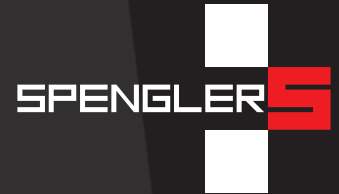


BSWF

»System Spengler®«
»EASI-SET® / J-J Hooks®«



Protection Barrier System for Racing Purposes

Product Range



About us

Hermann Spengler GmbH & Co. KG is a company whose tradition reaches back over 90 years. Over those years, a factory producing sand and concrete products has become a modern, efficient enterprise that has been producing precast concrete safety barriers for over 25 years. With a network comprising both German and international licensees and partners, this completely modular system is now distributed world-wide. Spengler is one of the largest suppliers of passive safety systems constructed from concrete that are designed for public roads and highways.

Hermann Spengler GmbH & Co. KG is equally committed to sport and is undertaking research in cooperation with the FIA Institute to improve safety on racetracks. Spengler is not only interested in developing the most superior technical solution; it also maintains a clear regard of the economical factors involved. It is only with this approach that clients can be assured that their investments are safe. Rapid assembly, patented connecting hooks, no loose parts: everything contributes to a cost-lowering system solution. Exceptionally quick and easy replacement of damaged elements means lower maintenance costs – and another advantage - concrete doesn't rust. The fact that this cost-cutting does not come at the expense of safety is confirmed by high





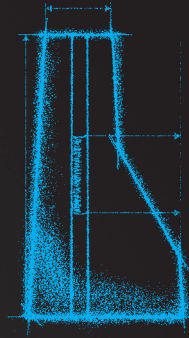
speed barrier tests conducted with the FIA institute, in which viable g-forces were seen even at impact speeds of 200 km/h – just by the way, the PMW jury considered those efforts worthy of a Safety Innovation of the Year award for the FIA and participating partners back in 2006. Space-saving design and ingeniously simple handling are the decisive benefits speaking for Spengler's pre-mountable precast concrete barrier with debris fence. When compared with fence elements comprising

individual parts and with off-track barriers, they are virtually unbeatable in terms of the cost of investment and the ease of installation. In keeping with the company's mission statement, Spengler prove that they know the requirements of the race circuits the best, allowing them to work with architects or racetrack operators to provide the best safety solution possible. In the case of larger projects, Spengler is in the position to manufacture their products on-site with mobile production units.

Product Overview

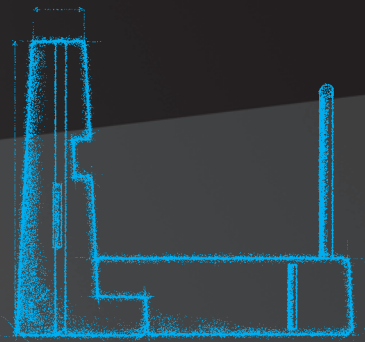
1 Precast Concrete Barriers

These barriers are for permanent or temporary use on the racetrack. Patented hook connection for easiest handling. Also available with an integrated debris fence.



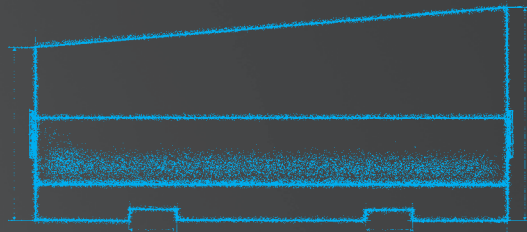
2 Concrete Pit Lane Barriers

Barriers for pit lanes, available with integrated debris fence, integrated channel for communication cables. System-compatible pit lane gate.



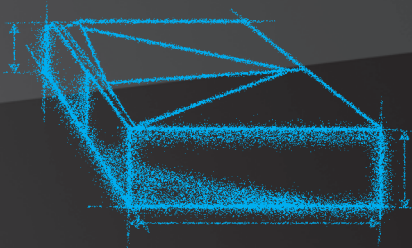
3 Accessory Elements and Special Units

Radius elements for easy curve adaption, crossover barriers for height adaption between barriers of differing heights.



4 Curbs

Curbs with positive and negative profile for both the inside and outside of the racetrack, special v-drain weathering.



1 Precast Concrete Barriers

2 Concrete Pit Lane Barriers

3 Accessory Elements and Special Units

4 Curbs



Precast Concrete Barriers Standard

Spengler precast concrete barriers have remained the proven partner in racing for many years. Fitted with the patented EASI-SET®/J-J Hooks® connecting mechanism, they can be assembled in no time to form a tensile connected protective barrier. The race barriers can be connected without any additional parts. A forklift is all that is needed to position or replace the individual elements. These safety barriers are available in different lengths and heights. The most multi-functional element is the barrier with integrated C-profile. It can be expanded to a sturdy barrier/fence unit at any time when combined with Spengler debris fence elements. Just add the fence element into the top of the C-profile and screw it on. This system also works on connected barrier elements with C-profiles. All Spengler barriers are mutually interoperable.

