

As a pioneer and innovator in the field of ice rinks and solar absorber systems, our goal is quite simple: We want to set the highest standards for ice sports worldwide, for both professional and recreational athletes. We are passionate and challenge ourselves every day to be the best in class!

Viewed internationally, no company has had a greater impact on ice rink and solar absorber technology than ISS. ISS is a technology leader in its industry and has developed and patented products such as ICERACK® and ICEGRID®, among others. In the meantime the second-generation family business has been characterized by absolute reliability, competence and passion for its products for five decades.

The ISS rink systems impress with their versatility and flexibility for a wide variety of applications. Whether it is turnkey ice rinks for ice hockey or curling, mobile outdoor ice skating or ice hockey rinks, ice shows or even movie sets – ISS finds the optimum solution for every application. We continuously develop safe and energy-efficient products "Made in Germany". Our many years of know-how guarantee the best quality, highest standards, longevity and outstanding design. We offer the worldwide planning, construction and rental of ice sports facilities, as well as their renovation and maintenance.

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We Offer German Engineering and Solutions for Various Technical Areas



- Ice rink technology with indirectly cooled ICERACK®
 EPDM ice mats or our patented ICEGRID® systems
- Installation of indoor and outdoor skating rinks (temporary and permanent)
- Installation of rinks on film and TV sets, even in extreme weather conditions of plus 30 degrees
 Celsius and higher
- ► Installation of ice rinks for outdoor hockey "Summer Games" or "Winter Games", pursuant to IIHF Rulebook
- Multipurpose ice sports facilities with artificial turf or Multifloor
- ▶ Intelligent refrigeration and air handling technology
- ▶ Professional ice maintenance
- ▶ Hockey and leisure board systems
- ▶ Presorted accessories for ice and sport arenas
- ▶ Solar absorber technology for swimming pool heating

We always advise our customers on specific requirements, whether private or industrial –our solutions are always geared to your specific requirements and adapted to your individual needs. Our highly experienced team of engineers, architects and project managers supports you in the complete planning of your ice sports or solar project up to the installation and handover of the turnkey system. Our in-depth knowledge in planning and project management is based on years of experience in various countries on a number of continents.



From Engineer to Market Leader

1976 Kaveh Hakim-Elahi quits his job at Siemens to research and develop solar absorber technology.

1979 The engineer is presented with the Honorary Award of the Republic of Austria as well as the large medal in gold of the Austrian Patent Owners and Inventors Federation for his "Solar panel for swimming pool heating".

1981 Kaveh Hakim-Elahi first succeeds in icing an absorber with the "Double Absorber System" he patented as part of an experimental project by the Austrian Research Promotion Fund.

1982 Launch of the world's first EPDM rink with patented double absorber system. The system heats a public swimming pool in summer, while the same absorber surface is used as an ice rink in winter.

1986 Sale of the first EPDM rink system adapted for temporary use and the start of a new era for mobile ice rinks pursuant to today's standard.

1989 First rental of an EPDM rink and introduction of the ICERACK® ice rink system.

1998 The son of Kaveh Hakim-Elahi, Said Hakim, presents the innovative ICEGRID® rink system, which receives the "Best New Product Award" from the International Leisure Industry in Birmingham, Great Britain.

1998 With the MULTICOURT® upgrade, the ICEGRID® system excels with its multifunctionality: In Huttwil, Switzerland, an outdoor ice rink is equipped with an artificial turf upgrade for the first time, so that the area can be used as a soccer pitch in summer.

1999 The only long-term absorber comparison test ever is conducted by the "Institute for Solar Energy Research (ISFH)", which names the MITRA solar absorber the winner of the test with an efficiency of 91.8 percent.

2003 For the Hollywood blockbuster "Harry Potter and the Prisoner of Azkaban", ISS GmbH ices a mountain lake in the Pinewood Studios in London, Great Britain.

2004 ISS constructs about 7,000 m² of ice surface for "Hamburg-On-Ice", the world's largest mobile indoor ice rink in Hamburg, Germany.

2006 On the occasion of the Olympic Winter Games in Turin, Italy, the family-owned company installs its own mobile practice ice rink for the Russian Olympic team.

2008 As the only ice rink system to date, both the mobile ICERACK® rink and boards system receives TÜV certification for safety and quality at the highest level.

2009 With the KHL All-Star Game at the Red Square in Moscow, ICERACK® delivers its first Outdoor Winter Game.

2011 Launch of the online shop for the SUNSHINE-ECO® corrugated hose solar absorber made of co-polymer. The system proves to be reliable and is successfully installed for small private pools as well as for numerous large-scale public pools.

2011 New national spectator record with 17,140 spectators at the ICERACK® ice rink during the first ice hockey Winter Outdoor Games in Pardubice, Czech Republic.

2012 The AIR40 Air Handlers created by ISS develop into a top seller and are successfully used in large numbers internationally for events.

2013 Further development of the ICEGRID® high-performance rink system to "ICEGRID® Plus+", with stainless steel fluid channels for a state-of-the-art experience and efficient use at the highest level.

2014 The WCF (World Curling Federation) Worlds Mixed Doubles Dumfries, Scotland Curling World Championship is held for the first time on an ICEGRID® ice rink.

2014 An IIHF (International Ice Hockey Federation) World Championship match in Great Britain is hosted for the first time on a permanently installed ICEGRID® ice rink.

2016 The Men's Curling World Championships in St. Jakobshalle in Basel, Switzerland are held for the first time on a mobile ICEGRID® hybrid ice rink.

2016 At the first European outdoor ice hockey "Summer Game", the world's warmest professional hockey game of all time at +32° C, ISS proves not only to the 30,000 spectators that the company continues to set international standards.

2017 ISS builds the first test facility for curling in the Water Cube Beijing, for the 2022 Olympic Winter Games in Beijing, China.

2018 ISS builds the ice rink for the Henke & Zucca Summer Classic Outdoor Game 2018 (game with 30 NHL stars) at the Ullevaal National Stadium in Oslo, Norway

2019 ISS expands with the World Curling Tour and becomes the name sponsor of the ISS Mixed Doubles World Curling Tour. ISS also becomes the ice technology and hockey board partner of DEB and remains so today. ICEGRID®Plus+ delivery and installation for Epic Curling Lake Tahoe / USA.

2020 ISS becomes the puck sponsor and ice technology partner of the DEL2 ice hockey league in Germany and remains so today. With the ICEGRID®Plus+ Arena Assembly for Reno Ice / Nevada, the first ice hockey surface is delivered to the USA. With the ICEGRID® ice surface for Southern California Curling Center in LA, ISS provides the technology for the first dedicated curling arena in Southern California. Installation of ICEGRID® curling surface in the Ice Cube / Water Cube Beijing Curling venue of the 2022 Winter Olympics.

2021 Huge success for the ICERACK® ice show in Riyadh / KSA . 30 days of operation with countless sold-out ice shows. For the 2026 Olympic Winter Games in Milano-Cortina, Italy, ISS is commissioned by the NOC and the IOC to perform the first ice test.

2021-2022 8 months Cirque du Soleil "Crystal" European ice show tour with two 1,000 m² ICERACK® ice rink sets.

