

ABOUT US

Mana Original was established in 1998 with the purpose of making summer ski jumping available to all ski jumping clubs. Our main product at that time was a ceramic in-run track, which became a very popular product worldwide. Even today, it is still installed and used on some ski jumping hills.

Ever since then, we have kept busy developing our own range of products and services, expanding our team, and thinking about the future of ski jumping and other sports. We have upgraded our original product many times and even went a step further and developed its big brother: the ice ceramic in-run track. This updated sibling has quickly become our most important product – all our auxiliary systems and a range of services we offer our clients today have been built around it. Through years, we have been keeping a close eye on the ever-changing and developing needs of ski jumping facilities, and we are currently the only company that can, in cooperation with our partners, offer every imaginable ski jumping hill system. Our strive towards constant improvements, and the expansion of our products and services have led to the birth of our own brand TopSpeed®. TopSpeed® services and systems include the most advanced technological solutions for ski jumps, covering the entire range of the in-run area as well as a wide range of landing area products.

Our international team of experts will leave no questions unanswered and no problem unsolved. If you want a true professional team working on your sports centre, give us a call.

TIMELINE

www.topspeed.si | www.manaoriginal.eu | info@manaoriginal.eu

TIMELINE

2000

- Mana's first ceramic in-run track is assembled in Velenje
- New shape of aluminium side profiles



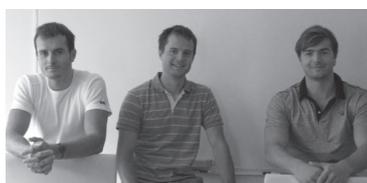
2009

- Installation of Mana's first integrated ice ceramic in-run track



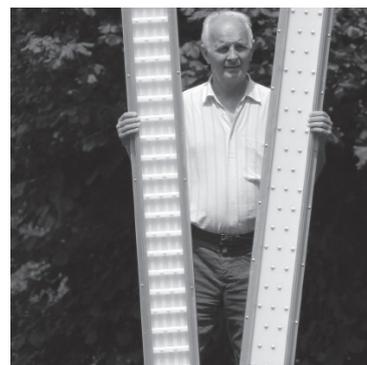
2012

- New brand name TopSpeed
- First project with new team in Romania (first EYOF)
- 2nd generation ice track
- New member Miloš Sterle joins team Mana



1998

- Mana Original is born



2002

- First foreign project in Garmisch-Partenkirchen

2003

- Mana goes overseas
- Mana exports more than 95% of its sales (Germany, USA, Austria, Poland, Switzerland, Czech Republic)



2011

- Winter Universiade on our track in Erzurum, Turkey
- New trend: ice ceramic in-run track
- Mana wins a major project in Planica, Slovenia (currently the biggest ski jumping centre in the world)





2013

- Newly developed ice in-run track is presented to the FIS congress in Zürich

2016

- Mana's 50th in-run track is successfully completed in Estonia
- 8 in-run tracks are completed in just one year: 6 ice in-run tracks and 2 ceramic in-run tracks
- TopSpeed Illumination System is installed for the first time in Engelberg (first time used in world cup, connected with Swiss Timing)



2019

- New Market: China
- Signed contract for ski jumps for OWG Beijing 2022
- Lake Placid: redesigned and rebuilt by TopSpeed



2014

- 3rd generation ice track



2015

- Falun, Sweden: first world cup and world championship on our in-run track

2017

- World cup in Lahti
- First design, technical design, and production of entire in-run part and installation in Kandersteg



2018

- First flying hill in Oberstdorf
- Ljubno: first ice track in Slovenia, women's world cup
- New markets: Russia, Italy, Norway, USA



2020

- New Market: Japan
- Installation of ski jumps for OWG Beijing 2022
- 4 ski jumping hills covered with TopSpeed branded plastic mats and snow retention nets



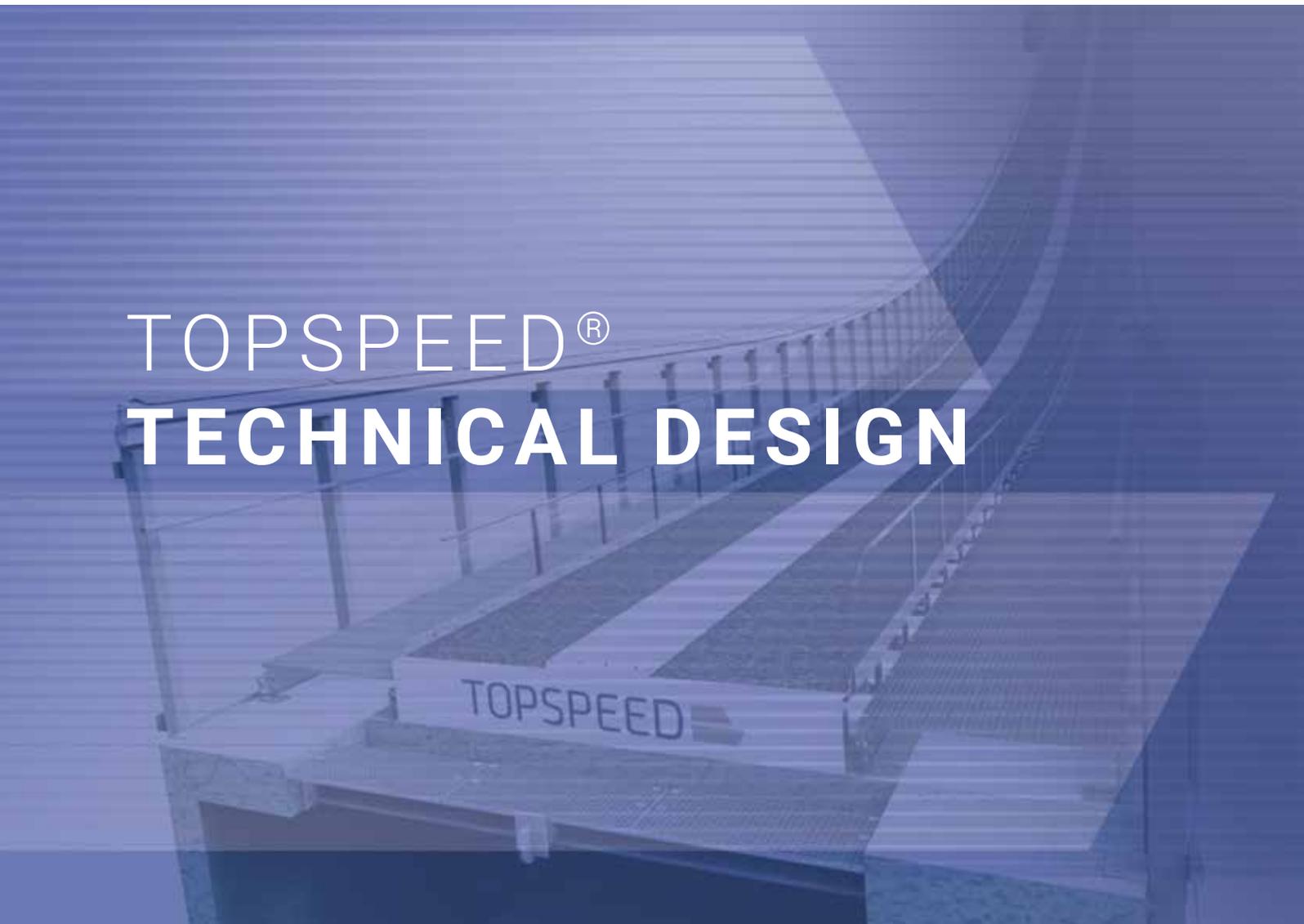
TOPSPEED® PROFILE DESIGN

Profiles of ski-jumping hills must be constructed in compliance with FIS norms, and the federation heavily scrutinizes their implementation. The design of a ski-jumping hill can still exhibit a certain degree of freedom with respect to adjusting the profile to local geological, climate, or other specific conditions.

The planning of a new ski-jumping hill and conversion of an outdated existing one both require the design of a new profile. Designing a profile for a new ski-jumping hill means more freedom (no legacy work) but also more responsibility – there are many various factors that must be considered during this phase.

Redesigning a profile is usually part of a larger renovation plan with many variables that must be taken into account, such as the current profile line, existing infrastructure, and requirements and wishes of the customer. Obtaining comprehensive and exhaustive information about the current status of the ski-jumping hill is the key to a successful implementation of our redesigned profile.

TopSpeed® Profile Design includes: ski-jumping hill technical parameters; positioning the profile into an orthophoto model (geographical model of the land provided by the investor); bird's-eye view of the jumping hill; horizontal and vertical profiles of the ski-jumping hill; calculation of the excavation and utilization of excavated excess soil; analysis of possible locations for the coaches stand and judges tower.



TOPSPEED®
TECHNICAL DESIGN

Once the main architectural design is complete, the preparation of the technical design can begin. Every detail of the ski-jumping hill is specified in this design. It foresees all specifics of the custom made solution and includes detailed production and installation plans.

TOPSPEED® TECHNICAL DESIGN INCLUDES THE FOLLOWING STEPS:

3D MODELS: 3D presentation of the entire facility including all auxiliary buildings to check compliance with architectural design

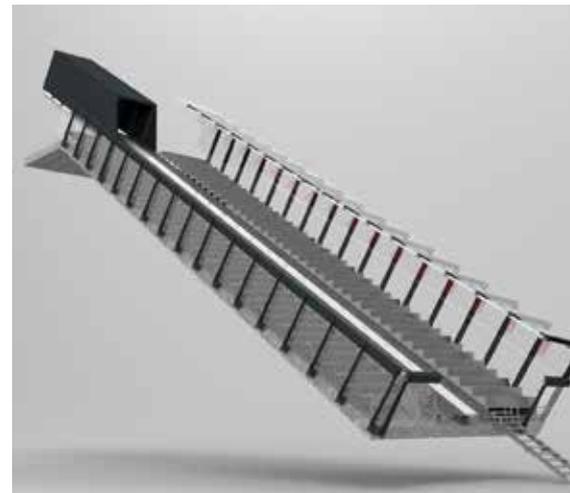
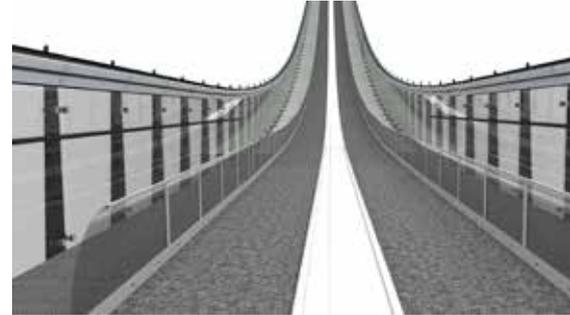
SIMULATIONS: before installation, we perform the following tests for every part of our technical design:

- Wind load simulation (if necessary)
- Construction load calculations
- Strength calculations for construction elements
- Calculation of cooling system performance depending on the jumping hill position
- Calculation of pressure drops in the cooling system
- Preparation of lighting design simulation

WORKSHOP DRAWINGS: comprehensive drawings for a single element, which enables error-free and time efficient production

WORKING SCHEMES: technological schemes of operation are prepared for TopSpeed® Cooling System, TopSpeed® Sprinkler System, TopSpeed® In-Run Track Lights, TopSpeed® Illumination System, TopSpeed® Ice Cutter, TopSpeed® Cover System, and other systems supplied by TopSpeed®

INSTALLATION PLANS: installation manual for our installation team to speed up the installation process and minimize the possibility of mistakes. The installation time schedule is also part of the installation plans





THIRD-GENERATION TOPSPEED® ICE IN-RUN TRACK

Third-generation TopSpeed® In-Run Track uses the same pair of sliding channels in summer and winter. No additional adjustment is needed between seasons. The in-run track is **FIS certified** and allows **organization of top-level competitions**.