Precast Concrete Barriers

Standard

Type	Length cm	Width cm	Height cm	Weight t
RB-100/300*	300	60	100	3,1
RB-110/300	300	60	110	3,27
RB-135/300	300	60	135	3,7

with C-Profile

Type	Length cm	Width cm	Height cm	Weight t
RB-100/300-C*	300	60	100	3,1
RB-110/300-C	300	60	110	3,27
RB-135/300-C	300	60	135	3,7

* non-standard. Standard height is 110 cm,
for faster sections of the racetrack, 135 cm is recommended

Standard

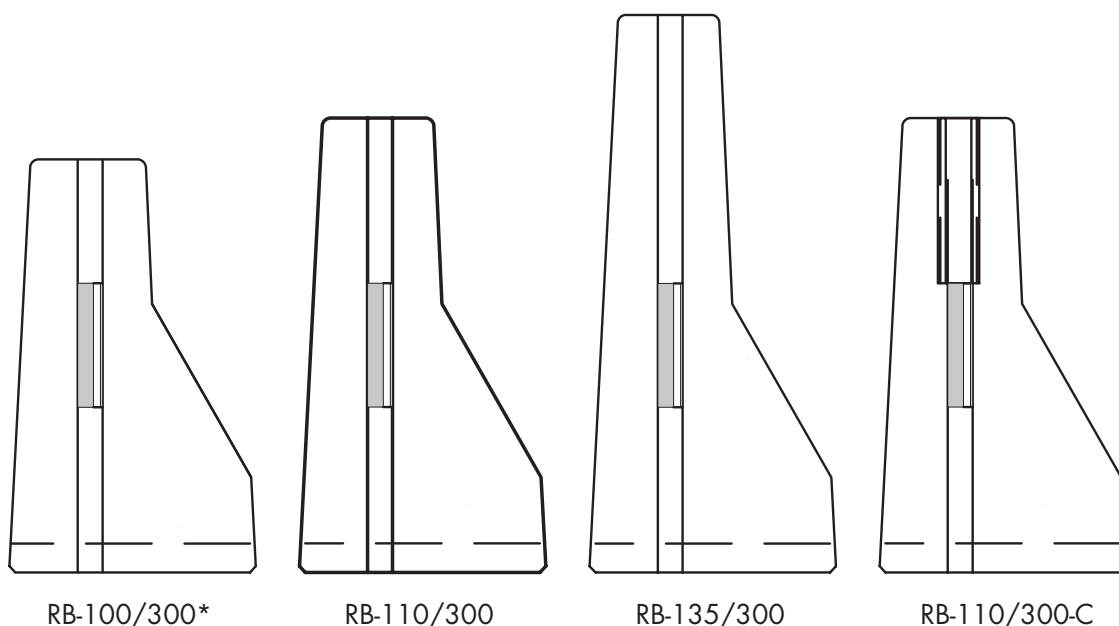
Standard 3 m long precast concrete barrier. Patented EASI- SET®/J-J Hooks® connector hooks. The openings for the transverse draining serve as an entry point for the prongs of a forklift when positioning the elements.

With C-Profile

Construction as above. Plus recessed C-profile at the front for the insertion of an optional fence element. Can be utilised universally with or without fence element. Fully compatible with the standard version.

The Spengler Race Barriers are also available in shortened versions of various lengths depending on the customer's requirements. For further options please see the following pages.

Race Barriers Standard, Race Barrier with C-Profile



Additional Options for Race Barriers

The Spengler product range for racing has been developed by professionals for professionals. Decades of direct contact at racetracks, many discussions with circuit operators, teams and drivers as well as Spengler's own racing experience is creating a product line that will continue to be developed according to the demands of today's racetracks while corresponding to the requirements of an event location that is as universal as possible.

Whether it is a permanent circuit or a temporary racetrack, the Spengler system is the ideal protective barrier solution. Rapid assembly, simple replacement and low maintenance costs guarantee a safe investment.

C-Profile

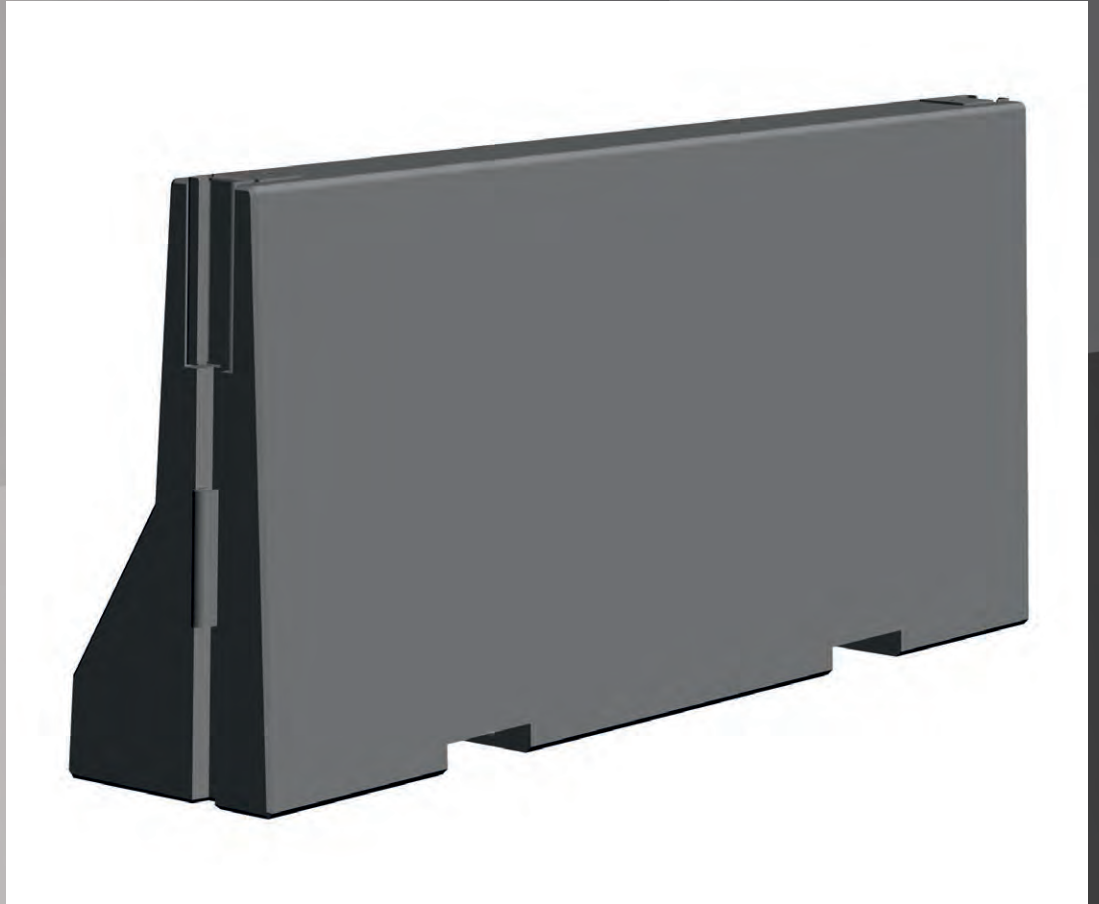
For the direct integration of the FIA Debris Fence. The easiest and most economical way to meet all the requirements of an effective restraint system in the smallest possible space: precast concrete barriers with an integrated C-profile. The system allows a Spengler Debris Fence compliant with FIA specifications to be directly inserted and fastened; producing a complete fence/wall unit whose mounted units can be repositioned or replaced in its fully assembled state. The alteration of the fence elements does not require that the barrier elements to be lifted out of the structure.