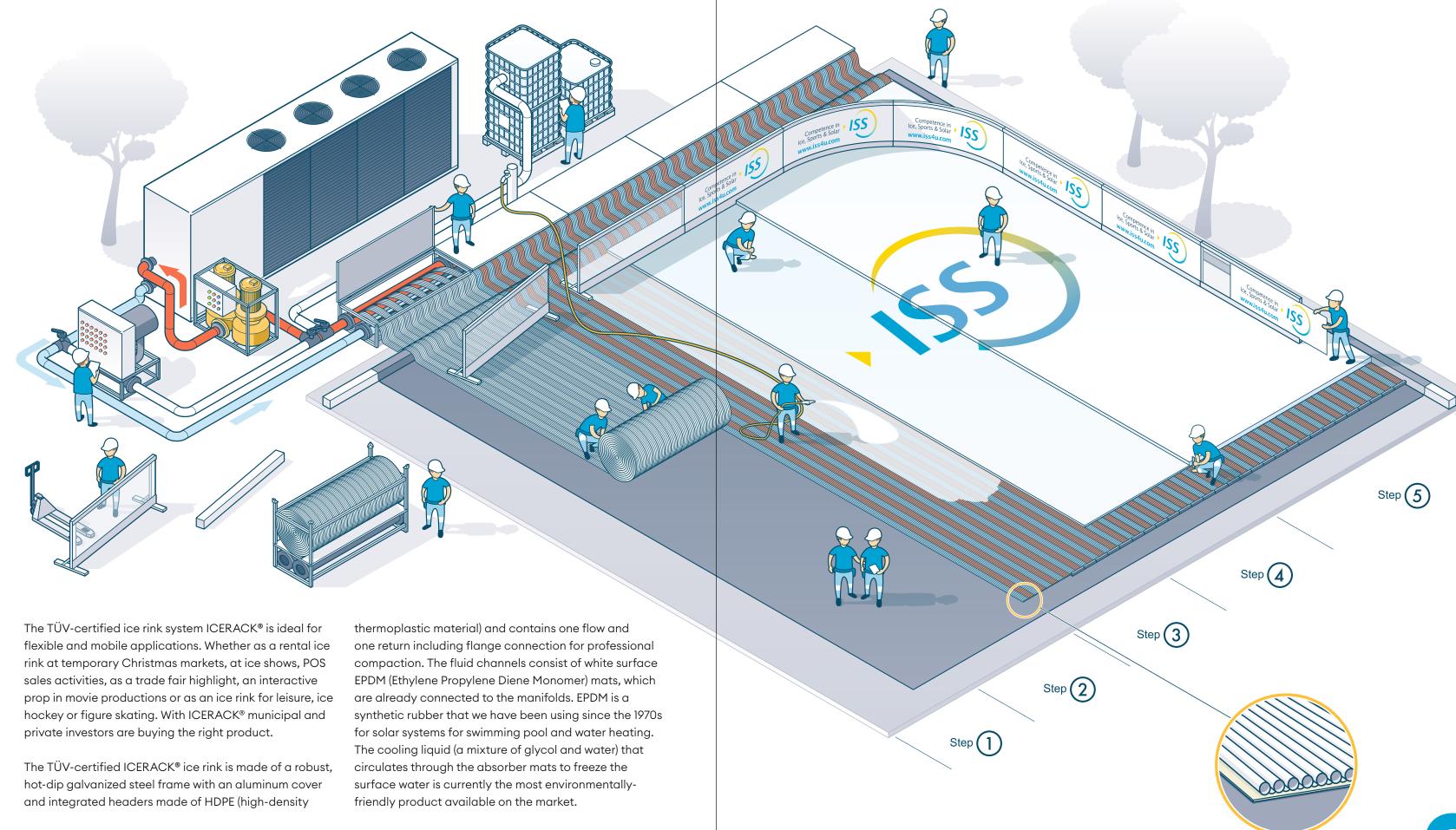
2022 Winter Olympics in Beijing on three ICEGRID® surfaces "Made in Germany". First NHL hockey size ICEGRID® multipurpose arena installation in Riyadh / KSA.

2023 First ICEGRID® Plus+ MULTICOURT installation with Multifloor upgrade for an NHL size hockey rink in Germany at the Sieben-Schwaben-Stadion in Türkheim.

ICERACK®

Skating Rinks for Everyone — Mobile, Durable and Convertible!





With the help of this technology, thousands of mobile rinks, rented rinks and permanently installed ice rinks have been successfully installed worldwide in recent decades, to the fullest satisfaction of our customers.

Transport, Storage & Installation:

In "transport mode" the ice mats can be rolled up and easily stored in the ICERACK®. Removable transport brackets make it simple to stack the ICERACK® modules for space-saving storage (so you can store up to 400 m² of ice matting on just 1.6 m² of storage space!) while ensuring safe transportation.

To change to the "operating mode" the ICERACK® modules are arranged side by side in a row first, so that they can be screwed together by means of a flange. Subsequently, the ice mats can be rolled out to form a homogeneous surface. The brine is then

ISS Ice, Sports & Solar is a longtime business partner from our organization. ISS, represented by CEO Said Hakim, has alwys been working to our utmost satisfaction. Ice surfaces have been in delivered in top quality, i.e. "Summer Game" Outdoor Hockey Game Commerzbank Arena Frankfurt. ISS can be abundantly recommended by Löwen Frankfurt.

STEFAN KRÄMER – GENERAL MANAGER DEL HOCKEY
TEAM LÖWEN FRANKFURT

cooled by a chiller and pumped through the ice mats. As a result, the temperature of the ice mats drops below freezing point and the sprayed water freezes to form an ice surface.

Benefits of the mobile ICERACK® ice rink*:

- ▶ The ISS system is the only mobile rink with TÜV certification for maximum operational safety and sustainanbilty.
- ▶ The surface of our ice mats reflects the sun's rays, significantly reducing operating costs and reducing the use of Jetlce, fleece and non-woven paint.
- Our compact fluid channel guide creates a particularly even and stable ice surface.
- Due to the flexibility of the fluid channels almost any desired geometric shape and adaptation to the substrate is possible. This means on the one hand that curves, hills and inclines of all kinds can be iced easily. On the other hand, columns, trees, lampposts or wells, etc. can be bypassed easily.
- Even special shapes such as ice slides or ice landscapes can be designed individually.

As the originator of EPDM technology for indirectly cooled ice rinks, we understand the needs and challenges of our customers and are constantly developing our ICERACK® system. Create an eventful environment for your target group: Whether Hollywood productions in outdoor temperatures of over 30° Celsius, TV shows with limited space, large-scale indoor ice rinks or ice hockey outdoor games pursuant to IIHF Rulebook – ISS ICERACK® meets every demand!





^{*} Only zero carbon footprint arena ice rink system product



ICERACK® Mladá Boleslav / Czech Republic

ICERACK® Arena di Verona / Italy









- ICERACK® Henke & Zucca NHL Outdoor Hockey Summer Classic Game Oslo / Norway (right)
- ICERACK® Henke & Zucca Summer Classic Oslo / Norway (buttom)
- ICERACK® Ice Rink Birds Nest Beijing / China (left)









- ICERACK® SO COOL SOLOTHURN ON ICE Switzerland (up)
- ICERACK® Lingen / Germany (right)



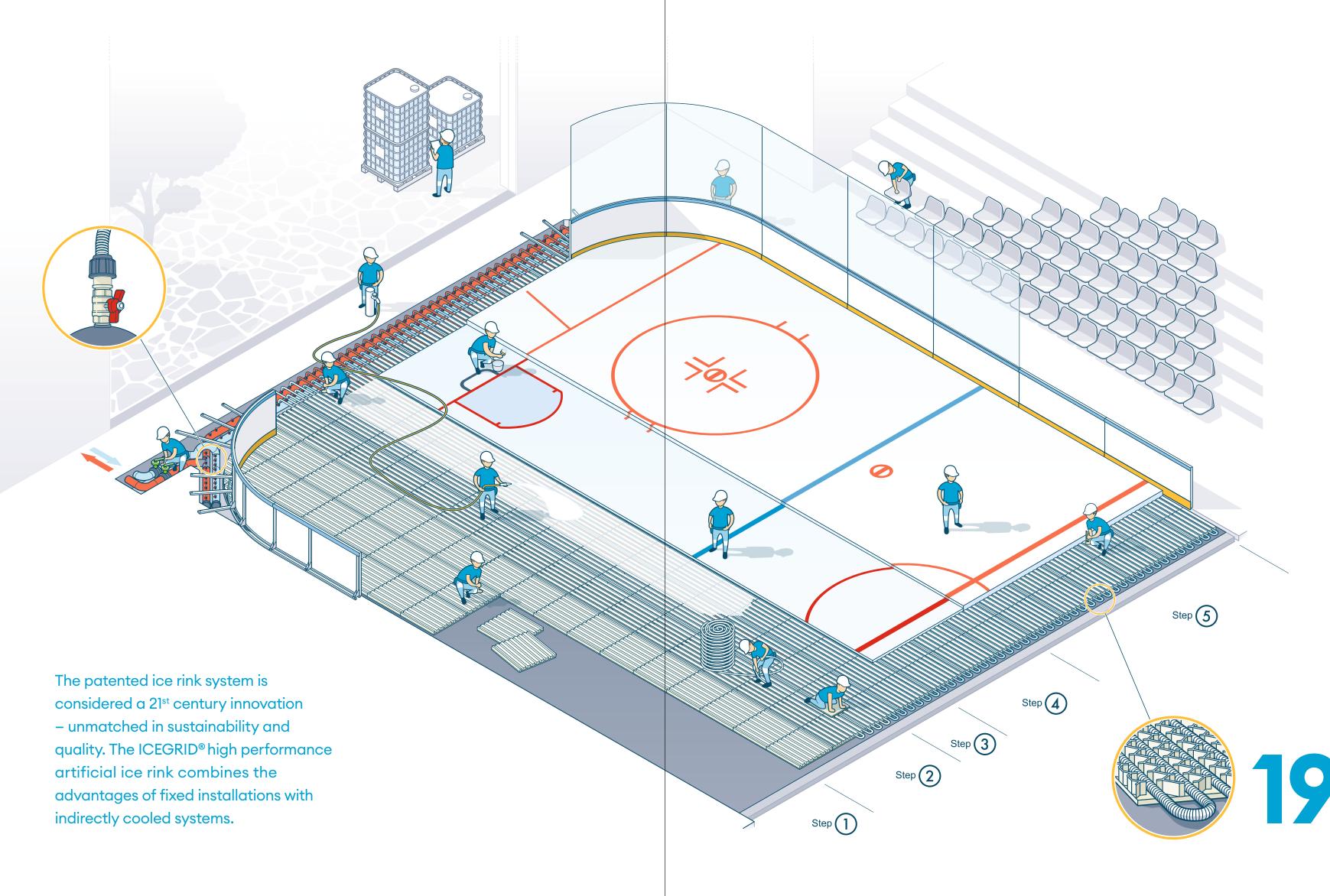




ICEGRID®

The Ice Rink System of the 21st century, where ice quality and sustainability are paramount.