A modular composition of one-meter long elements ensures that the in-run track is a perfect fit for every ski-jumping hill profile. Its cooled edges and a single cooling circle ensure the best ice conditions in the track and a low energy consumption, proving that this is the best possible technical solution. The integrated ceramic knobs are innovatively installed along the effective sprinkler system. This ensures that the friction between the in-run track surface and the ski jumper's skis remains low, which results in high top speeds and low variance between jumpers in summer.

FEATURES:

- **COOLED EDGES.** A unique feature of the third-generation TopSpeed® In-Run Track, the only in-run track with innovative 3-side cooling available on the market.
- **MODULAR COMPOSITION.** Easy on-site replacement of damaged elements without interruption to operation or the need for profile changing. Spare parts available.
- **DIRECT COOLING.** Minimizes energy losses between the cooling media and ice.
- **SINGLE COOLING CIRCLE.** Highly efficient cooling due to low friction, low running costs, and a reduced number of potential points of failure.
- **FAST AND EASY PREPARATION** of the in-run track. Two workers, eight hours. Only 1.5 m³ of snow needed for a 100-meter-long in-run track.

TECHNICAL DETAILS:

- A high-quality base made of high-density polyethylene (HDPE)
- An integrated water nozzle installed every 2 meters
- A single cooling circuit without additional joints
- Cooled and ribbed edges
- A 1 meter long in-run track element
- A double layer of insulation material underneath the in-run track

Sprinkling System

A centrally positioned sprinkling system ensures optimal moisture conditions on the tops of the ceramic knobs.

Direct cooling

Direct contact between the cooling pipes and the ice mixture reduces energy costs and increases cooling efficiency.

Cooled edges

The only in-run track with 3-side cooling.

Modular composition

Quick and easy on-site replacement of damaged elements.

Middle plate design

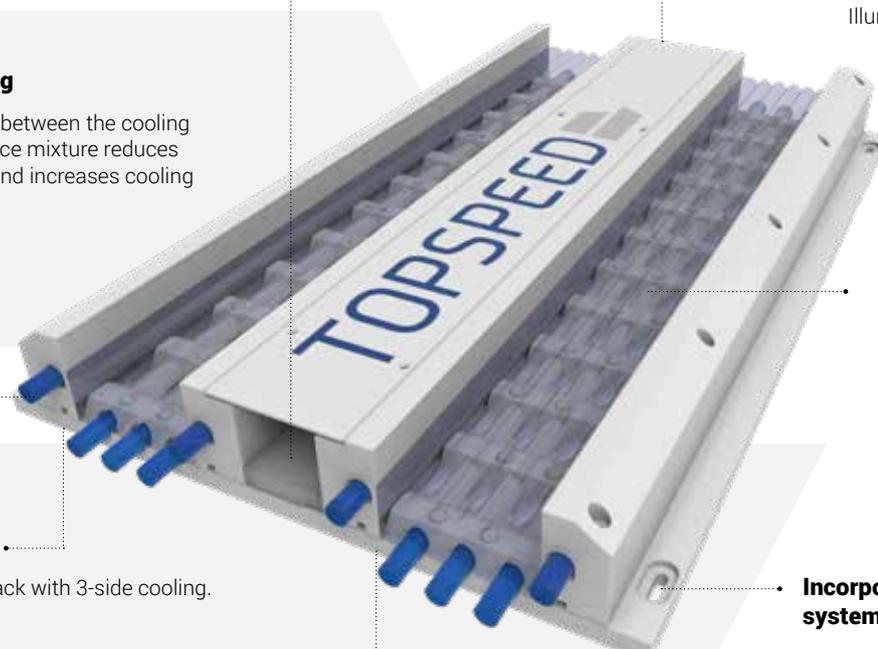
Our middle plate design enables the ability to easily install a camera in the middle of the track. Integration of TopSpeed Illumination System is possible.

Sliding channels

No additional adjustment is needed between winter and summer.

Incorporated leveling system

The incorporated leveling system allows us to install the in-run track on uneven surfaces.





THIRD-GENERATION TOPSPEED® CERAMIC TRACK

Third-generation TopSpeed® Ceramic Track is an advanced FIS-certified **summer in-run track**. The ceramic knobs inside sliding channels are arranged asymmetrically, which ensures that the friction between the in-run elements and the athlete's skis remains as low as possible. The sprinkler system nozzles are integrated into the middle plates of the in-run track, and they provide even irrigation of the track.

The in-run track elements can be adjusted to any size of ski jumping hill profile. Our in-run track segment base plate is designed with flexibility in mind – it enables perfect installation even on small radiuses of junior jumping hills. TopSpeed® Ceramic Track is compatible with both TopSpeed® levelling systems.

FEATURES:

- Asymmetric arrangement of ceramic knobs
- Flexible segment base plate
- Ribbed edges
- Easy to use and maintain
- Fast preparation of the in-run track
- Small variance in ski jumpers' speed (equal conditions for all jumpers)

TECHNICAL DETAILS:

- UV resistant HDPE material
- An integrated water nozzle installed every 2 meters
- A 1 meter long in-run track element
- Compatible with both levelling systems

Asymmetric position

Asymmetric position of ceramic knobs helps to reduce friction between the skies and the ceramic knob.

Sprinkling system

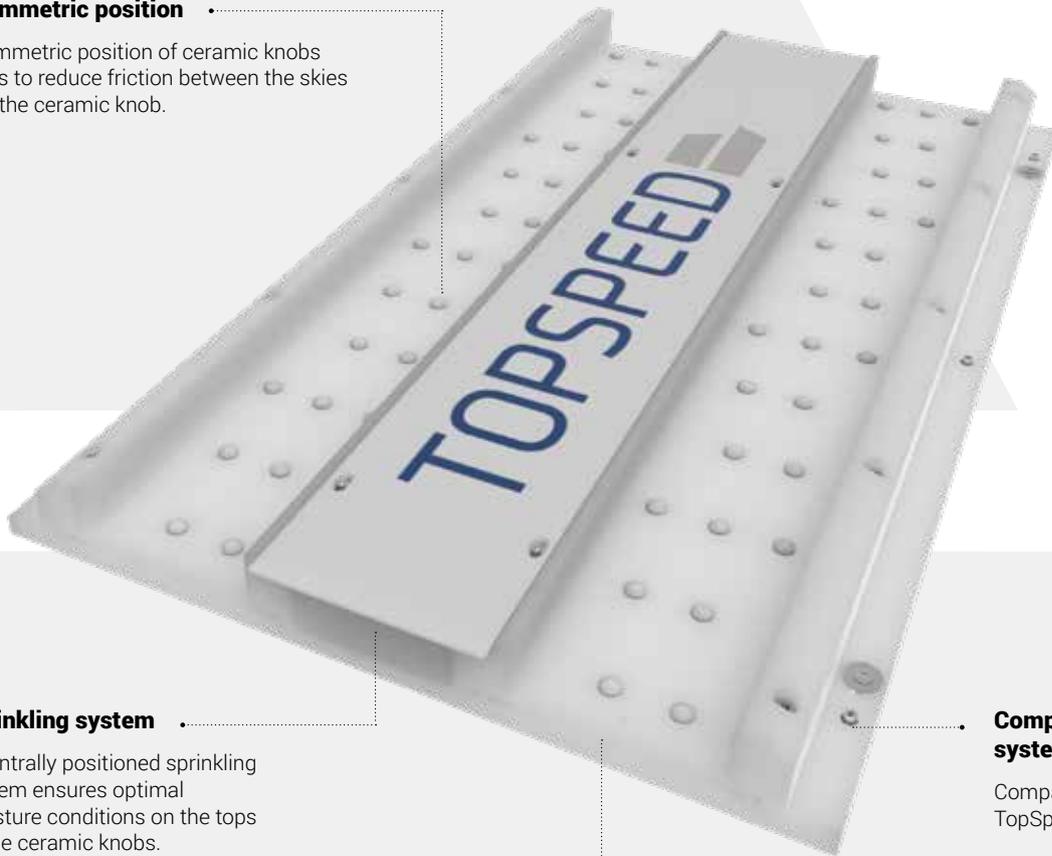
A centrally positioned sprinkling system ensures optimal moisture conditions on the tops of the ceramic knobs.

Modular composition

Quick and easy on-site replacement of damaged elements.

Compatible levelling system

Compatible with both TopSpeed® levelling systems.



TOPSPEED® SPRINKLER SYSTEM

Precise water spraying is extremely important as it enables fast sliding of the skis on the ceramic in-run track. Topspeed® Sprinkler System contains water nozzles integrated into the in-run middle plates and water distribution system.

Water nozzles are mounted inside polyethylene housing, which provides perfect protection from possible hits of the skis. The nozzles are installed in perfect increments to cover the entire in-run track but still ensure low water consumption. The water distribution system allows separate regulation of pressure to assure precise water spraying in each part of the in-run track. Coaches can open the water from the coach platform.

Topspeed® Sprinkler System includes an integrated valve that allows easy discharge of water from the system during winter months to prevent any damage to the system due to frozen water. Furthermore, a filter protects the system from any dirt that could clog the nozzles.