Highspeed Energy Absorbers

For the high-speed sections of the racetrack the construction of high speed barriers according to FIA specifications is recommended. Spengler provides concrete barrier walls with an energy-absorbing connection claw. Fence elements with energy absorbing connecting parts are also available. Additional safety elements are situated in front of the wall such as tire piles and similar. Spengler researches on barriers for impact speeds of over 200 km/h.





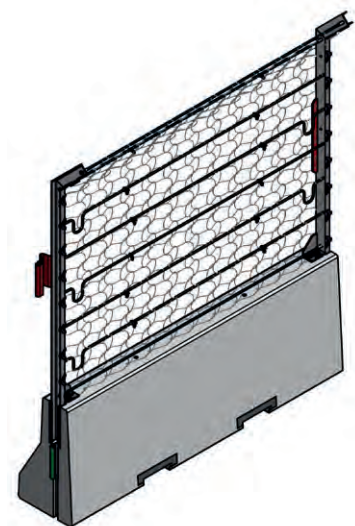
Edge Protection

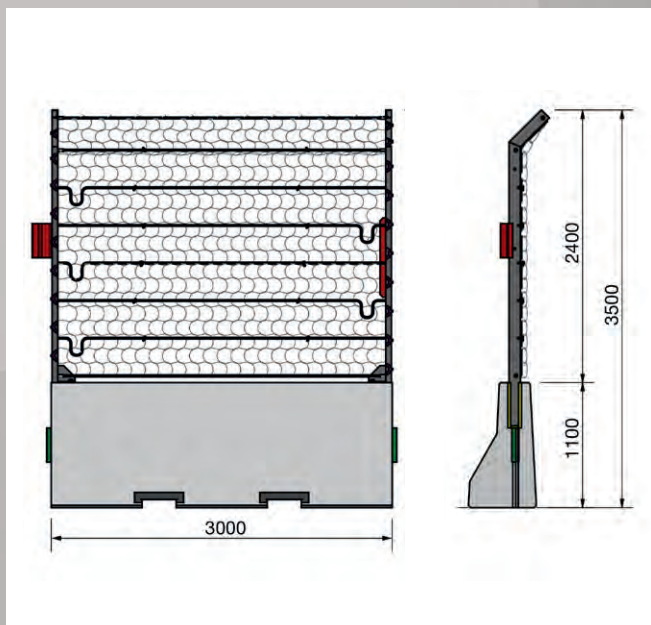
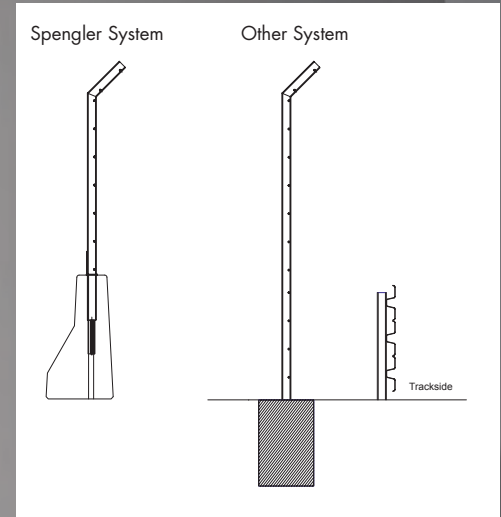
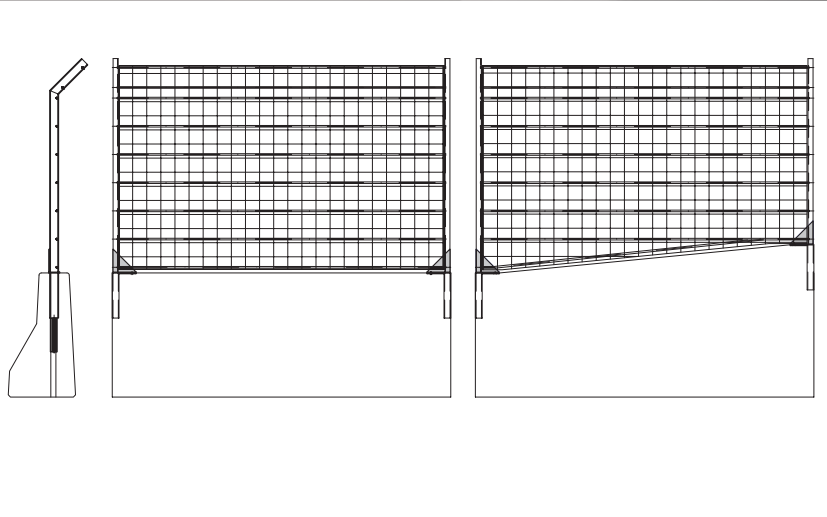
An optional edge protection is available for water drainage and also for the upper or lower corners at the front. Therefore, the barriers are optimally protected against concrete splitting. This is ideal for temporary racetracks and multi-event locations.