- ▶ ICEGRID® Men's World Curling Championship 2016 Basel / Switzerland (top)
- ▶ ICEGRID® Pavlodar / Kazakhstan (buttom)

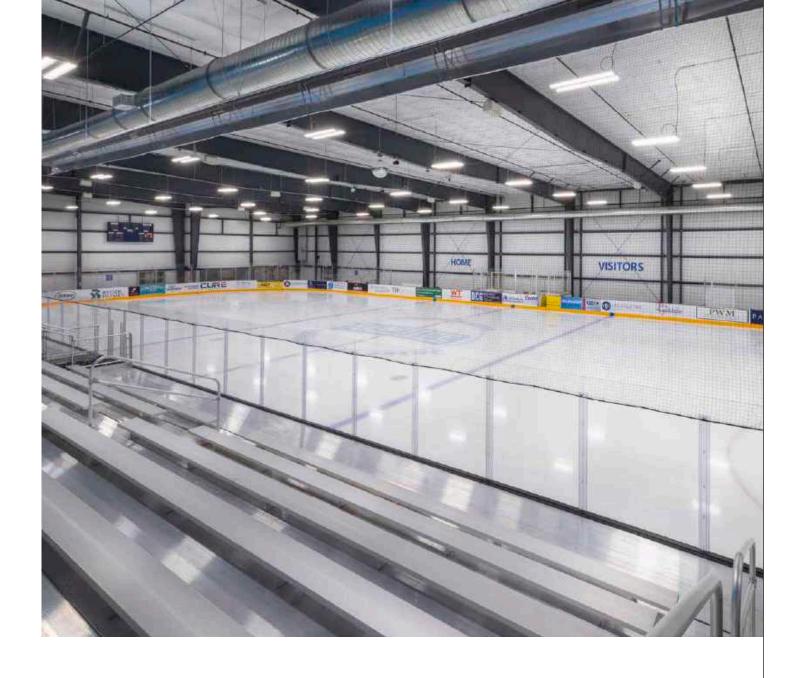
Advantages:

- ▶ With changing ice sports, the required temperature change can be regulated quickly and efficiently.
- ▶ The specially ribbed surface of the fluid channels allows for the generation of more than 300 percent more surface ice compared to smooth tubes for ideal energy exchange.
- ▶ The flexibility of the fluid channels makes it possible to create any desired geometric shape.
- ► ICEGRID® rinks have a stopcock on each pipe. This feature allows the field size or the numbers of sheets for curling to be flexibly designed at any time.
- ▶ Smart connections eliminate the need for tools during installation and deinstallation.
- ▶ The white fluid channels and honeycomb web elements of ICEGRID® Classic* significantly reduce the need for costly JetIce, ice mesh, fleece and dyeing components.
- ▶ The unique honeycomb system creates a surface capable of supporting a 30-ton truck, ensuring optimal protection for the fluid channels against mechanical damage.
- ▶ The structure of the honeycomb web elements generates many small cold chambers, which freeze optimally.

- ▶ For special ice surfaces, the manifolds can also be frozen in the butterfly system in the ice surface, thus avoiding extensive structural measures as well as considerably lowering costs.
- Our ICEGRID® rink system is a perfect "all-rounder" and offers optimal conditions for all ice sports such as ice hockey, curling, figure skating and speed skating.
- ▶ ICEGRID® guarentees the most uniform ice temperature of all ice rink systems.
- ▶ In addition to ICEGRID® Classic with plastic piping, ISS also offers the ICEGRID® Plus+ upgrade with stainless steel tubing. This variant offers a long service life and minimal operating costs – an upgrade that pays off in economic terms quickly.
- ► Constant stream in the liquid flow ensures maximum temperature efficiency.
- Minimal pressure loss.
- ▶ The headers can be installed cost-favorably on the short side of the ice.
- ▶ TÜV-certified for highest product safety and quality.

lce sports professionals such as the German Hockey Federation, DEL2 German Hockey League, USA Curling, World Curling Tour, Löwen Frankfurt and Adler Kitzbühel rely as partners on the innovative technology, the outstanding quality and intensive advice from ISS.

^{*} Only zero carbon footprint arena ice rink system product







- ICEGRID® Reno / USA (up)
- ICEGRID® Lodz / Poland (left)

- ICEGRID® Denver / USA (up)
- ICEGRID® Limassol / Cyprus (right)

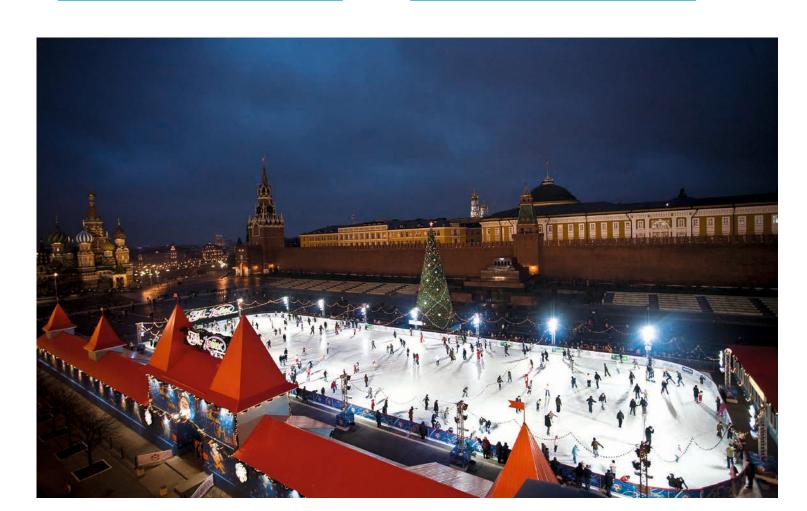






ICEGRID® Cool Venus Arena Cambridge / United Kingdom

ICEGRID® Split Level Ice Rink Doncaster / United Kingdom





- ICEGRID® Hockey and Multipurpose Arena Riyadh / Saudi Arabia (right)
- ICEGRID® Olympic Park Brno / Czech Republik



ICEGRID® MULTICOURT

Multifunctional Use in Every Season!



With the specially developed MULTICOURT® upgrade, cost-intensive conversion measures between winter and summer use can be avoided. Depending on your choice, a special artificial turf or a multipurpose Multifloor is integrated into the artificial ice rink. One sports facility, many functions – for example tennis, soccer, volleyball or inline hockey in summer and various ice sports in winter. Especially for urban areas, this model is inexpensive, costly refurbishment between summer and winter use unnecessary.



▶ ICEGRID® MULTICOURT Oberwiesenthal / Germany





ICEGRID® MULTICOURT Kostelec / Czech Republik

ICE LANDSCAPES

Ice is Our Passion





Messe Frankfurt / Germany (up)



Ice is Our Passion. And in Every Shape!

In addition to the various ice rink modules, we also produce complex ice landscapes such as glacier simulations, ice towers, ice walls, ice tunnels, ice slides or even artistic work – whether mobile or permanent, whether for rental or purchase. We find solutions for every setting and implement your ideas in a professional and innovative manner.













Museum of Modern Art Frankfurt / Germany

We Take Pride in Being a Certified Carbon Neutral Company

With nearly five decades of history, our company has recently integrated sustainability into our business strategy to proactively address major global trends, and in particular climate change, that profoundly impact our lives and industry. Our 100% Carbon Neutral Commitment is one way we're working to mitigate the unsustainable demand for energy resources and its environmental repercussions. Being a family business, we recognize that our legacy extends far beyond the next few years. By prioritizing long-term value creation and fostering positive societal impact within our industry, we're building a legacy for generations to come. However, like many other companies striving to do what's right, we initially grappled with how to align our strategic vision for sustainability with meaningful operational changes. I believe it's safe to say that we've made significant progress in this regard.

ISS Ice, Sports & Solar GmbH Supporting the Following Climate Protection Projects

The Zorlu 56.4 MW Wind Farm Project in Pakistan will contribute to local sustainable development in the project area by having the following effects:

Economic development

Pakistan is currently facing acute energy supply bottlenecks. The project is expected to generate an estimated 159,010 MWh per year and will therefore contribute to a reduction in the number of black-outs and brown-outs experienced by other Pakistani grid users. This can help to improve the economic performance of other businesses connected to the grid and supports economic growth in Pakistan.