FEATURES:

- Separated regulation for gate, middle, and take-off part of the in-run track
- Electric valve allows remote control
- Low water consumption
- Solid housing for nozzles

TECHNICAL DETAILS OF THE STANDARD SOLUTION:

- Nozzles installed on every 2 meters
- Central pressure regulation for each part of the in-run track
- Winter valve
- Filter on the main water supply



TOPSPEED® INTEGRATED LEVELLING SYSTEM

The best way to ensure the accuracy of the in-run track is by fitting the levelling system onto the basic construction of the in-run.

The TopSpeed® Integrated Levelling System can be used when the spaces between the basic construction and the profile of the ski jumping hill are smaller than 50 mm, and when the TopSpeed® Levelling System cannot be used. With the TopSpeed® Integrated Levelling System, each in-run track element can be adjusted on 9 points so that it entirely follows the ski jumping hill profile. An integrated levelling system can be installed on a basic construction made of concrete or wood.

FEATURES:

- Installation on a basic construction made of concrete or wood
- Adjustment on 9 setting points
- Maximum gross height is just 50 mm
- Possible readjustment
- Accurate installation
- Appropriate for TopSpeed® ceramic track

TECHNICAL DETAILS:

- Levelling amplitude: +/-50 mm
- Weight: approximately 35 kg/m
- Made of stainless steel





TOPSPEED® LEVELLING SYSTEM

The best way to ensure the accuracy of the in-run track is by fitting the levelling system onto the basic construction of the in-run.

Usually, the construction of the ski jumping hill doesn't follow the ski jumping hill profile accurately, which can be easily solved with the TopSpeed® Levelling System. The TopSpeed® Levelling System can be installed on any type of basic construction (concrete, wood, or steel). The levelling system is made of galvanized steel to ensure a longer lifetime for the system.

FEATURES:

- Installation on a basic construction made of concrete, wood, or steel
- An integrated guard rail holder
- Height adjustment of the base (FIS) line
- Accurate installation

TECHNICAL DETAILS:

- Large height adjustment range
- Made from galvanized steel (S235)
- Maximum load: 350 kg/m²
- Weight: approximately 100 kg/lm (in a FIS corridor with a width of 2.5 m)





TOPSPEED® COOLING SYSTEM

TopSpeed® Cooling System is comprised of a cooling unit, insulated connection pipes, an upper and a lower collector, and high-quality polyamide pipes. The system is designed to facilitate installation of the cooling unit above or below the in-run track, both indoors and outside.

With a power range between 12 and 15 kW, TopSpeed® Cooling System ensures in-run track conditions of up to -15°C, which means that competitions can take place even in warmer weather. Temperature sensors measure input and output temperature, and the control unit automatically regulates the cooling intensity in line with the measured temperature. The pressure and flow switch are a part of the safety mechanism, which shuts down the cooling unit in the case of cooling media leakage. **TopSpeed® Cooling System** is also available as an option with two cooling circuits where one acts as a back-up system.

The cooling unit includes an integrated heater for faster melting of the in-run track between winter and summer.

FEATURES:

- Insulated connection pipes
- Automatic regulation of cooling power
- Custom designed for each customer
- Option with two cooling circuits
- Indoor and outside installation
- Option of remotely controlled system

TECHNICAL DETAILS:

- Cooling power range from 12 to 15 kW
- Primary side cooling media: Freon gas
- Secondary side cooling media: Ethylene glycol
- Integrated 3 kW heater

TOPSPEED® ICE CUTTER

The quality of the ice cutter and the cutting ice method it employs directly affect the ski jumper's perception of the conditions in the sliding channels of the in-run track. Only clean-cut ice can ensure that the athletes can reach high take-off speeds. **TopSpeed® Ice Cutter's steel knife shape carves a perfect shape of the ice inside the in-run track.** The shape of the knife can be tailored to the wishes of each customer.

TopSpeed® Ice Cutter is powered by a **four-stroke petrol engine**. The knives are driven by a double V-belt, which is connected to the axis of the engine over the centrifugal clutch. The clutch prevents rattling when the engine stops and keeps the knives stationary during the warm-up of the engine at low rpms. The engine allows speed regulation. TopSpeed® Ice Cutter includes an emergency stop switch for user protection. The fuel tank is large enough to facilitate the execution of several cuttings.

The guiding mechanism ensures that the ice is cut precisely and in a straight line, and prevents damage to the edges of the in-run track elements. Our special knife height adjustment system ensures that the ice is of appropriate height, and that it meets FIS norms for the in-run track.

FEATURES:

- Remote controller
- Precise guiding mechanism
- Custom-made knives
- Fine-tuned depth of cutting
- Operation light indicator
- Speed regulation
- Emergency stop switch

TECHNICAL DETAILS:

- Four-stroke 7 HP petrol engine
- High-speed steel knife
- Integrated centrifugal clutch
- Stainless steel frame
- Double V-belt

TOPSPEED® WINCH

TopSpeed® Winch is located on the top of the in-run track. It facilitates **precise guidance with an 8-mm steel rope**, which is long enough to cover the whole in-run track. TopSpeed® Winch can be used for **guiding** TopSpeed® Ice Cutter, **unrolling** the TopSpeed® Cover, or for **transporting snow** with TopSpeed® Snow Cart.

TopSpeed® Winch can be operated by a **wired and/or remote controller**. A limit switch automatically stops the TopSpeed® Ice cutter precisely at the end of the in-run track. Before reaching the end position, the speed at which the rope unwinds is automatically reduced. Gradual acceleration and deceleration prevent oscillations of the ice cutter, which ensures that **the ice is perfectly cut with TopSpeed® Ice Cutter**.

FEATURES:

- Remote and wired controller
- Limit switch ensuring an exact stop position at the top/bottom of the in-run track
- Automatic speed reduction ensures stopping without oscillation
- Multiple usage: TopSpeed® Ice Cutter, TopSpeed® Cover and TopSpeed® Snow Cart
- Emergency stop switch

TECHNICAL DETAILS:

- Winch power: 4 kW
- Maximum load: 800 kg
- Rope thickness: 8 mm
- Maximum speed: 24 m/min
- Minimal speed: 4 m/min



TOPSPEED® COVER SYSTEM

The preparation of the in-run track involves a lot of detailed work that can be lost in the event of sudden rainfall or a snowstorm. We have developed a **solution: our Topspeed® Cover System** protects the entire FIS safety area against unfavourable weather conditions.

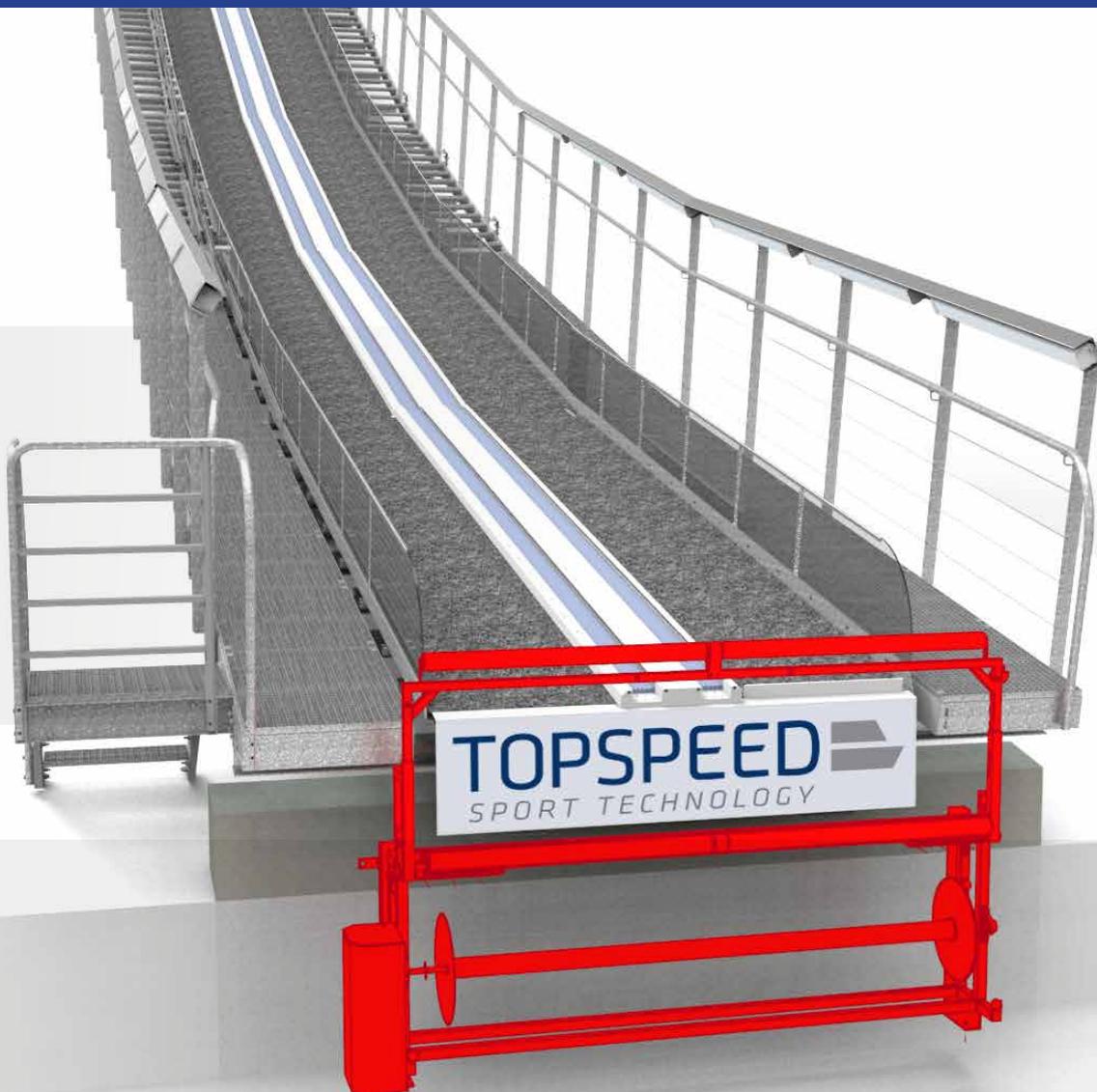
The morning cleaning procedure takes less time and the in-run track remains in perfect shape. Topspeed® Cover System is made of PVC material, which ensures protection for the in-run track and provides an insulation layer. It also speeds up and improves the process of making ice. Topspeed® Cover System makes the preparation of the in-run track possible even at temperatures above freezing. The cover system is unrolled and retracted with the Topspeed® Winch – this same winch is also used with Topspeed® Ice Cutter. The speed of unrolling can be adjusted with the remote controller. In strong winds, the cover can be fixed with additional stripes.