Debris Fence

Spengler FIA debris fences are built directly onto the barriers. All that is required is the Spengler precast concrete barrier with the integrated C-profile, allowing the fence element to be inserted and screwed in at the top of the barrier. This way, a high-quality barrier structure comprising both protection wall and debris fence can be built using minimum space. The separate parts of the unit can be replaced and positioned even in its assembled state. Damaged sections of fence can be replaced without disassembling the concrete wall.



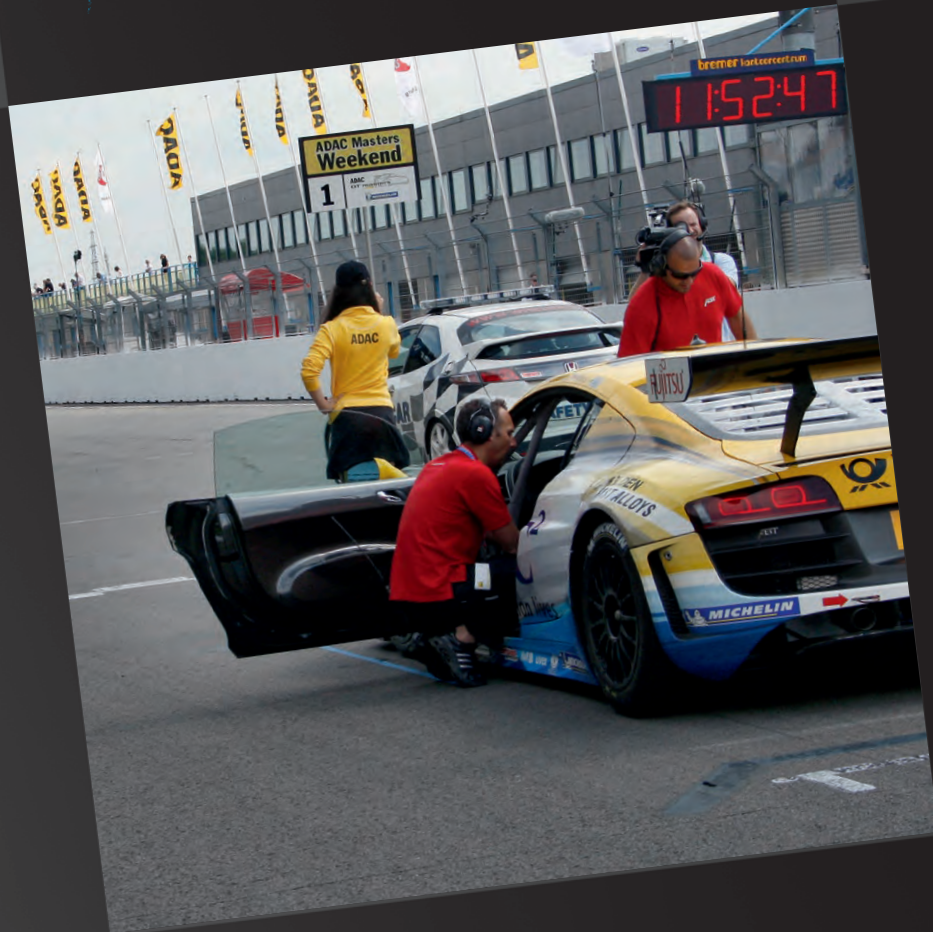
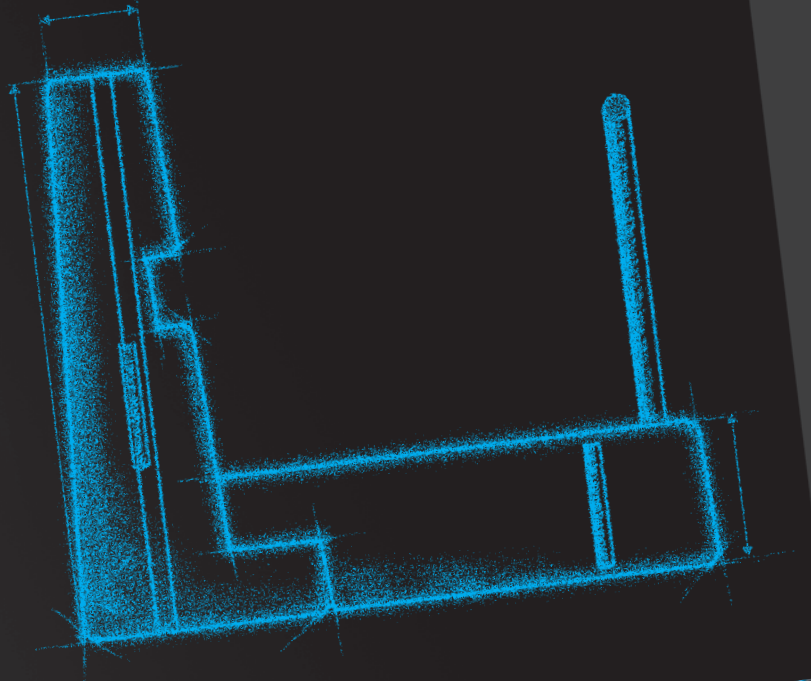