Social development

The project will offer job opportunities for local people during the construction phase and the operational period, thus creating income opportunities and contributing to a higher living standard in the region.

Environmental development

By avoiding air pollution from fossil-fuel power plants and reducing greenhouse gas emissions significantly, the project has positive effects for the local environment and improves Pakistan's climate footprint.

Technological development

The project is the first of its kind in Pakistan. By adopting foreign manufacturer wind turbines, the project initiates an important transfer of technical know-how to Pakistan, and can act as a pioneer in promoting the spread of this technology to other wind power projects in this country.

Category: Carbon
Standard: Gold Standard 3946



ISS Ice, Sports & Solar GmbH is therefore a voluntary participant in emissions trading, and thus makes a contribution to maintaining a viable environment by reducing the emissions of greenhouse gases. The holder of this certificate makes a sustainable contribution to the commitment to tackle global warming.

DIPL.-ING. FRANK HUSCHKA

Renewable Energy from Biomass, UPPPL, India Andhra Pradesh

Addressing Methane Emissions and Promoting a Sustainable Use of Resources in Rural Farms

Fueled by poultry litter, this innovative project feeds renewable electricity back to the grid. This displaces electricity from thermal power plants in the Andhra Pradesh region, reducing emissions and supporting the expansion of the renewable energy industry. As the poultry litter is collected rather than left to decay in open fields, odor and sanitation are improved for the local villages, while job opportunities provided by the plant help boost the economy.

The Project

The project involves installing a 7.5 MW capacity generator to burn poultry and biomass waste, including litter and rice husks, that are collected from local farms. Besides the small internal consumption, the energy is exported to the grid.

The Benefits

By feeding into the grid, the project displaces electricity generated from fossil fuels, thus avoiding the associated emissions. In addition, it helps to avoid the methane emissions arising from poultry waste being disposed of in anaerobic lagoons in the surrounding fields. This improves the environment, in terms of sanitation and odor for the nearby villages and resulting in better health and living conditions. The project also creates a number of job opportunities, a share of which goes to the local communities, boosting the regional economy, while training provides staff with skills that could help other renewable energy projects flourish.





VEPE-ICEPRO BOARD SYSTEM

Safety Meets Design



When we aren't developing products in-house, we collaborate with the top global companies. We seek partners who share our approach. Vepe-Icepro Ltd, headquartered in Finland with locations in Tuusula and Oulainen, is recognized as best in class, supplying ice hockey dasher boards for the Olympics and the World Championships. Their offerings range from training rinks to world-class multipurpose arenas, and they have been in operation since 1976, accumulating an impressive 47 years of experience.

Ice Hockey Dasher Board Systems

Ice hockey dasher boards for a training rink or for a world-class multipurpose arena. Safety comes first - the design and development of Vepe-Icepro

boards is based on modern, flexible dasher board that is high-quality, user-friendly and always safe for players and other users.

Dasher Board Systems for the Top Arenas

Light and durable flexible rinks designed for large multipurpose arenas where international ice hockey is played and other major events are organized.

- Quick dismantling and re-assembly
- ▶ Flexible cap rail suppresses impacts to head and upper body.

The premium product, Nextgen LED 360° is fully covered with LED panels which gives you great options for entertaining the fans and boosting your revenues. Nextgen LED boards set the new standard for modern multipurpose arenas, leading the way into the future.

Dasher Boards for Training Rinks

Cost-effectively designed dasher board, aiming to minimize material waste in the dasher board system.

- ▶ Cost-efficient
- ▶ Simple, but high quality

Flexible Dasher Boards for International Arenas

A flexible dasher board system equipped with a supported shielding system for top-level arenas. The frame structure was developed to be strong, light and flexible with a profile system. Option for quick fastening system.

- ▶ For professional hockey
- ▶ Soft cap rail of the boards is made of flexible material.

Dasher Boards for Outdoor Rinks

Engineered to resist changing weather conditions and the harshest winters.

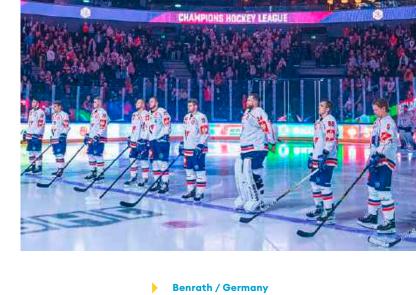
- ▶ Suitable for multipurpose use
- Option for lower dasher boards



Nokia Arena Tampere / Finland (up, right)







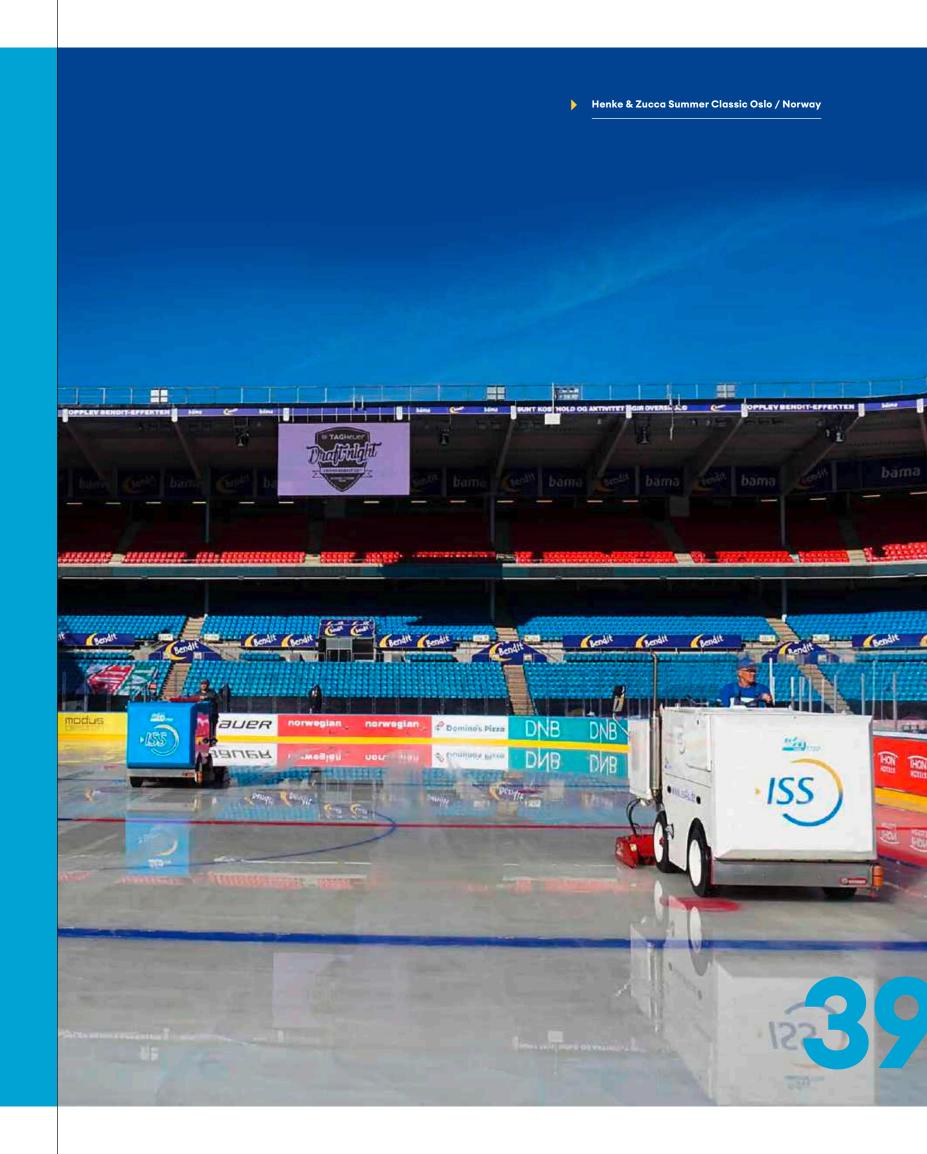
Reno / USA





ICE MAINTENANCE

Professional Equipment for Optimal Use





Gerbermühle Frankfurt / Germany

We provide top-notch ice resurfacing machines suitable for all types of ice rinks. Partnering with WM, we take pride in offering sustainable ice resurfacing products. Whether you're dealing with a 300 m² or a sprawling 10,000 m² ice surface, our range caters to all. For smaller rinks where using a self-propelled ice resurfacer may not be feasible due to space or cost constraints, we highly recommend our reliable, self-developed ICE MELTER thermo surface smoother, proudly manufactured in Germany. Hence, we have the perfect solution for every requirement and budget!