FEATURES:

- Remote controller
- Additional insulation layer
- Cover system is retracted and unrolled in approx. 5 min
- Custom-made print is possible

TECHNICAL DETAILS:

- Motor power 1.5 kW
- High quality PVC material
- Length: in-run length +5%
- Width: in-run width -5%





TOPSPEED®
FIS SAFETY AREA

TopSpeed® FIS Safety Area is an area between the in-run track and inside fence.

It provides enough friction so that maintenance workers can walk on it, but is still slippery enough to ensure the safety of athletes in the case of a fall.

We determined that artificial turf is the most suitable material for the FIS safety area: it has an aesthetic appearance, provides adequate friction, and has a slippery surface. Walking with crampons is possible on the artificial turf without damaging it. The turf is placed on aluminium plates, which are very light and contribute very little to the total weight of the construction. Aluminum plates are durable, stable for walking and flexible, so they can be fully adjusted to fit the profile of any ski jumping hill.

FEATURES:

- Low friction between cover and artificial turf
- Allows walking with crampons without damaging the turf
- Light aluminium plates
- Adjustable to any ski jumping profile
- Compliant with FIS specifications

TECHNICAL DETAILS:

- Width adapted to FIS safety corridor
- Thickness of aluminum plates: 3 mm
- Length of artificial turf fibers: 25 mm
- Suggested color: grey along the entire in-run length, blue on the take-off table surface
- Colors can be customized
- Any gap < 15 mm





TOPSPEED® INTERNAL FENCE

Topspeed® Internal fence is made of security polycarbonate glass or double tempered glass. There is a stainless-steel handle on the top of the glass band. The first and last glass parts are curved for aesthetic and safety reasons. Polycarbonate filling is installed between glass elements as FIS regulations prescribe no gaps between the fence elements. The height of the glass band is at least 500 mm above the ice level in the in-run track.

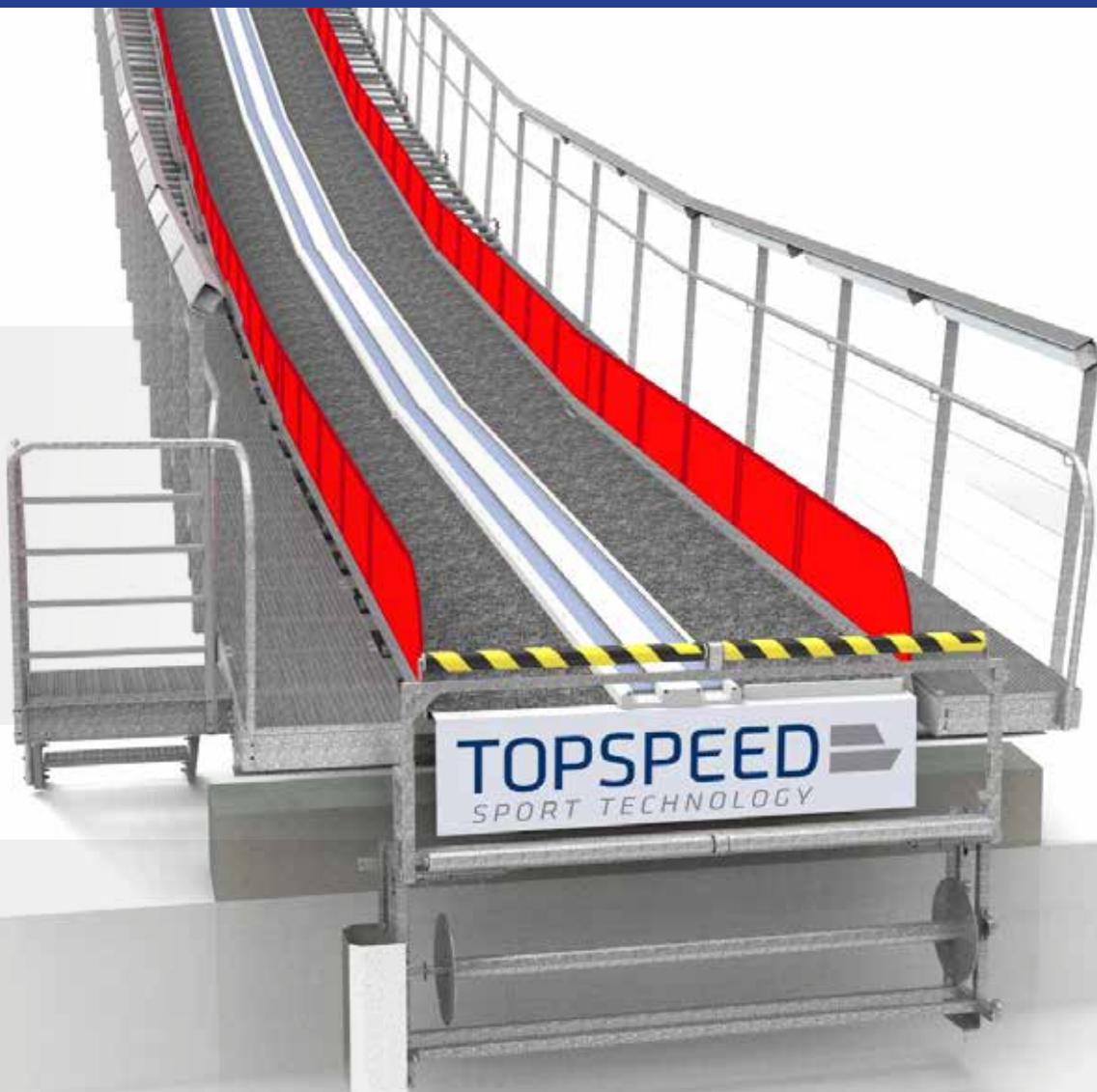
The mounting system at the bottom of each glass fence element is integrated into the levelling system of the in-run track. This helps round up the aesthetics of the whole fence. It also means that the transparency of the fence is better and the distance between the top of the fence to the ice level in the in-run track is uniform along the whole length of the fence. The fence is modular, which means that individual segments can be removed at any time.

FEATURES:

- Inserted H profile between two glass panels for meeting FIS safety norms
- Drilled holes for speed measurement sensors
- First and last panel can be customized as per customer requirements

TECHNICAL DETAILS:

- Fence height: at least 500 mm above the ice surface
- Stainless steel top profile
- Fence panel material: double tempered glass or UV protected polycarbonate
- Fence thickness: 10 mm





TOPSPEED® ILLUMINATION SYSTEM

TopSpeed® Illumination System consists of a line of lights integrated into the in-run track elements.

The lights are covered with diffusers made of a light, translucent, and UV resistant material. The system is compatible with the systems of all leading timing and measurement service providers.

TopSpeed® Illumination System allows projection onto the in-run track of stoplight colors (green, yellow, and red). These are determined by the jury based on external conditions before each athlete starts their performance in the competition. A white line then follows the ski-jumper from the starting bar all the way down to the take-off table along the whole length of the in-run track. In-between competitors, the system works in demo mode, and the lights change colors in a varying sequence to entertain the audience. The possibilities are practically limitless, as TopSpeed® Illumination System can display the colors of the hosting country, falling snowflakes, or the colors of sponsors. The main controller includes a DMX input for connection of professional lighting control equipment, which enables the use of modern light entertaining techniques.

FEATURES:

- Custom made demo modes
- Compatible with Swiss Timing, ewoxx, Alge Timing and Seiko
- Competition mode – stoplight colors determined by jury
- Compatible with professional lighting control equipment

TECHNICAL DETAILS:

- Length of 1 segment: 2 meters
- Light data: power 19W, type LED RGB, supports SPI communication
- Power supplies are distributed under the length of the in-run track on every 10 meters
- System protection level: IP66





TOPSPEED® OUTSIDE GUARD-RAIL

TopSpeed® Outside Guard-Rail for the in-run track complies with the requirements specified by ISO 14122-3. TopSpeed® Outside Guard-Rails can be installed on any type of existing sub-construction.

The surface of the guard-rails is custom made for each project – glass, wire rope, or expanded metal are among the available options. The strength and material of the guard-rail are selected specifically for each individual location, and depend on weather conditions and customer wishes based on the overall appearance of a ski-jumping hill. The guard-rail includes a handle, which can serve as a holder for TopSpeed® In-run Track Lights and TopSpeed® Heating System for Starting Gates. Additionally, there is a special adjustable-position option available. This option allows for vertical (regular use) or horizontal (TV broadcasting) positioning of the outside guard-rail. It improves TV broadcasting quality without reducing the safety features of the guard-rail.

FEATURES:

- Multi-functional guard-rail handle
- Custom-made to fit to any sub-construction
- Available in different materials: glass, high quality UV-protected polycarbonate, stainless steel, wire rope, different shapes of expanded metal, and custom colors

TECHNICAL DETAILS:

- Compliant with ISO 14122-3
- Material of guard-rail handle and holder: hot-dip galvanized steel
- Height: min. 1100 mm





TOPSPEED® STAIRS

TopSpeed® Stairs are suitable for use in the in-run and landing areas of a ski jumping hill. They can be installed on any type of existing sub-construction. They are made of high quality hot-dip galvanized perforated steel sheets, which provide an anti-slippery surface. TopSpeed® Stairs meet the requirements for the highest slip resistance class R13 of standard DIN51130. The width, height and length of each stair depends on the angle of the surface. The dimensions of stairs and our recommendations comply with ISO 14122-3, but can be adjusted to meet customer requirements. The stairs' holder can serve as a holder for TopSpeed® Outside Guard-Rail.