The integrated fence/wall solution requires no costly anchorage in the ground and needs less space than a comparable barrier with a segmented design. It is also possible to quickly rectify any damage during an on-going event by simply replacing the relevant part. With anchored systems this is either impossible without further measures or simply impossible. It is also less expensive with regards to installation and maintenance. With this Spengler solution, the restraint system allows track sections to be quickly and easily modified or removed completely for specific events. Anchorage is no longer necessary.

All Spengler fences are supplied with an extremely safe wire mesh. The height of the fence can be individually determined depending on the requirements.



The FIA Institute is carrying out a research programme - which Spengler is participating in - to improve the safety standard of fences used for racetracks. The Spengler fencing with energy absorbers in the fence posts and high-tensile steel netting came out on top in the study. In a crash test, a vehicle over a ton in weight, was stopped by the fence with quite moderate g-forces.

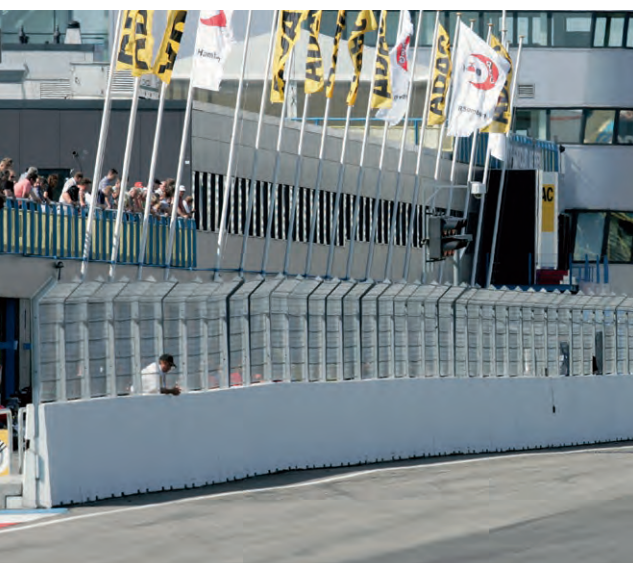


**1 Precast Concrete
Barriers**

**2 Concrete Pit
Lane Barriers**

**3 Accessory Elements
and Special Units**

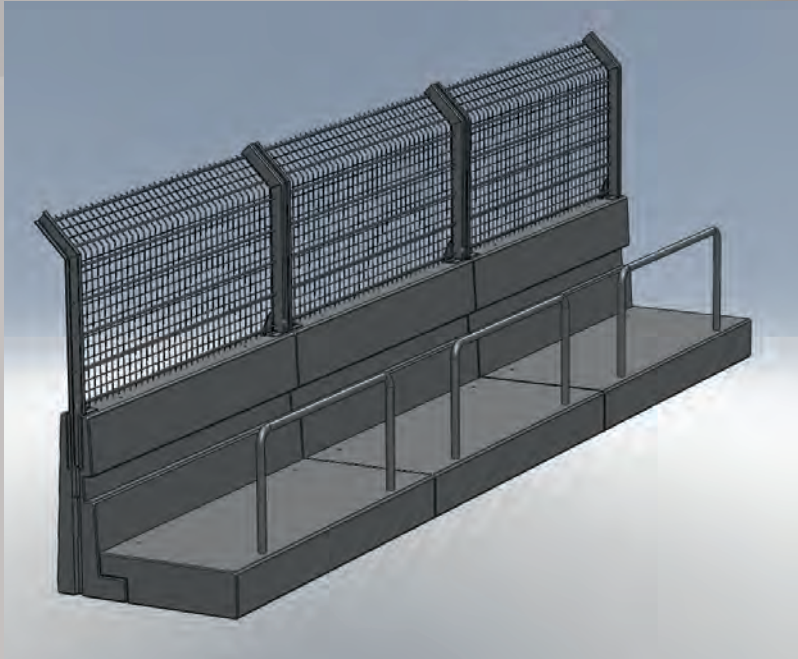
4 Curbs



Concrete Pit Lane Barriers

The Spengler system for a safe pit lane. With the integrated C-profile in the front side, that accommodates special pit lane fencing elements. These concrete barrier walls are also connected among each other using the patented EASI- SET®/JJ Hooks® connection. The platform attached to the other side accounts for optimal safety, a rail mounted on top of it provides additional protection for the team staff from vehicles in the pit lane. Pit lane barriers with ready-to-use cable channels integrated for the accommodation of communication cables are available ex-factory.

Spengler is a system solution provider. Even in the case of existing pit lanes, an individual solution can be developed.



State of the art Pit Lane elements from Spengler with Cable Channels and Railing.