Ice Melting

Ice Melter

Thermo Ice-Surface Smoother

The straightforward solution for compact ice rinks and curling facilities! Many renters of ice rinks and operators of smaller venues face challenges in ice maintenance. Traditional machines or even smaller ice resurfacers like the WM Pinguino may not always be suitable for the task. This could be due to various factors, such as their turning radius or the lack of adequate parking space. Additionally, the relatively high acquisition costs can outweigh the size of the ice rink.

Advantages

- Low purchase costs compared to standard ice resurfacers
- ▶ Very low operating and service costs
- No water consumption for ice preparation the ice on the surface is only thawed again and again
- ▶ Easy to operate by one person
- ► Immediately perfect ice again after the ice surface has been cleared of ice abrasion with an "Ice Scraper"
- ► Fits with a maximum outer width of 983 mm through each 1 m door element

Technical Data

- ▶ Heating capacity: approx. 200 kW
- Gas type: propane gas
- ► Gas supply: liquid offtake (fl.)
- ▶ Gas consumption: approx. 8-10 kg / hr.
- ▶ Ignition: piezo igniter
- ▶ Working width: 983 mm

Ice Rink Resurfacing

WM

Innovation & Quality

WM ice technics' new developments have always made people stand up and take notice: The first sloping snow tank, the integrated edger, the automatic mode, the self-driving Mammoth Autopilot. Their courage in innovation has a clear goal. Every time they optimize they enhance the user-friendliness and efficiency of their machinery and identify the challenges of the future, providing us with a solution today.

All-round Quality

WM ice technics develop and manufacture ice resurfacing vehicles which meet all requirements in terms of efficiency, reliability, durability and user-friendliness. Their series-manufacturing processes and in-house production ensure complete traceability of every step in production and all components. Every member of their staff has

specialized skills, and carries out all work assiduously and conscientiously. They constantly work on optimizations: for their machinery, for their customers and for their employees. And this is how they guarantee us the very best quality, all-round.

Awareness and Sustainability

WM ice technics' ice resurfacing vehicles are in use for a long time. And that's the way it should be. From the design stage onwards, they place great importance on durability, and are mindful of operating and maintenance costs. They pay attention to energy-efficiency, low consumption and high economic efficiency – and never compromise on the outstanding performance of their vehicles. The maintenance-free electric motors in their Electric Models feature outstandingly low pollutant emissions and efficient energy consumption through the innovative Fronius battery charging system.



Arena die Verona / Italy



WM Mammoth

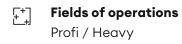
The Stadium Pro

When it comes to flawless resurfacing of stadium rinks, the WM Mammoth has it all: High-performance, maintenance-free AC motors, large snow and water tank capacity and a quick blade-change system. With its compact build, the machine has an extremely tight turn radius, which means that the ice can be resurfaced quickly, efficiently and without overlaps. Technically sophisticated, user-friendly and with numerous extras: WM Mammoth is the champion in the professional ice resurfacing of rinks up to 1,800 m².

Leisurely Driving Experience with Optimal Visibility

The WM Mammoth guarantees outstanding comfort for the driver and boasts a full, unobstructed view whether you're driving cabin-free or with all-round glazing. Three steps provide easy entry to the vehicle. All important functions are joystick-controlled, and with the simple press of a button the automatic mode begins all work operations in a pre-defined order. All the important information is clearly visible at a glance on the colour display, and the height-adjustable Grammer suspension seat provides outstanding comfort.

*	Snow tank volume 3 m³ / compacted 3.7 m³	
\$ 	Water tank volume 1,000 or 1,350	+ Snow tank-water tank connection 2,000 or 2,350
HELL	Blade width 2,100 mm or 2,300 mm	Blade change 60 seconds





WM Shira

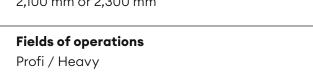
Stadium Efficiency

Powerful drive with electric engines together with a large snow and water tank capacity: The WM Shira has been purpose-designed for resurfacing stadiums. It boasts a highly impressive price/quality ratio and, on request, can be fitted with countless extras. WM Shira: The perfect partner for professional resurfacing of ice surfaces of up to 1,800 m².

Everything Under Control in The Driver's Cab

The WM Shira guarantees outstanding comfort for the driver and boasts a full, unobstructed view whether you're driving cabin-free or with all-round glazing. Three steps provide easy entry to the vehicle. All the important information is clearly visible at a glance on the high-definition colour display, and all the main functions are keyboard-controlled. With the simple press of a button the automatic mode begins all work operations in a pre-defined order.

*	Snow tank volume 3 m ³ / compacted 3.7 m ³	3
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Water tank volume 1,000 or 1,350	+ Snow tank-water tank connection 2,000 or 2,350
Heren	Blade width 2,100 mm or 2,300 mm	





WM Compact

The Champion for Your Event

Whether it's a sporting event or ice skating at the Christmas market: The WM Compact is the compact professional ice resurfacer of choice for smaller ice rinks and large mobile ice rinks. Fitted with a powerful diesel engine drive, it is suitable for use outdoors, while the electric model with emission-free AC motor is suitable for indoor use. The WM Compact resurfaces ice as well as any large professional machine, guaranteeing outstanding ice quality on smaller areas of up to 1,200 m².

Professional Quality Ice Resurfacing

The robust WM Compact is easy to operate and provides outstanding comfort for the driver. With its tried-and-tested planing system, snow-breaker and integrated side brushes, the WM Compact guarantees perfect, professional ice resurfacing. The result? Outstanding ice even on smaller, mobile ice rink surfaces, and skating at its absolute best!



Snow tank volume

 $1.8 \,\mathrm{m}^3$ / compacted $2.25 \,\mathrm{m}^3$



Water tank volume

600 I



Blade width

1,700 mm



Fields of operations

Mobile / Event



WM Pinguino

Perfect for Your Event

Sporting events, ice skating at the Christmas market, in the town square or in front of your family hotel: Mobile ice rinks are the up-and-coming trend. Cleaning and caring for smaller ice surfaces is a breeze with the compact WM Pinguino: Perfect ice quality, and great fun guaranteed!

The Driver Sits Up Front

Hop on and zoom off! The driver sits up front on the WM Pinguino, just like in a normal car. This makes work operations considerably easier, even for inexperienced users. The frontal seating position guarantees you a clear, all-round view and makes manoeuvring extremely simple. That means enhanced safety for people, the vehicle and the venue.



340 I

Snow tank volume

1 m³ / compacted 1.25 m³



Water tank volume

Ŕ

Blade width 1.400 mm



Fields of operations

Mobile / Event

ICERINK ACCESSORIES

For Hire and Sale



Whether to buy or to rent: With our many years of experience in the field of ice rinks and in leisure and sports facilities, we have been able to establish close and intensive relationships with various quality manufacturers in the ice rink industry over the years. This has resulted in joint product developments to ensure the best-possible accessories for our rinks and sports facilities, as well as an extensive portfolio of pre-sorted products. We exclusively distribute the best materials, mostly "Made in Germany". We offer a "one-stop service" so that our customers can benefit from our expertise and get everything - be it a rink, dasher board, cleaning machine, accessories etc. - all from one source. Customer satisfaction and "Products of Excellence" are our top priority!





Ice Rink Divider

With our ice rink divider we offer the perfect all-rounder. Developed for professional sports to provide better training conditions and field divisions such as barriers, it can also be used wonderfully in the bambini and junior area. In addition, the ice field partitions can also be beautifully used in the recreational and rental ice rink area. Whether during the day to close off an area only for small children or in the evening for ice stick shooting. The flexibility of our system allows an infinite number of applications:

- ▶ High-quality finish
- ► Standard element: L 2,500 mm x W 200 mm x H 200 mm
- Other elements: L 1,000 mm x W 200 mm x H 200 mm and L 500 mm x W 200 mm x H 200 mm
- Specially designed for low temperatures and high humidity applications
- ▶ Flexible foam filling
- Triangular end and corner pieces for full flexibility and stability in construction
- ▶ Also available as complete set with trolley
- ▶ ISS standard blue version with ISS branding and short delivery time
- Available as upgrade on request in many colors and with own logos

Flooring

Mabomat mat and complementary fire-retardant puzzle system, a mat for the ice machine area and a floor covering for gluing as a durable premium solution.

STANDARD Rubber Mat

Where slip resistance and sound absorption are the focus, these wear-resistant rubber mats are the right floor.