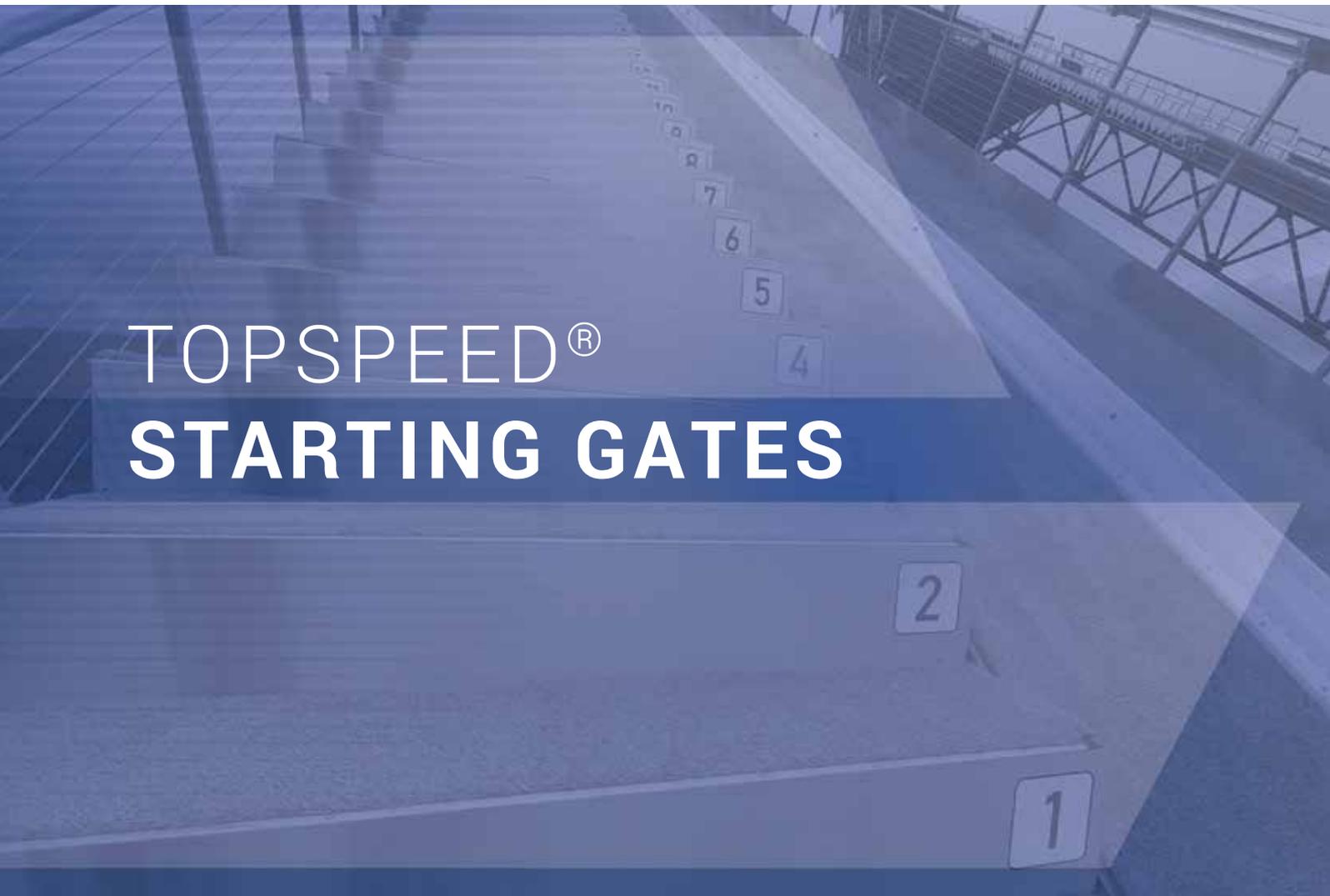
FEATURES:

- Installation on in-run and landing areas
- Anti-slippery grates (two directions)
- Custom made to fit on any sub-construction

TECHNICAL DETAILS:

- Material: hot-dip galvanized steel
- Compliance with ISO 14122-3 and DIN 51130 (class R13)
- Custom made dimensions
- Grate perforation: dimension of 1 square: 33 x 11 mm





TOPSPEED® STARTING GATES

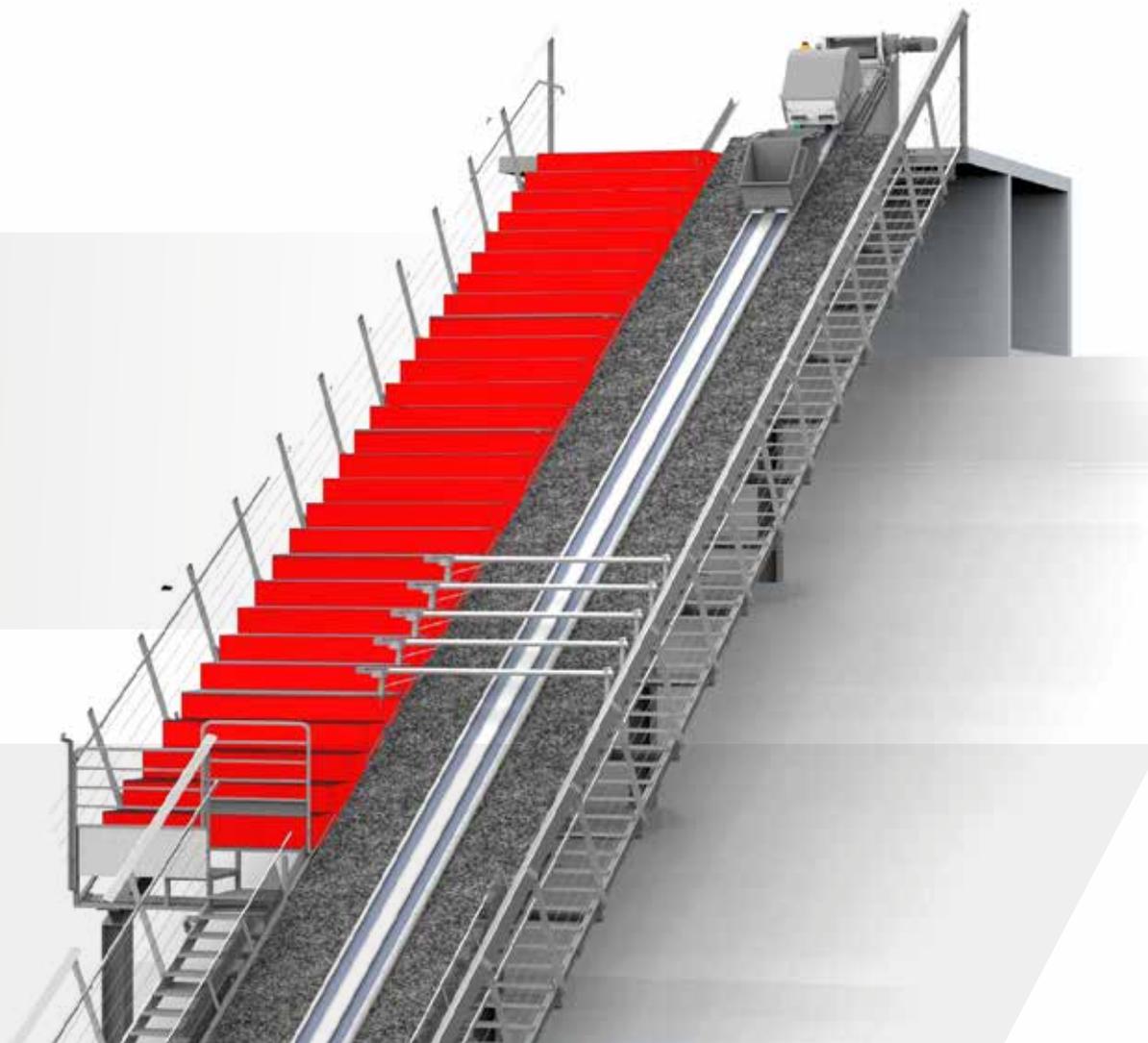
TopSpeed® Starting Gates are designed in accordance with FIS norms. Our gates can be installed on any type of existing sub-construction. TopSpeed® Starting Gates are covered with brushed inox stainless steel cover plates – an anti-glare and highly durable solution. The walking surface of the gates can be covered with artificial turf or hollow rubber. Both materials have proven perfect in winter and summer use. To provide a better and easier walking experience for athletes and visitors, TopSpeed® Stairs can be installed on one or both sides of TopSpeed® Starting Gates. TopSpeed® Starting Gates also serve as a sub-construction onto which the holders of TopSpeed® Starting Ramps and TopSpeed® Outside Rail-Guard are installed.

FEATURES:

- Custom made to fit on any sub-construction
- Summer and winter use
- Can serve as a holder for TopSpeed® Starting Ramps and TopSpeed® Outside Guard-Rail
- Includes labels with gate numbers

TECHNICAL DETAILS:

- Framework material: hot-dip galvanized steel
- Cover plates material: brushed inox stainless steel
- Walking surface material: artificial turf or hollow rubber
- Complies with FIS norms





TOPSPEED® ROOF FOR STARTING GATES

Windy, rainy, or snowy weather conditions during competitions can disturb the physical and mental preparation of athletes waiting at the starting gate area.

TopSpeed® Roof for Starting Gates consist of FIS-compliant guard-rail and roof, which protect the starting gate area from two sides. The materials used for the guard-rail and roof are selected specifically for each individual location – they depend on customer wishes and the overall requirements of a ski-jumping hill. Installation is possible on any type of standard sub-construction. Our solution can be adjusted to fit on existing ski jumping hills. TopSpeed® Roof for Starting Gates is compatible with TopSpeed® In-run Track Lights and TopSpeed® Heating System.