Concrete Pit Lane Barrier with Platform and Railing

Pit Lane Barrier

Type	Length cm	Width cm	Height cm	Weight t
RB-Pit-135-C	300	62	135	3,11
RB-Pit-135-C-CB	300	62	135	3,11

Platform

Type	Length cm	Width cm	Height cm	Weight t
RB-PF	300	116	35	2,54
PF-Railing	200	6	90	



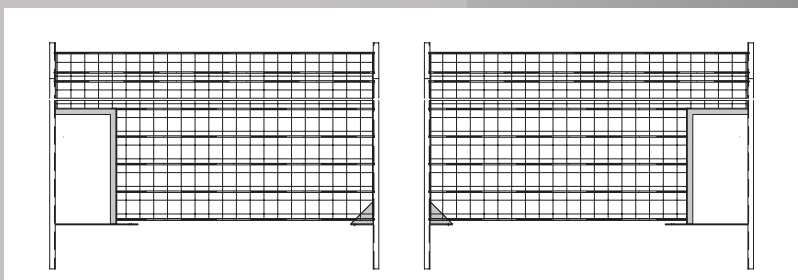
Pit Lane Fence and Gate



Pit Lane Fence

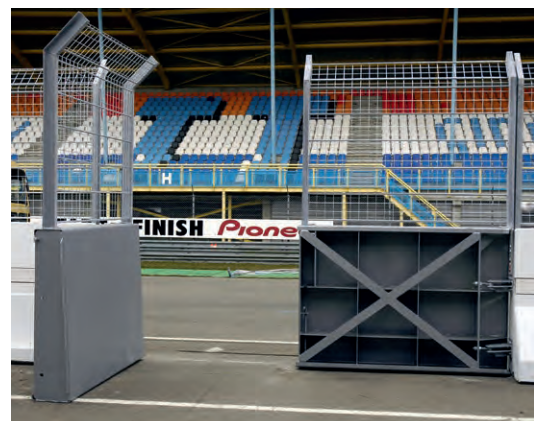
The protection against flying debris into the pit lane. The pit lane fence system, required component of the Spengler pit lane elements, is galvanised and available with window openings on the left or right hand side or with centered camera windows. There is also a closed version available. Individual heights are available according to the requirements on-site and the customers' requirements. The fence segments are inserted into the C-profiles at the top of the pit lane barriers and are screwed onto the upper edge of the

concrete element. In this way, they can be easily replaced if damaged without taking the barriers out of their places. If the pit lane requires modification for special events, single barrier including screwed on fence units can be pulled out without dismantling. In this way, permanent and temporary race tracks alike benefit from the advantages of the Spengler System.



Pit Lane Gate

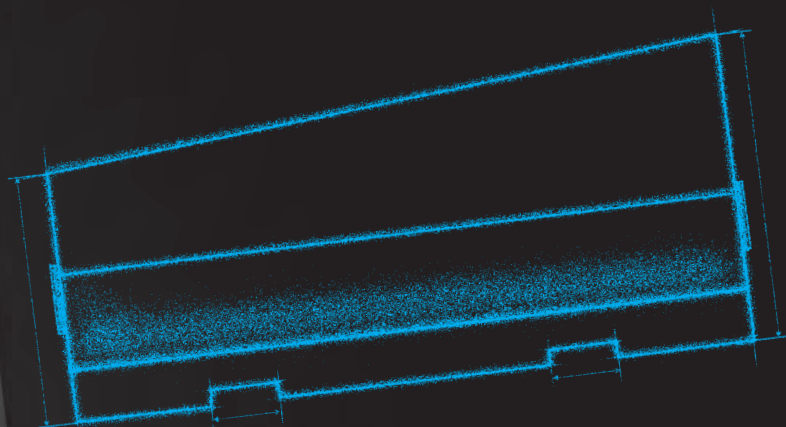
The pit lane gate is a sturdy steel construction, which can be fully integrated into the Spengler pit lane barrier. There are no protruding parts or corners on the track side. The gate can be equipped with the same fence elements as the barriers. This way there are no gaps in the safety system and the rapid access to and clearing of the starting grid is also guaranteed.



Pit Lane Gate

Type	Length cm	Width cm	Height cm
WG/2	400	31	133

Individual opening dimensions subject to static feasibility are also available on request.