- Puzzle connection allows half paving (recommended) and combined longitudinal or transversal laying
- Floating floor fitting in a quarter, half or three-quarters bond, also in longitudinal or transversal combinations
- Full-surface bonding with 2-component glue or PU glue in wet rooms

STANDARD PLUS+ Rubber Mat

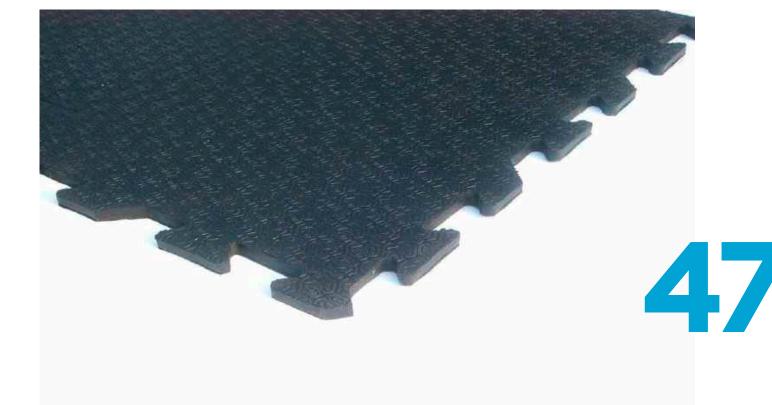
The special rubber compound makes this rubber mat the ideal solution for highly exposed surfaces.

- Puzzle connection in full thickness of 20 mm, which prevents yielding in the edge region (requirement for even surface and lasting connection) and dirt from penetrating
- ► Floating floor fitting in a quarter, half or onesixth bond

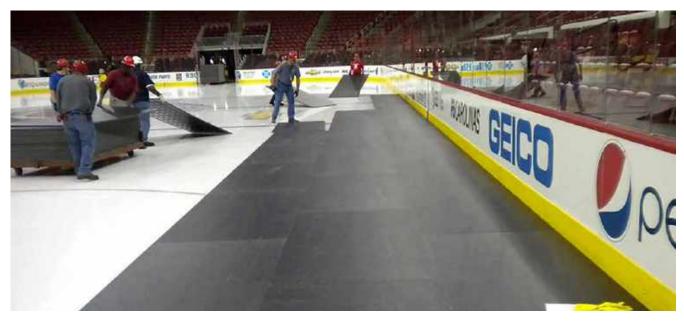
SPECIALRubber Mat

These wear-resistant rubber mats are the right solution when it comes to heavily frequented surfaces.

- Puzzle connection allows half paving (recommended) and combined longitudinal or transversal laying
- Full-surface bonding with 2-component glue or PU glue in wet rooms







Ice Covering for Ice Rinks and Ice Stadiums

With an ice cover every rink can be transformed into a multifunctional arena in a very short space of time. After installation, every ice rink can immediately be used for various events such as fairs or concerts thanks to the completely isolated surface. With an additional resilient padding even sports events such as handball or basketball matches are possible.

- ▶ The surface of the dark gray plates has an elephant skin-like structure that meets the requirements of the anti-slip class R9
- ▶ The patented waffle back texture ensures excellent isolation, lowering energy costs and preventing the plates freezing on the ice

▶ The ice cover meets the requirements for fire protection class B1 and DIN EN 13501-1 classification C-s1 and can safely be used for all kinds of events

Standard Ice cover

- ▶ Service life: 2-3 events per year
- ▶ Dimensions: 2446 x 1226 x 16 mm
- ▶ Weight: app. 14 kg

Standard Plus+ ice cover

- ▶ Service life: 6-7 events per year
- Dimensions: 2446 x 1226 x 25 mm
- ▶ Weight: app. 24 kg

PROSHARP grinding machines

PROSHARP skate sharpening machines are made in Njurunda, central Sweden. They delivered their first machines in 1984 and 39 years later they are still serving skaters. This has only been possible thanks to their dedication to quality, from components to service, and a genuine interest in research and development. At PROSHARP they listen, learn and lead. PROSHARP works with skate manufacturers, ergonomy experts, skating instructors and equipment managers, as well as players. They want to educate the market and they welcome customer input. Just like every skater, regardless of skill, style or sport, they work hard to improve.



Ice Skates

We offer the entire range of ice skates. Whether skates for ice hockey, for figure skating or special rental skates with the best possible cost-benefit factor. Let us advise you and we will identify your needs, thus providing the best possible offer based on your requirements!

ROXA ice skates

ROXA is one of the leading brands in the ski boot sector and one of the most in-demand in the field of ice skates and inline skates. This has been possible thanks to extensive experience, a passion for work, continuous aspiration to improvement and the excellent collaboration with the multiple world champion Marc Girardelli. Especially in the rental sector, we were also able to incorporate our experience time and again, and we can see how the products are adapting more and more to the needs of the distributors as well as to the needs of users. Today, these products are famous all over the world for the good ratio between quality and price.

SSM Grinding Machines

The skate sharpening machine SSM-2 has its origin in the late 1960s, when it was constructed by Rune Gustavsson. He was approached by representatives of a local ice hockey team dissatisfied with the skate sharpening equipment available on the market at that time. They wanted Gustavsson to develop a brand new design. The rest is history. The product range has grown over the years and by now they provide a complete solution for sharpening skates. They always strive to make their machines the best available. So year after year they modify their current product line to get them near perfection.



Refrigeration Technology

As a certified specialist company, ISS is your partner in all matters relating to refrigeration technology and air handlers. Over the years, the family business has developed from a service and specialized company into a manufacturer that covers almost every field of refrigeration, air handling and heating technology.

With our in-house developments, projects but also supply top addresses in air-conditioning and refrigeration plant rental: chillers, air handlers and heaters are also part of the ISS portfolio. In addition to the standard product range, ISS also develops special products for individual needs.

Range of services

- Planning and development of air handling and refrigeration systems
- ▶ Installation of refrigeration systems
- ▶ Rental of air-cooled chillers
- Custom-made air handler and refrigeration systems
- ▶ Service & Maintenance
- Commissioning
- Certifications

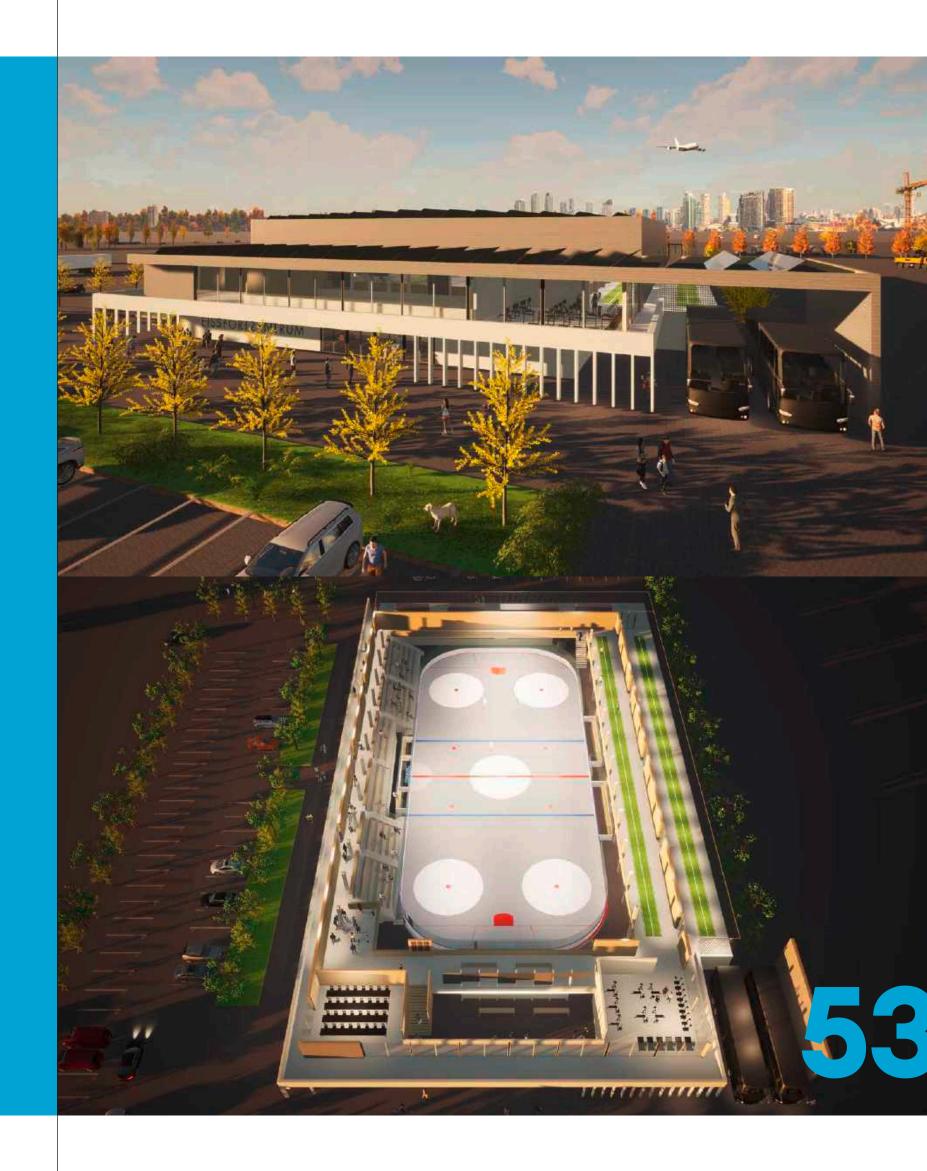








THE ICE HALL FOR EVERYONE!