FEATURES:

- Compatible with TopSpeed® Heating System
- Compatible with TopSpeed® In-run Track Lights
- Custom made to fit to any sub-construction or existing ski jump

TECHNICAL DETAILS:

- Guard-rail handle and holder material: hot-dip galvanized steel
- Roof and fence material: glass, high quality UV-protected polycarbonate or metal plates
- Dimensions: custom made



TOPSPEED® GARAGE



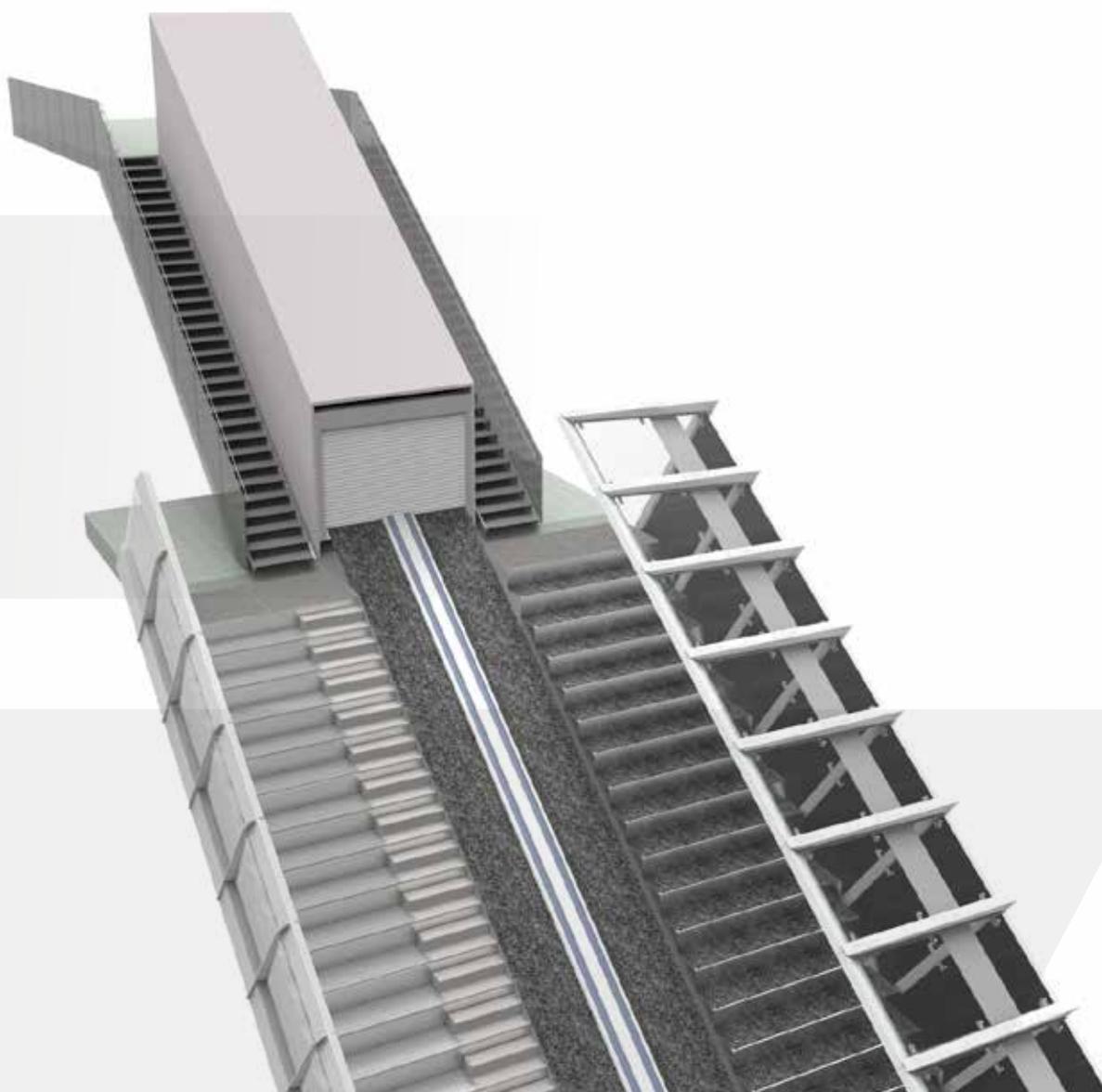
Topspeed® Garage for our ice cutter and winch is designed to prolong the lifetime of installed machinery. It is highly functional and aesthetic in appearance. Topspeed® Garage is custom made for each facility. It is installed at the top of the in-run track, either on the curve of the in-run track or on the platform on top of the ski jumping hill. The garage is spacious enough to accommodate TopSpeed® Winch, TopSpeed® Ice Cutter, the upper collector for TopSpeed® Cooling System, the electric cabinet, and all the tools needed for the preparation of TopSpeed® In-Run Track. The lifting doors on the front side are big enough for Topspeed® Ice Cutter, and the regular doors on the side or at the back are used during maintenance. The walls and roof are made of insulation panels that ensure the structural integrity of the garage and protect the machinery from the elements.

FEATURES:

- Custom made architectural and technical design
- Resistant to wind and snow loads
- Integrated snow catchers
- Lifting doors that close over the profile of the in-run track

TECHNICAL DETAILS:

- Galvanized steel construction
- External antenna for winch remote controller
- Door width is identical to the width of the in-run track FIS safety area



TOPSPEED® IN-RUN TRACK LIGHTS

In ski jumping, lights are necessary for late afternoon or evening competitions, or competitions in bad weather conditions (e.g. fog). Lights are also important for the preparation of the in-run track, which takes place in the evening or during the night. TopSpeed® In-run Track Lights is a solution that includes one (smaller hills) or two (normal and large hills where video broadcasting will take place) lines of lights integrated in the TopSpeed® Outside Guard-Rail and positioned at an optimal angle. The angle is calculated using a lighting simulation, which we custom make for every venue. The aim of the simulation is to ensure minimum glare at maximum possible illumination. The single line option generally ensures illumination levels of 1600 lx, and the double line option provides for illumination levels as high as 2000 lx. The operating power of each lamp can be adjusted to achieve optimal levels (0–100%). The double line option is compliant with the standards for all competitions as prescribed by FIS.

If you prefer or are required to meet Olympic broadcast standards, our TopSpeed® In-run Track Light High Performance solution is just what you need. It includes all features of the standard solution upgraded with high performance custom-designed lamps.

FEATURES:

- Lamps are integrated into the in-run track fence
- Individually addressable and dimmable lamps
- Ingress protection rating: IP66

TECHNICAL DETAILS OF THE STANDARD SOLUTION:

- Color temperature: 4000 K or 6500 K
- Color rendering index: >80
- Mechanical impact protection rating: IK08
- Control system type: DALI

TECHNICAL DETAILS OF THE HIGH-PERFORMANCE SOLUTION:

- Color temperature: 5700 K
- Color rendering index: Ra=93, R9=54
- Mechanical impact protection rating: IK07
- Flick factor: <2%
- Control system type: DMX





TOPSPEED® STARTING RAMPS

TopSpeed® Starting Ramps are safe and easy to use. Our solution can be adjusted to fit on any standard sub-construction. The holders installed along TopSpeed® Starting Gates are made of hot-dip galvanized steel, which provides a stable and strong base for the ramps. The ramps are made of aluminum; they are lightweight and can be easily moved into different positions. The built-in high-quality gas spring makes handling the ramps easy and effortless. The surface of TopSpeed® Starting Ramps is smooth without sharp edges that could damage the athletes' clothes. TopSpeed® Starting Ramps can be adjusted to different heights, so they can be used by adults, youth, and children.

FEATURES:

- Custom made to fit on any sub-construction
- Adjustable height
- Lightweight materials
- Built-in high-quality gas spring

TECHNICAL DETAILS:

- Material of the holders: hot-dip galvanized steel
- Material of the ramps: aluminum
- Gas spring material: stainless steel





TOPSPEED® ICE-TRACK CLEANER

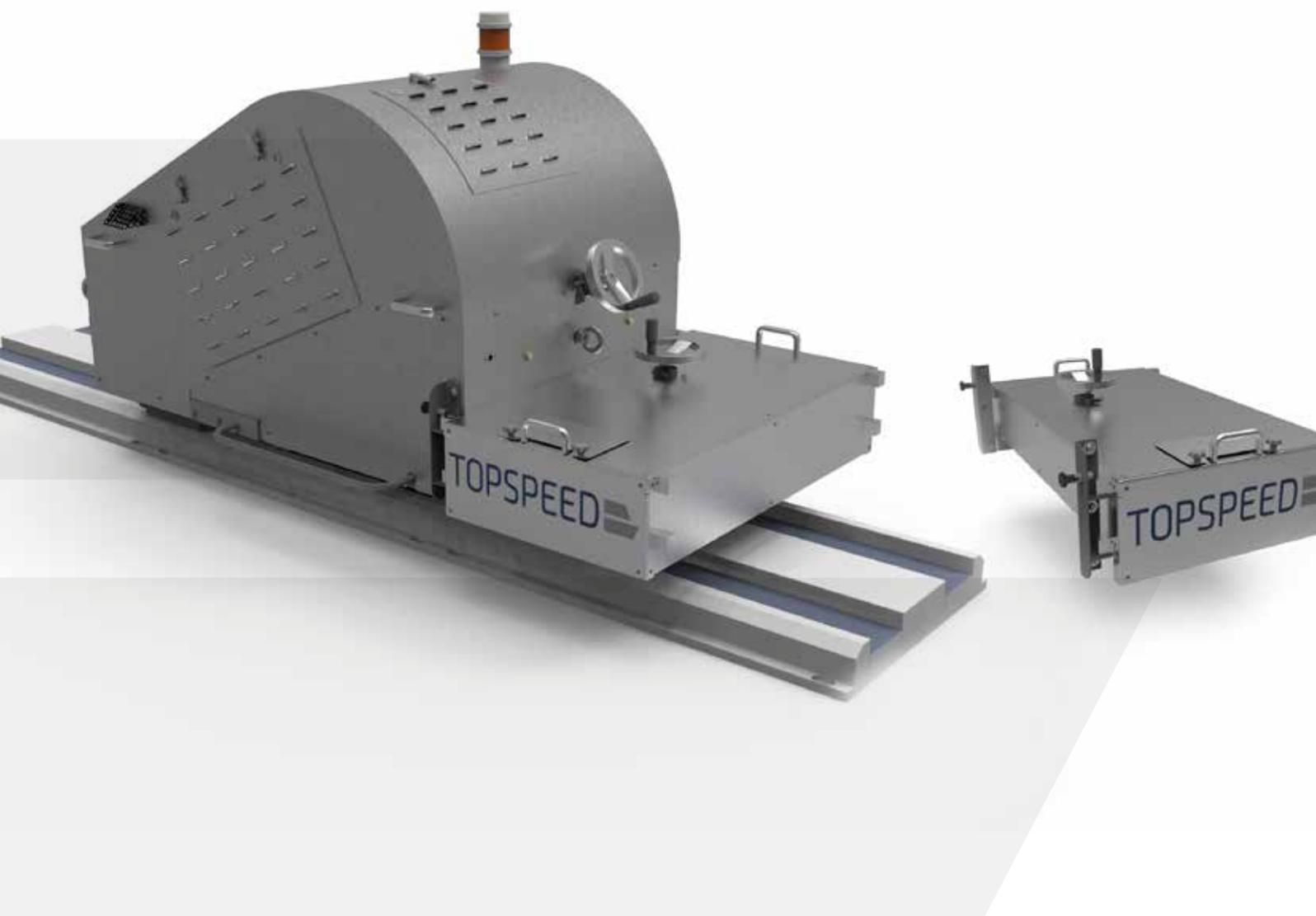
TopSpeed® Ice-Track Cleaner facilitates easy and fast maintenance of the ice track. In-run track maintenance tasks can be carried out during unfavourable weather conditions with minimum manual work. TopSpeed® Ice-Track Cleaner can be connected to the front or back of TopSpeed® Ice Cutter. Sweeping of the in-run track can be performed from the top-down or from the bottom-up, depending on your needs and setup. The sweeping operation is powered by its own battery, charged by the ice cutter. The integrated ice scrapers clear bigger chunks of ice from the in-run track, and the brushes rotate in two directions ensuring that the ice track is always clear and clean no matter the direction (top-down or bottom-up) from which it is maintained. In case of snow or rain, the ice track can be covered and brushed at the same time. Starting brushing from the bottom while also dragging TopSpeed® Cover System over the track will help you preserve the in-run track in the best possible condition for your next jumps.