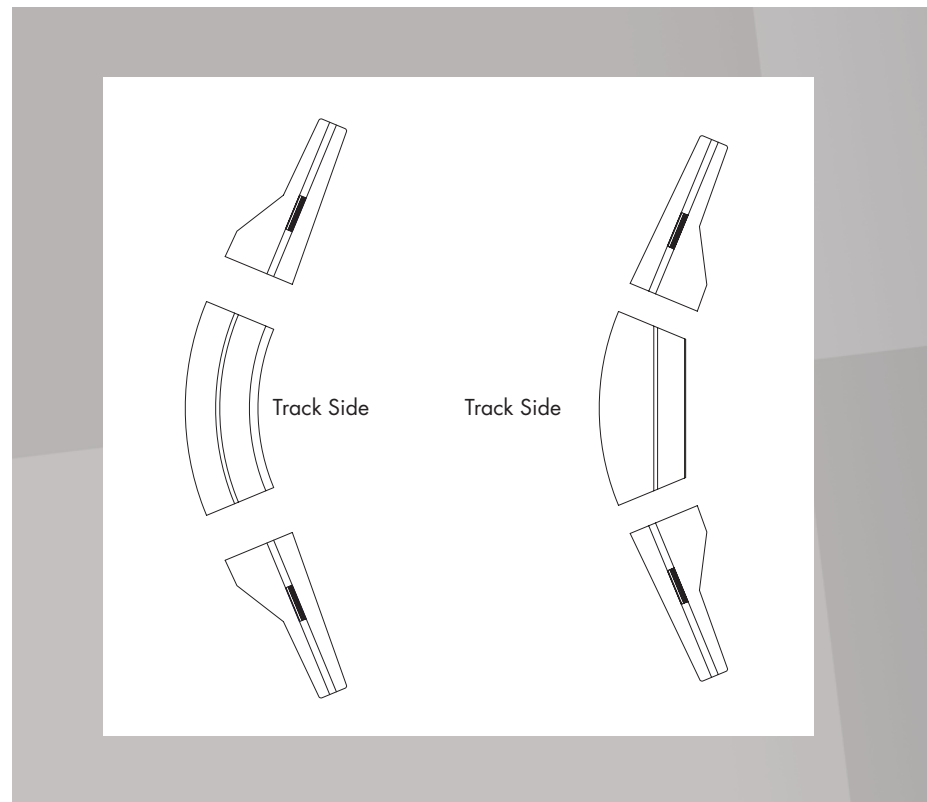
**1 Precast Concrete
Barriers**

**2 Concrete Pit
Lane Barriers**

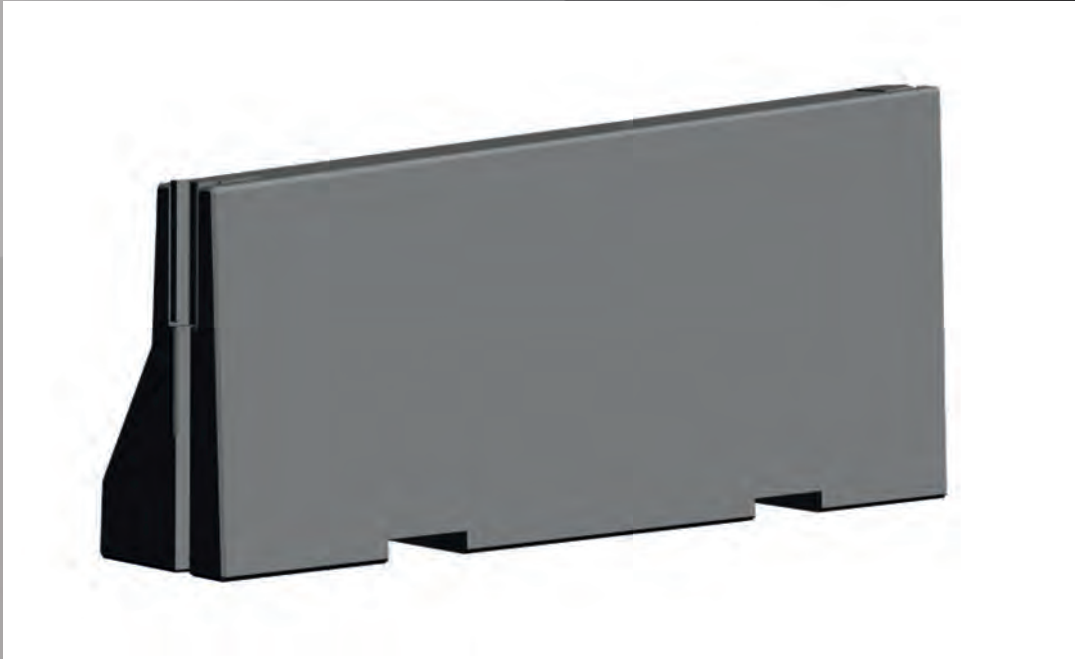
**3 Accessory Elements
and Special Units**

4 Curbs

Radius Elements



The race barriers are connected to one another with the J-J Hooks connection claw mechanism which allows the construction of curved walls up to a certain degree of tightness. For tighter curves, there are special radius elements in the form of octant segments for the construction of inside and outside radii. The side facing the racetrack has a flat surface curved into the radius for a smooth changeover to the protective barriers without any corners or edges and - most importantly - without any gaps in the tensile connection.

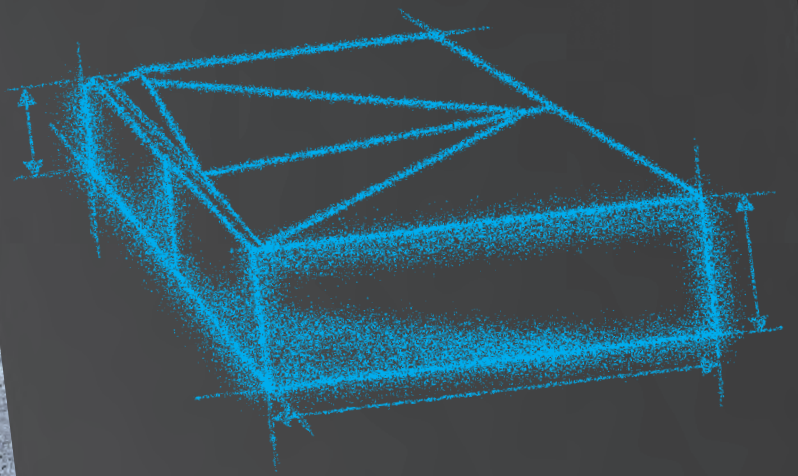


Transition Elements

The Spengler Precast Concrete Race Barriers are available in different heights. It is possible to adapt the height with transition elements easily. Of course, versions with a C-profile are also available so that these transition walls can also be fitted with an additional (transition) fence.

For instance, it is possible to simply connect a course barrier-fence unit using a height-transition element with fence to a Pit Lane Barrier, without creating any (safety)gap in this transition area.