The DEB Facility Pool, comprising of ISS GmbH and HUDSON GmbH with support from SCHLENKER ARCHITEKTEN, aims to launch a prototype with its project "The Hall for Everyone" that is set to evolve into a "Reference Ice Sports Center" in the coming years.

Over 20 years ago, in Germany there was a massive maintenance backlog for most municipal ice surfaces, halls, and ice stadiums, as many facilities had been operating for 30 to 40 years without maintenance and renovation plans. Existing ice surfaces were often supplemented with various functional spaces or coverings, often disregarding the laws of building physics. Due to the lack of ventilation systems, structural components have been so affected that the statics of the supporting structures are partially heavily damaged. Renewals of technical systems were limited to the absolute minimum for cost reasons, leaving the facilities from an energy perspective at the level of a 1970s vintage car.

From Extinction to New Beginning

Due to high costs, ice rinks operating on subsidies often compete with outdoor and indoor swimming pools. Unlike those adapted to the needs of users as recreational facilities with slides and spa offerings, visitors to public ice rinks often skate in damp, cold, and dark halls. Said Hakim, CEO of ISS GmbH, laments: "Municipalities increasingly manage to evade their municipal responsibility, shifting the responsibility to clubs, citing the high costs of construction and maintenance. Knowing that this often means the gradual end of the ice location due to a lack of financial resources."

"In recent years, many clubs, municipalities, operators, and investors have approached us, facing the looming closure of halls or a lack of training opportunities," reports Robert Weinberg,

CEO of HUDSON GmbH. "The needs and their financial impacts are very diverse and often conflicting. The reference project of the DEB Facility Pool should therefore serve as an exemplary benchmark for orientation."

At the outset is a sustainable, modern, and preferably timeless architectural concept, predominantly in wood construction. The spatial structure and functional areas have been divided into separate areas, categorized based on a "staircase model" planned by Schlenker Architects and exemplified for the project. For instance, the "Youth" staircase is aligned with the DEB's star program, ranging from one to five stars, with the highest level always being the NHL standard. In the reference project, four to five stars were defined, with a reference to the possible need for a second ice surface.

The solution: The individual staircase model

Said Hakim: "Thus, our reference project is based on an easily comprehensible and exemplary spatial concept. Our staircase model for setting standards serves as a basis for defining the individual spatial concept of a new construction or renovation. We chose it because it very simply demonstrates that increasing requirements also mean increasing costs. In the energy sector and in the materials of the hall, CO2 neutrality and maximum sustainability are the highest level. We want to develop a tool which, together with our experience, leads to a 'Hall for Everyone'. In this regard we are also in intensive dialog with competent partners from many areas relevant to ice rinks, consciously trying to look beyond our own borders and national boundaries to find new approaches. Energy and sustainability are particularly close to our hearts. Because it is precisely here that the future standards set by our reference project will play a particularly important role. And that's exactly where we want to start."

Reducing Costs Thanks to Grants

Based on the aforementioned expertise - namely, ice rink and LED experts with knowledge of grants from many implemented projects - both companies, together with the DEB, have founded the Facility Pool to make their knowledge available to the affected clubs and municipalities. However, there is no one-size-fits-all solution. In each case, the ownership and operating situations have to be examined to determine the best possible support for the location. At the same time, the ice rink experts also try to achieve the optimization of operating costs, as these costs constantly impact the economic result and thus the continued existence of the ice surface over its lifespan. This is where the approach lies in the ice rink system, refrigeration technology, and in the combination of different energy reservoirs that occur in an ice stadium. For example, increased external insulation, leading to minimized cooling power, must correlate with higher ventilation and dehumidification capacity. Robert Weinberg: "The real task lies in planning a sports facility that uses opposing forms of energy in an economical and ecologically compatible manner, especially in times of rising energy prices. All of this is decided at the beginning of a project, and in the step-by-step model, it involves annual operating times, one or two ice surfaces, or the energy network with other 'energy destroyers'."

"After two bitter years marked by the Corona lockdown and 'ghost games', spectator numbers have steadily increased in recent months. We have witnessed exciting championship decisions in all leagues and were able to enjoy the great performance of our national team at the World Championships in Finland.

To sustainably secure this positive development, significant efforts will be needed in the near future, especially in the area of sports infrastructure. The construction and maintenance of suitable training areas such as smaller ice stadiums will therefore be a focus of our work in the coming years. It is clear to us that as a small elite sports association with limited resources, we cannot consider the construction, operation, and maintenance of ice stadiums as our core competence or main task. This makes it all the more important that the

DEB succeeded in pooling the long-standing experience and current expertise of absolute world leaders in the field of ice facility construction and LED technology within the DEB Facility Pool years ago.

We are very pleased to be able to continue this successful collaboration with ISS GmbH and Hudson GmbH. Together, we want to support clubs, municipalities, and cities in the planning and realization of new ice rinks, thus contributing to providing the many enthusiastic ice hockey players in Germany with sustainably better conditions for playing ice hockey."

DR. PETER MERTEN - PRESIDENT OF THE DEB

SUNSHINE-ECO®

and MITRA Solar Absorber



Why Solar Absorbers?

Solar absorbers are the most economical and at the same time most effective way of using solar energy. In most cases, an indoor or outdoor pool can be heated cleanly and environmentally friendly. Benefit from the advantages of solar pool heating. Save not only a lot of money, but also make a valuable contribution to the protection of our environment. ISS has nearly 50 years of expertise in the development and construction of solar absorbers and is the originator of professional solar pool heating in Europe. The company attaches particular importance to engineering "Made in Germany", excellent quality has the highest priority.

How Big Should the Absorber Surface Be?

The required size of the absorber surface initially depends on the available water surface and the desired water temperature. Under certain circumstances, this can also be influenced by the orientation of the assembly station.

Absorber Surface for Outdoor Pools

With a desired water temperature of about 26° C in summer and of about 22 to 24° C in May and September, an absorber surface with a size of about 80 percent of the water surface is recommended. The solar absorber can also be increased up to 120 percent if, for example, in the transitional period warmer water is desired and sufficient space is available. The rule of thumb is absorber surface = water surface! The minimum absorber area should be 40 percent of the water surface. If the pool is covered regularly, the solar absorber can generally be reduced by about 30 percent.

Absorber Surface for Indoor Pools

For water temperatures up to 26° C in summer, a solar absorber with an area in the ratio of 80 percent to the water surface is sufficient, but for 28° C you should choose 100 percent, and for 30° C as much as 120 percent absorber surface per m² of water surface. If the pool is covered, the entire heating of the hall can be waived from April to October. The water temperature fluctuates between about 24° C and 32° C.

SUNSHINE-ECO®

Sustainable Heating Alternative for Ultimate Bathing Fun!



The SUNSHINE-ECO® finned tube solar absorber for pool heating is absolutely environmentally friendly and at the same time much cheaper than conventional heating systems. With the powerful finned tube solar absorber, you can heat your swimming pool with the sun for free! SUNSHINE-ECO® is cheap, effective and frost-proof! The product is ideal for self-assembly - the solar heating can be assembled and installed easily by yourself. The solar absorber consists of a few components whose assembly is almost self-explanatory. The integration into the existing pool filter system is also designed to ensure the simplest possible workflow with flexible tubes and connections.

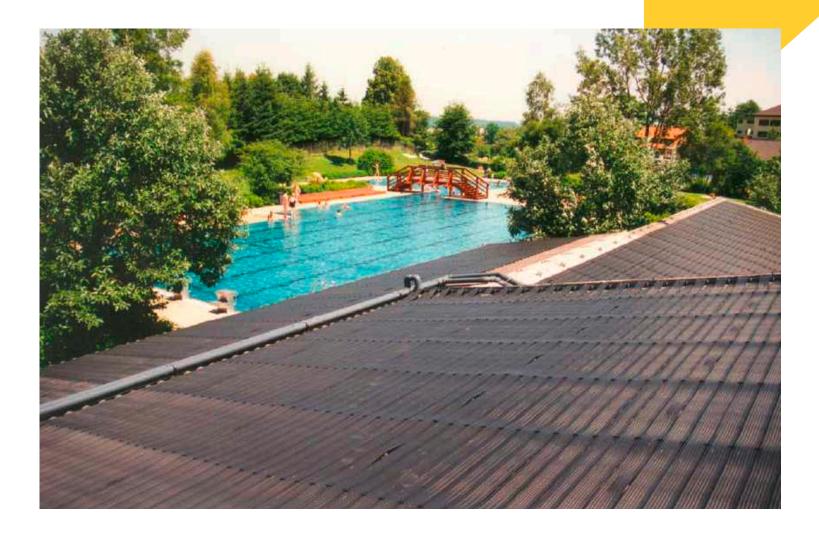
The absorber surface can be individually selected in a width and length grid of 10 cm

each. Due to the large diameter of the pipes, the lowest possible pressure loss is achieved with excellent heating cable. Rusting metal parts on the absorber are completely dispensed with within the SUNSHINE-ECO®. The material is recyclable, rainwater runs off perfectly, the wind load and also the weight are low (10 kg per m² with water filling).