FEATURES:

- Option of custom made scraper shape (similar to ice cutter knives)
- Bi-directional brush rotation
- Possible connection to front or back of TopSpeed® Ice Cutter
- Minimum manual work needed for maintenance of the ice track

TECHNICAL DETAILS:

- Autonomy: 1 hour
- Framework material: aluminium
- Electric drive: 12 V
- Weight: 32 kg





TOPSPEED® HEATING SYSTEM FOR STARTING GATES

Cold weather conditions during competitions can disturb the physical and mental preparation of athletes waiting at the starting gate area. **Our TopSpeed® Heating System for Starting Gates offers an ideal solution – a FIS-compliant fence and roof system that protect the starting gate area from windy conditions.** To fight the cold, IR heating panels are installed on the roof at a perfect angle to heat the starting gate area, but not interfere with the in-run area. Depending on weather conditions, the operation of IR heating panels can be adjusted using a smart controller to achieve the desired temperature. The IR panels that are not needed can be completely shut down (the panels at the lowest and highest parts of the starting gates).

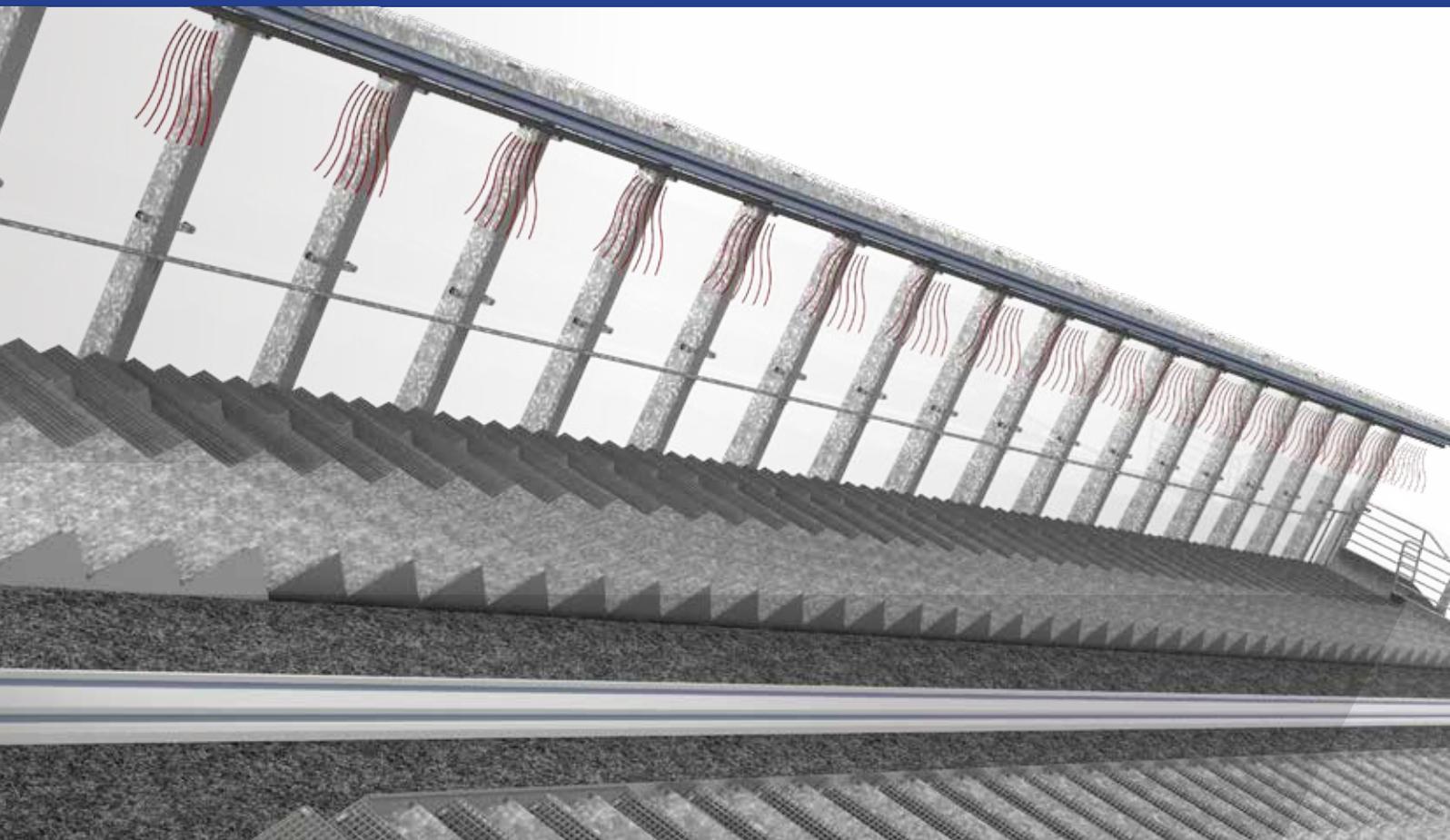
TopSpeed® Heating System is also available as a mobile option that can be added to existing ski jumping hills. The 1.5-meter segment comprises an aluminium construction, 2-side glass protection, IR heating panels, and a light. It enables fast and easy assembly and disassembly before and after the event.

FEATURES:

- Smart controller
- Compatible with TopSpeed® Roof for Starting Gates
- Compatible with TopSpeed® In-run Track Lights
- Energy efficient IR panels
- Mobile option

TECHNICAL DETAILS OF THE STANDARD SOLUTION:

- Heating power of each panel: 3600 W
- Heating system suitable for outdoor use
- Additional anti-corrosion protection
- Panel dimensions: 1550 x 350 x 60 mm



TOPSPEED® PLASTIC ELEMENTS FOR LANDING AREA

TopSpeed® Plastic Elements for Landing Area are FIS-approved and meet the standards for all competitions covered by FIS. The installed TopSpeed® Plastic Elements have a gliding quality similar to that of a well-prepared winter ski jumping hill. Through years of research, we developed the perfect combination of protection additives that can withstand different weather conditions, and achieved a long lifetime for our product – our plastic mats can be used for over 15 years. If the color of the mats lighten after that time, the plastic elements can be turned around and used again on the same or any other ski jumping hill.

The standard color of the plastic mat is green with blue, red, and white elements for the P-point, K-point and distance markings. However, any custom-made colors, logos, signs, or texts are possible.

FEATURES:

- FIS-approved
- UV-protected
- 2 parts: fibres and safety plate
- Option of custom made logos and texts
- Easy installation

TECHNICAL DETAILS:

- Material: UV-protected polypropylene
- Width: 400 mm
- Fibre length: 480mm
- Fibre thickness: 1.6 x 2.7 mm
- Safety plate dimension: 420 x 320 x 4 mm
- Weight: 1.650 kg

TOPSPEED® SNOW RETENTION SYSTEM

The preparation of the landing area for the winter season can be tricky if your hill is equipped with plastic mats for summer jumping. To prevent the snow from sliding from the knoll and landing area, and to prevent spontaneous avalanches, we recommend using TopSpeed® Snow Retention System. The system is assembled on the plastic mats before the beginning of winter. It reduces the possibility of snow sliding from the landing area. After the winter season ends, the system can be easily removed and stored until the next season. The size and strength of the system are precisely calculated for each ski jumping hill, and depend on the expected snow loads and angles of the landing area. A snow groomer can be used on the slope once there is enough snow covering TopSpeed® Snow Retention System. The assembly onto the pre-installed fixation elements is easy for a well-trained team.

FEATURES:

- Rot-proof
- UV-resistant synthetic rope
- Non-slipping knots
- Easy assembly and disassembly

TECHNICAL DETAILS:

- Snow-retention nets material:
Polypropylene ropes
- Fixation elements material:
Polyester ropes
- Anchor plate and dowels material:
stainless steel

TOPSPEED® IRRIGATION SYSTEM

TopSpeed® Irrigation System enables summer ski jumping on plastic mats. The system comprises a pump station, water distribution system, and sprinklers. As water supply at ski jumping facilities is not always reliable or available, we offer a buffer tank as an additional option. The pump station can be placed anywhere around the landing area, preferably close to the take-off table. This way, the same output requires lower pressure. The number and type of sprinklers are calculated in accordance with the specifics of each ski jumping hill.

An upgraded TopSpeed® Irrigation System option with smaller pumps is available for venues with low water supply. Here, sprinklers are automatically preset to achieve the most optimal water consumption.

FEATURES:

- Buffer tank option
- Designed specifically for each ski jump to provide best results
- Upgrade available for venues with low water supply

TECHNICAL DETAILS:

- Position of sprinklers: on the guard-rail or in the plastic mats area
- Position of pipes: under- or above-ground
- Pipes material: hot-dip galvanized steel or medium-density polyethylene (MDPE)



ALPINA WIND NET PROTECTION

Unsteady wind conditions are the most common reason for cancelling ski jumping competitions. Some ski jumping hills are constantly exposed to wind, which increases the chance of event cancellation. In collaboration with ALPINA Safety Systems – the world's leading company with more than 10 years of experience in the field of wind protection, TopSpeed® supplies wind net protection, which reduces or nullifies the impact of wind to a level that is still compliant with FIS Competition Regulations. Because of diverse terrains and local wind conditions, each facility requires a custom solution. Our design is based on a CFD model of wind speed conditions over a survey map. Using this technology, we can determine the best position of the wind net, and the height and length of its base construction.

Wind net protection can be effectively used with wind speeds in the range of up to 20 m/s. In this range, the nets decrease critical wind speeds and allow for the competition to be held under previously impossible conditions. The Wind Net Protection system can be operated automatically and/or by remote control. We offer mobile and fixed solutions.

