Above left: MAURER launch coaster XL1000 “Formule X”, Drievliet Familie Park, The Netherlands*

*Below: SkyLoop XT450 “Abismo”, Parque de Atracciones, Madrid, Spain*





Above and above right: X-Car Music with Non-Inverted Loop: "Hollywood Rip Ride Rockit", Universal Orlando Resort, USA

concepts – they have to make economic sense, too. One aspect has already been mentioned: numerous attractive features packed into minimal space. Especially for smaller parks, there is a lot to be said for being able to position themselves with one particular highlight.

In addition to the space and purchase price, running expenses are another aspect of profitability – especially including maintenance and electrical power input. To make sure that the launch technology is attractive and economically realizable for all users, Maurer Rides uses modern LSM (linear synchronous motors) for the X-Car. Series-produced, well-engineered energy storage systems are now available that make it possible to continually recharge the energy needed for the launch, even for linear motor drives, thus keeping the power input low. The X-Car's LSM works with a connected load normal for

Below: X-Car Music "Hollywood Rip Ride Rockit", Universal Orlando Resort, USA



conventional chain lift systems – with a considerably higher output of peak performance and enjoyment.

#### Individual music choice

"Fast and winding" – that used to be enough for a good roller coaster. Today, though, active individuals are used to being able to listen to their favorite music wherever they are and whenever they want. The response from the Munich coaster team to this was the X-Car Music. Here the X-Car set benchmarks and is currently the most highly developed roller coaster car in terms of multimedia. Since the summer of 2009, the "Hollywood Rip Ride Rockit" has been demonstrating what is possible with mind-boggling variety at Universal Studios Orlando in Florida. In addition to the integrated music choices, it also features the latest video and lighting technology. The coaster at Universal has the world's highest vertical lift and the first Non-Inverted Loop. These highlights mean a high level of enjoyment for a wide target group.

#### Multimedia and electronics everywhere

The Hollywood Rip Ride Rockit coaster's cars are high-tech vehicles filled with electronics and microprocessors – the basis for a wide range of individual equipment and combinations. The X-Car Music presents an entirely new dimension of customer design: each component, such as audio, video, or the LEDs, can also be installed separately. Moreover, many additional multimedia features may be integrated based on client specifications.

#### FireWheels and FlyingLaunch

Maurer Rides will be introducing another high-tech add-on in 2011 at the new extreme coaster



"Freischütz" in Bayern Park: illuminated "Fire-Wheels" that turn the extreme ride in the X-Car into an experience for passersby, too. High-performance LEDs guarantee an impressive spectacle, even during the day. The new technology is patent pending, yet surprisingly inexpensive. This is one area where Maurer Rides once again demonstrates that good ideas are the decisive criterion for success in the end.

Another feature that will be debuted at the Freischütz is the FlyingLaunch: a unique system in which the operator can accelerate the train

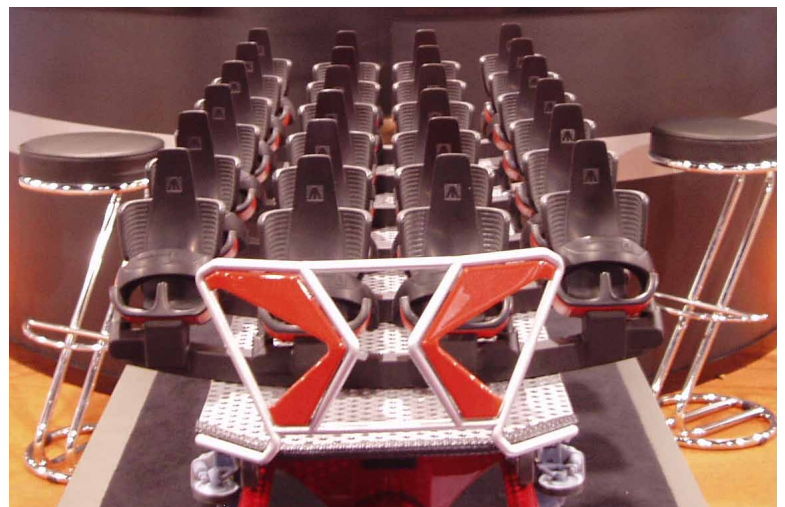
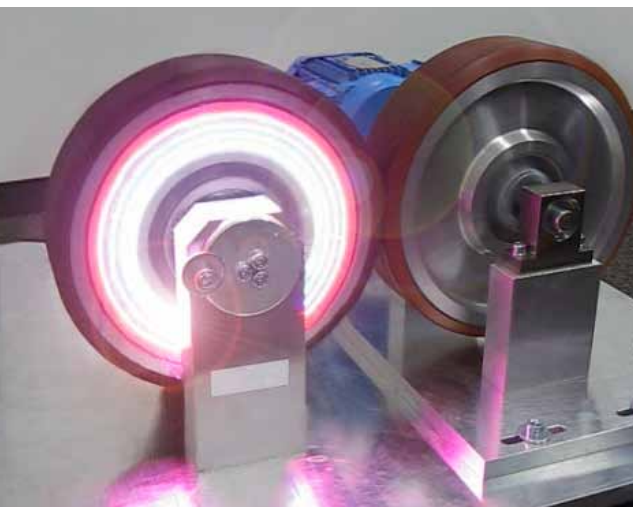
through the station for an additional round. This comes as a complete surprise to passengers as they expect the train to brake as it nears the station – instead, it speeds up over again. In the final round, the train flies through the station one last time before slowing down in the launch track and being smoothly pulled back to the station. Technically, this is realized by reversing the magnets' polarity. The braking energy is regained and transformed into power for the next launch. This is not only innovative, but also enables energy savings of up to 30%.

### X-Train: the X-Car's bigger brother

But the X-Car as a single vehicle and its numerous advantages is by no means a sign of the end of roller coaster trains. The Munich-based designers' tradition in that field goes back much too far to reject the challenge of transferring the X Car's agility and versatility to trains, too. This is why it is getting a big brother: the X-Train. The innovative vehicle features a capacity of 36 passengers distributed to four X-Seats per row. The result is an exceptionally powerful and fascinating machine whose floorless option also ensures new dimensions of freedom: it is "topless" like the X-Car, but floorless as well, giving wings to roller coaster engineers' imaginations for new layouts. Five years of the X-Car have led to a well-engineered system with several different versions, but as the X-Train demonstrates, the sky is the limit when it comes to roller coasters, new ideas are plentiful, and the years ahead promise to be exciting ones.

*Below left: Test set-up of the FireWheels*

*Below: Model of the X-Train*



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