

VEPE-ICEPRO LTD
**TECHNICAL
DOCUMENTATION**

ICE HOCKEY DASHER BOARDS
V-SERIES

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1 GENERAL

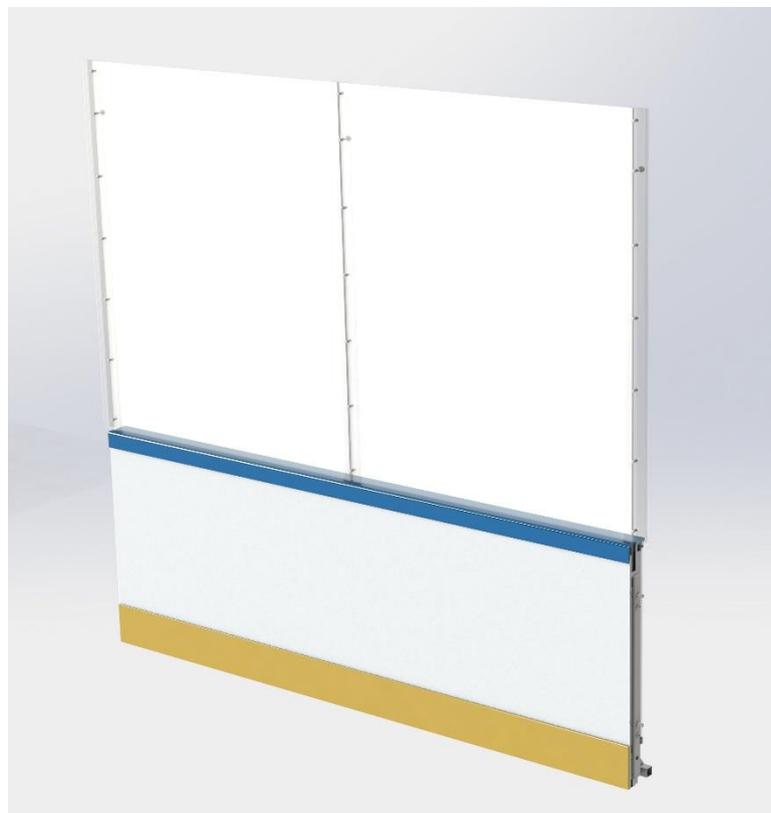
Vepe-Icepro V-Series is a lightweight flexible ice hockey dasher board system equipped with freestanding shielding without support posts. Due to its structure, it is perfectly suited for arenas where all levels of ice hockey is played.

Frame structure consists of a profile system with an integrated attachment of unsupported shielding to the rink frame. Stable aluminum posts are used in gate elements. The double-frame structure of the lower part allows the best fastening of elements to anchors in concrete slab. The special steel profile structure in the ends enables a better flexibility and safety of the boards in a collision.

V Series dasher boards are designed, manufactured, and sold by Vepe-Icepro. All production is made according to EN 1090-1:2009+A1:2011. Dasher board models are developed and optimized using FEM analysis, and the performance has been verified through tests in laboratory conditions as well as in real conditions.

Vepe-Icepro V-Series standard measurements:

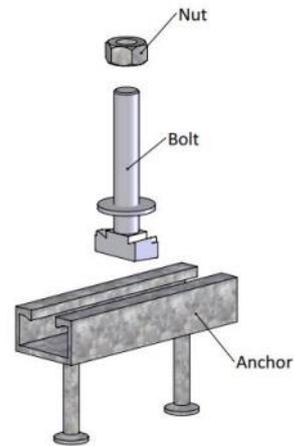
- Standard rink sizes: 26-30m x 56-60m
- Curve Radius (standard): R8.5m
- Height from concrete slab: 1.1m



2 ANCHORING

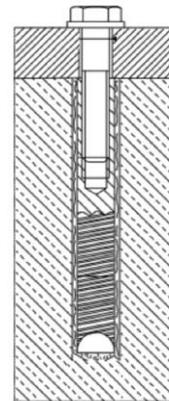
For new arenas

Standard anchoring for new arenas is made with anchor channels cast in concrete slab. This enables strong fixing and easy installation. Anchor bolt always goes through the double frame structure of the board.



For existing arenas

Existing anchors may be used in most cases due to agile fixing system of the boards. In case the existing anchors are not enough, the new anchors are drilled into concrete. Anchor bolt always goes through the double frame structure of the board.