The SUNSHINE ECO® solar absorber is suitable for flat or pitched roofs as well as for wall mounting. It has an operating pressure resistance of two bar and a swimming pool chemical resistance to chlorine, algicide, PH sinker and salt. The product is temperature resistant between minus 40° C and plus 130° C, which means that winter degradation can be ruled out. The investment pays off after two or three seasons of bathing.

MITRA SOLAR ABSORBER

Best in Class with a Long Service Life!



The MITRA solar absorber is a product of the highest standard, which was chosen by the renowned Institute for Solar Energy Research (ISFH) as the test winner with an efficiency of 91.8 percent in a unique absorber comparison test.

The Institute for Solar Energy Research (ISFH) and IST EnergiePlan GmbH as its cooperation partner carried out extensive tests and measurements on eight different unglazed solar collectors on behalf of the

German Environmental Foundation (DBU) over a period of two years and six months. The focus of this test was the determination of the wind-dependent efficiency curve. ISS MITRA stood out in the reliability test with its high performance and the positive experiences with this technology over many years. A great deal of development work and engineering expertise has gone into the original MITRA system, making it much more convincing than inferior copies. Our solar absorber has an efficiency of 91.8 percent!

Maximum Energy Consumption

Even when the sun is low, the arrangement of the fluid channels prevents an energy-reducing shadow on the neighboring tube. The solar radiation can thus be taken directly from the absorber tube regardless of the respective angle of incidence.

Modular Construction

No roof is the same. That is why ISS does not have any standard or special sizes. Within our size grid every size and shape can be realized, individually pre-assembled according to your wishes. Thanks to the modules and plug-in collecting tubes, there is no space between the absorber fields. For MITRA solar absorbers 20 m² occupied area is also 20 m² used area.

Short Piping and Aesthetics

The piping (inlet and outlet) of the absorber on just one side always ensures the shortest route to the filter system. The advantage: No additional pipes on the roof. This saves costs and offers more beautiful aesthetics. The straight end on the reverse side of the water is visually appealing, easy to fasten and inconspicuous compared to end loops.

Optimal Attachment

The attachment of the absorber with MITRA mat holders including expansion arch allows a quick disassembly of the solar absorber when necessary. Thanks to the mat holder system, the absorbers can be easily, conveniently and securely fastened to any kind of inclined roof. Even brick overhangs perfectly balance the mat holders. If roof renovations are necessary (brick replacement, flat roof sealing, etc.), the absorber can be dismantled in no time. Neither the absorber nor the roof skin is injured.

Functional Reliability for Many Years

The solar absorber and the manifolds are pressure-locked together, which completely eliminates corrosive metal parts or difficult-to-repair adhesive joints. The tightness is, however, guaranteed at all times, even in the case of expansion variations of the material due to temperature changes – material fatigue can be ruled out.

"I use - not least for scientific reasons – a MITRA solar system for swimming pool heating and I am very pleased with the extension of the bathing season by many weeks, the ease of use and the operation of the electronic control system. The integration of the system in my swimming pool was very easy. This also applies to all measures in the autumn for wintering and recommissioning in the spring. I can highly recommend a MITRA solar system for swimming pool heating from ISS for these reasons and especially because of the possibility of saving fossil fuels."

PROF. DR. ING. THOMAS HARTKOPF - TECHNICAL UNIVERSITY DARMSTADT

The Advantages:

- Direct flow no heat exchanger
- Food grade
- UV and ozone resistant
- Resistant to swimming pool chemicals in usual concentration
- Weatherproof
- ► Temperature resistant from minus 50°C to plus 150°C



PARTNERS

As part of the constant development of our products and services an ongoing dialog with the sport is necessary for us. Long-standing ice technology partnerships with USA Curling, the German Ice Hockey Federation, the World Curling Tour, the DEL2 Ice Hockey League and the professional ice hockey teams Löwen Frankfurt and Adler Kitzbühel help us to understand what is needed and to find the right solution.







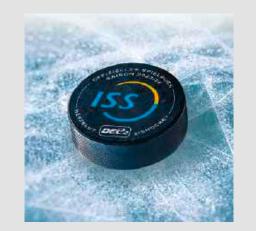








"ISS supplies us with its patented ICEGRID® technology for some tournaments on our tour calendar and is the only World Curling Tour approved and recommended ice pad system on the market current. ISS provides a world class product that is of the best quality and we trust in his service and execution for any event they are involved in."



ARMIN HARDER - WORLD CURLING TOUR











"The cooperation wih ISS GmbH and Mr. Said Hakim has always been excellent. The products are highly regarded by us the federation an by the German ice hockey community as well. In particular, ISS GmbH delivered high-quality solutions for ice rinks, both indoor and outdoor events."

MARIO HILBLE - GERMAN ICE HOCKEY FEDERATION



We Are a Family Business. Commitment, Trust, Quality "Made in Germany"



Interview with Said Hakim, CEO ISS GmbH

What sets ISS GmbH apart from other companies?

Said Hakim: We are a family business. Commitment, trust, quality "Made in Germany" and homogeneous growth are enormously important to us. Producing bulk goods is easy. We want to continuously deliver the quality ISS is renowned for and introduce honest products to the market. All corporate planning is long-term, including our workforce, supply chain, production sites, and so on. As a result, we have little fluctuation or loss of quality and in-house expertise, which also benefits our customers. We are and will continue to be the best in class in our industry.

What is your vision?

What my father initiated in a revolutionary way in the area of solar absorbers in the 70s and ice rinks in the 80s, I would like to pursue consistently. My father was the innovative inventor, I am the strategist. My team and I will further intensify our connections to top sports associations and clubs. Accordingly, we are constantly developing our products and adapting them to market conditions and professional needs. We also want to be the first port of call for quality rinks in the future.

Do you conduct continuous customer satisfaction surveys?

The top athletes and ice technicians come to us. For example, when we do the ice show tours in Asia, which are attended by most of the Olympic and World Champions or a

Cirque du Soleil ice show tour for nearly a year where time for installation and disassembling is crucial, we often hear that our rinks provide the best mobile ice they have ever performed on. With the Hockey Outdoor Summer Game and a temperature of 32 degrees outside, many players said without prompting that the ice was better than in some professional ice rink stadiums. What a compliment at these demanding temperatures! And in the world of curling we made a name for ourselves by supplying the ice for both the World Championships and the Olympics, as well as for many first-class facilities all around the world, so that many of the well known as local ice technicians recommend us to other clubs and federations. As these are the guys who really know how big a difference the quality of the ice can make to performance, this really makes us proud of course.

Could you imagine working in a different industry?

Honestly not. Already as a little boy I distributed leaflets at trade fairs. I remember sitting in the next room at the tender age of seven or eight when my dad signed contracts with mayors for large-scale solar absorber systems and I drew designs for those. During the holidays, I entered addresses or helped in the warehouse. I then studied business administration, worked as a sales manager for a large computer corporation alongside other companies. Coming from a family business and being raised in that environment it was important to grow in other

"In the ice rink and solar segment of the last 50 years, every significant innovation has been developed by us!"

SAID HAKIM

businesses to be able to reflect on our own company. However, it was always clear to me that I wanted to follow in the footsteps of my father, even if not as an engineer. We are both visionaries.

What are your expectations for the next vears?

For us, it is important to combine tradition and the future. Employee development plays a key role. We have developed a generation model in which experienced colleagues act as mentors to young employees to ensure the transfer of knowledge. It is not only the motivation and loyalty that distinguishes us from other companies, but also the dedication and contribution of our team. Whether you are an engineer, marketing manager, sales assistant or a worker - everyone contributes to this rather unique, bundled know-how of ISS. We have been copied since day one and still are but I see this more as a motivation because our quality is unmatched. Some of our solar and ice rink products, for example are simply too expensive for our competitors. In the ice rink and solar segment of the last 50 years, every significant innovation has been developed by us!

The ISS Team Dedicated Professionals



We wouldn't be nearly as successful without our employees. Each one contributes to our market leadership. Team spirit is a daily routine for us. Knowledge is shared, and we inspire each individual to enhance and advance our products even further. Here you can see a glimpse of our enthusiastic team.













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