IN COOPERATION WITH ALPINA SAFETY SYSTEMS, TOPSPEED® CAN OFFER THE FOLLOWING FEATURES:

- Collaboration, engineering and knowhow of ALPINA Safety Systems experts
- Net surface areas of over 3,000 m²
- CAD-based engineering
- Production compliant with EU standards
- TÜV approval (upon client's request)

TOPSPEED® CUSHION MATERIAL

TopSpeed® Cover System or other systems installed under the take-off table present a potential danger to ski jumpers. To provide safe conditions for the athletes, all sharp objects around the take-off table must be covered during ski jumping. TopSpeed® Cushion Material is custom made to completely cover and protect this area. The shape and size are designed individually for each ski jumping facility to provide the perfect fit. TopSpeed® Cushion Material consists of foam covered with PVC foil and can be easily assembled and disassembled as needed. The standard grey color with TopSpeed® logo can be customized in line with the wishes of the customer and appearance of the entire ski jumping facility.

FEATURES:

- Safely covers all sharp objects at the take-off table
- Custom made for each ski jump
- Easy assembly and disassembly
- Custom color, texts and logos

TECHNICAL DETAILS:

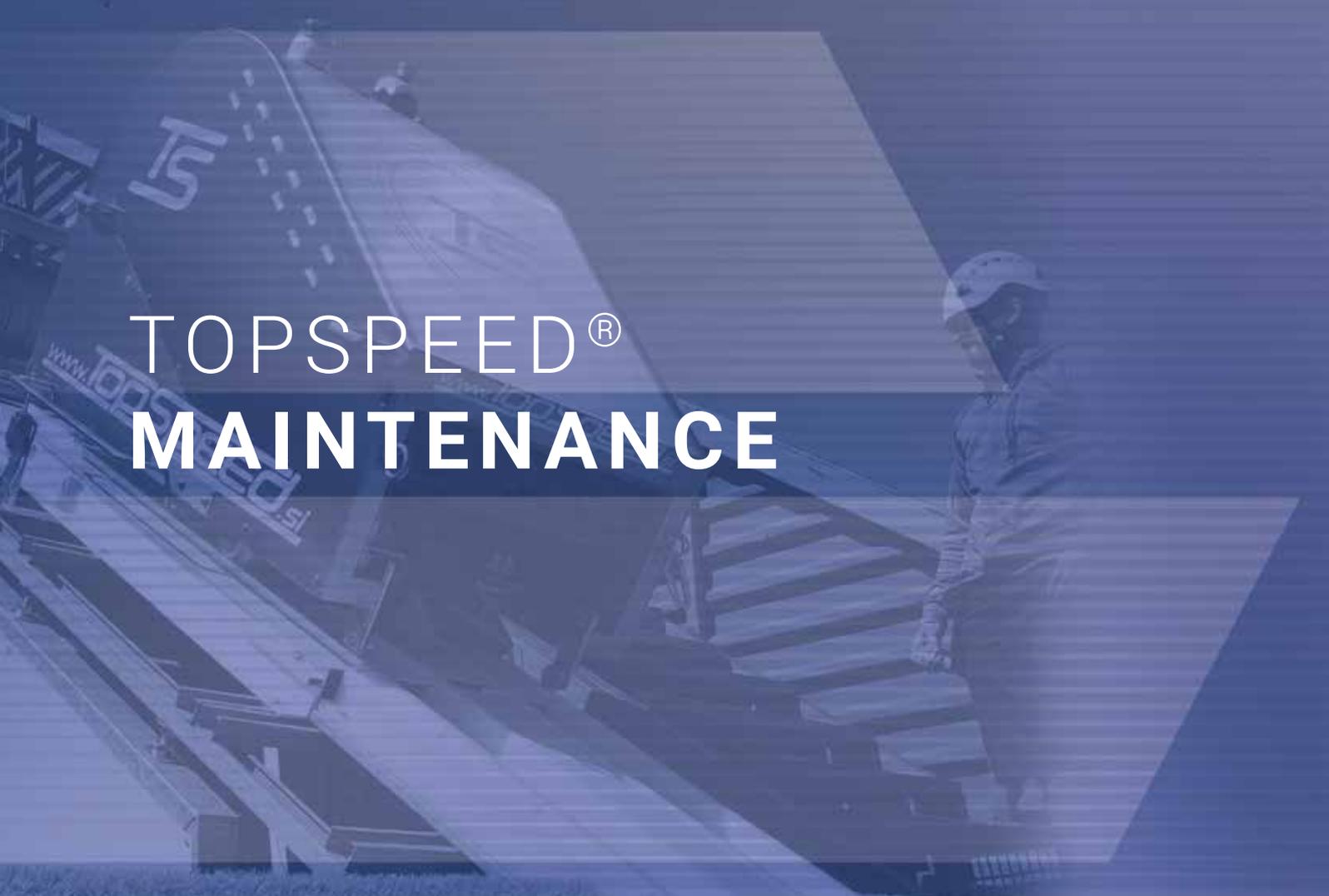
- Material: foam covered with PVC foil
- Standard color: grey
- Thickness: 100 mm
- Dimensions: custom made



TOPSPEED® INSTALLATION

The installation process is one of the most important steps in the construction of a ski jumping hill. TopSpeed® has a highly experienced installation team where every team member is in charge of specific tasks. Our installation team consists of specialists from various specialty fields (construction engineers, electrical engineers, plumbers, mechanics, land surveyors, and high altitude workers). All members of the TopSpeed® Installation team have many years of experience in the field and are included in our company's internal training program.

An accurate installation plan, prepared at TopSpeed® headquarters, is crucial for the high quality, safe and fast installation work we provide. Weather conditions can, however, affect the timeline of the installation, but we are able to adjust our plans quickly and effectively, so this does not have a serious impact on the installation completion date. The most important element that ensures smooth TopSpeed® Installation is the proper preparation of the construction site in accordance with our requirements. We prepare these and send them to the investor prior to our arrival.



TOPSPEED®
MAINTENANCE

TopSpeed® technical equipment must be maintained regularly to assure best performance and long lifetime.

To make it as simple as possible, TopSpeed® offers long-term maintenance support of supplied technical equipment. Our service includes maintenance and keeping of service records, and we also monitor service cycles of all installed systems. The costs of maintenance can be reduced by concluding a long-term maintenance contract. In this case, TopSpeed® will make sure that your systems are maintained at the right time to ensure optimal performance of your equipment.

In case of urgency due to an upcoming event or unexpected damage to the system, our team of experts is always available to provide the best possible support.

If you have a strong local support and maintenance team, TopSpeed® can provide training for the supplied technical equipment so they can perform these tasks themselves.

The specified warranty period is only valid if the systems are regularly maintained.



TOPSPEED® TRAINING

TopSpeed® Training attendees receive the Certificate of Attendance. Only persons with this certificate can operate TopSpeed® equipment.

Knowledge transfer is one of the final steps in the construction or renovation of a ski jumping hill venue. The TopSpeed® team is always present on site during the first preparation of a TopSpeed® In-Run Track for winter conditions. At that time, our experts transfer to the local team all of the required knowledge about the operation and daily maintenance of installed TopSpeed® systems. Training usually lasts two days and includes detailed explanations about the functioning and operation of the installed systems.

TopSpeed® Training covers: cooling system control; snow mixture preparation; filling of in-run track channels with snow; ice cutting procedure; covering and uncovering of the in-run track; using the sprinkler and irrigation systems and preparing them for winter; lighting and illumination systems control; assembly and disassembly of snow retention nets.



TOPSPEED®
COMPETITION SUPERVISION

There is no room for mistakes in the organization of competitions on the highest level. Everything must be prepared and maintained perfectly for the event to run smoothly.

TopSpeed® Competition Supervision offers a complete service – from preparation of the in-run track and other TopSpeed® systems to supervision during the competition.

For FIS competitions, the distance between the ice surface and the in-run track edge must comply with FIS rules. To ensure this, the TopSpeed® team arrives at the ski jumping venue several days before the event. We coordinate with the local team to prepare the best ice-track and make sure it is properly maintained until the time of the competition. Owing to our considerable experiences, we can ensure that the TopSpeed® Cooling System is set perfectly in accordance with the outside temperature. If anything goes wrong, our team always has critical spare parts on hand and can solve any problem quickly and effectively.

When it comes to the most important competitions of the season, it is important that LOC members have one worry less.

TOPSPEED® MINI TS

TopSpeed® Mini TS is a small mobile ski jumping hill. It allows any child (or adult) to feel like a real ski jumping superstar. Its main purpose is to promote ski jumping and help children or other non-ski-jumpers get to know it better. No prior knowledge is needed to try ski jumping on Mini TS. A trained instructor must always be present to supervise the activity and ensure it is completely safe.

TopSpeed® Mini TS can be installed on any regular van or trailer, or positioned as a self-standing object. It is space-efficient as it only takes up 4 x 30 m. It is fast and easy to assemble and disassemble, and can be used inside or outside.

FEATURES:

- Suitable for transport by van or trailer
- Removable fence panel for low air resistance during transport
- Soft landing area covering prevents possible injuries

TECHNICAL DETAILS:

- Construction material: hot-dip galvanized steel
- In-run track material: UV-resistant HDPE material
- Vehicle upgrade can be homologated
- FIS certificate can be obtained for Mini TS

TOPSPEED® LINK

TopSpeed® Link is an application for central control of all electronic systems installed at a ski jumping hill. It allows users to remotely control TopSpeed® Cooling System, TopSpeed® In-Run Track Lights, TopSpeed® Illumination System, TopSpeed® Sprinkler System, TopSpeed® Irrigation System, and displays real-time weather data.

User authentication ensures that only authorized persons can operate the systems. Our easy-to-use application can be accessed through smart phone, tablet or PC.

FEATURES:

TopSpeed® Cooling System control:

- Turn on/off the cooling aggregate
- Set the temperature set-point
- Display current temperature of cooling media
- Display alarms
- Malfunction alerts

TopSpeed® Lighting System control:

- Display system status
- Switch on/off the lights
- Dim the lights to any value

TopSpeed® Illumination System control:

- Preset demo modes
- Change color of the whole system
- Turn on/off the system
- Switch between demo and competition mode

TopSpeed® Irrigation System control:

- Turn on the water spray
- Count and display time since last operation

TopSpeed® Sprinkler System control:

- Display system status (run/stop)
- Turn on/off the system

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