**1 Precast Concrete
Barriers**

**2 Concrete Pit
Lane Barriers**

**3 Accessory Elements
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4 Curbs

Curbs compliant with FIA specifications



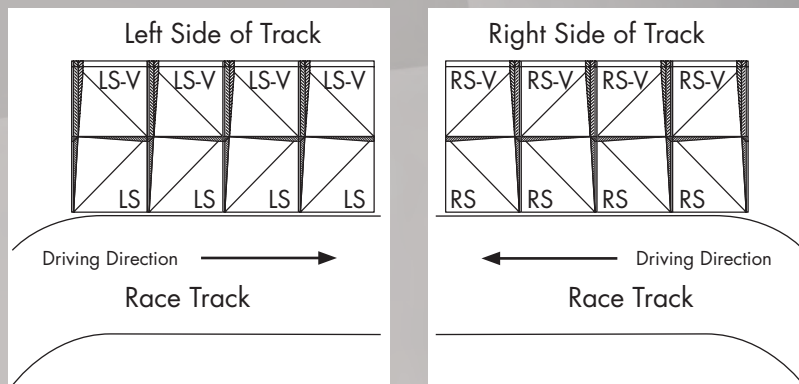
FIA negative Curb Melbourne

Type	Length cm	Width cm	Height mm	Weight t
Melbourne-LS	80	80	25-50	0,35
Melbourne-LS-V	80	80	25-50	0,35
Melbourne-RS	80	80	25-50	0,35
Melbourne-RS-V	80	80	25-50	0,35

FIA positive Curb Valelunga

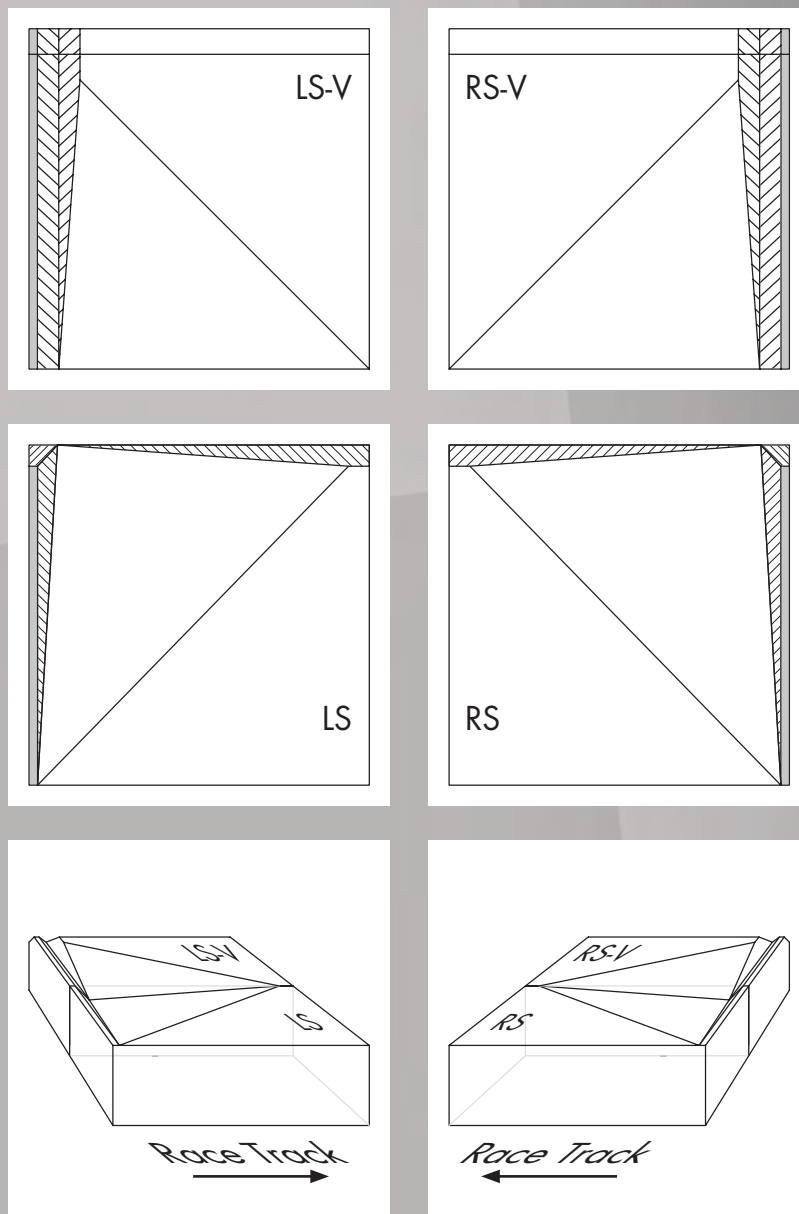
Type	Length cm	Width cm	Height mm	Weight t
Valelunga-LS	80	80	25-100	0,35
Valelunga-RS	80	80	25-100	0,35

Spengler curbs are developed and produced in accordance with FIA specifications. The patented design with hydrostatic properties allows for efficient water drainage without any puddles forming. Any clutter on the piste is largely impeded and there are no dirty corners. The sophisticated system has a surface that can be painted, is easy to clean even with a road sweeper and is available with both negative and positive profiling.



FIA negative Curb Melbourne

The curbs can be easily installed and are suitable for all curve radii and courses. A completely installed Spengler negative curb always consists of two parts, one for installation directly at the edge of the course and another connecting part behind it (see illustration). In this way, a water drainage gutter with a v-shape in its centre is formed from the Connection Design. For instance Hauraton slot gutters could be built in the space between the track side and the curb, or water drainage gutters could be integrated between the curb and the safety zone.







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