Ice dam (optional extra)

Ice dam makes it possible to dismount and re-install boards without need to melt the ice. Ice dam frame is made of steel and coated with kick list on the ice side just like the boards. Ice dam system is element specific.

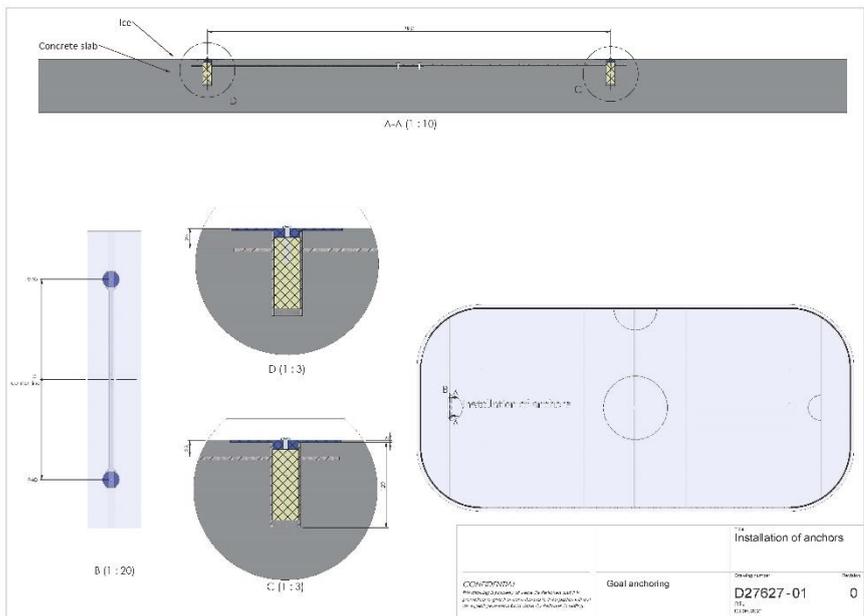
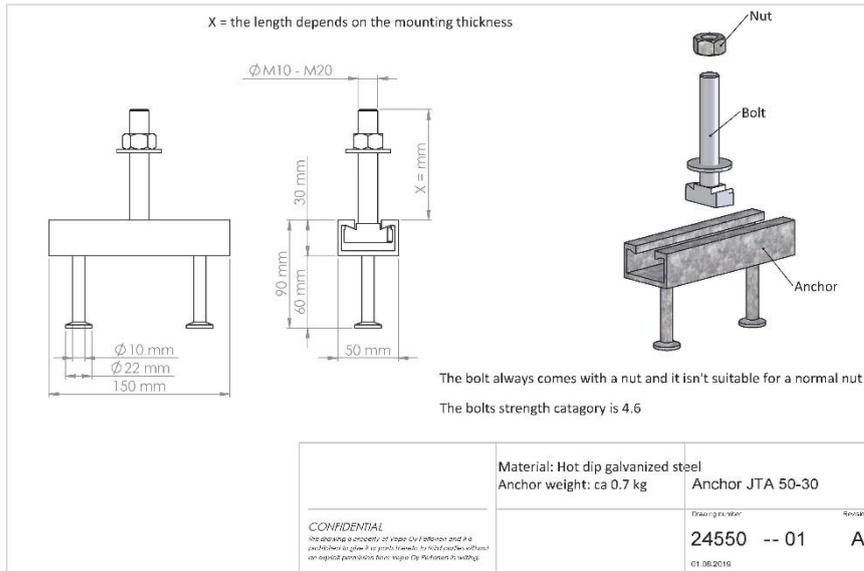
Standard height of the ice dam is 60mm. Its height is designed to fit with ice covering system so that the arena floor is flat when another type of event takes place.

Ice dam is anchored to the ground and the element is anchored to the ice dam through double frame structure.

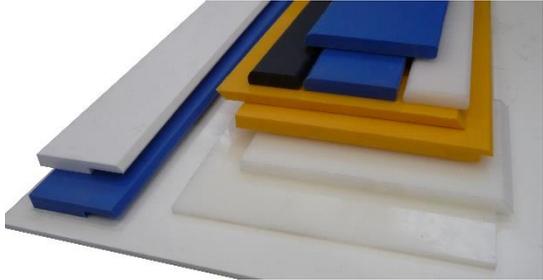
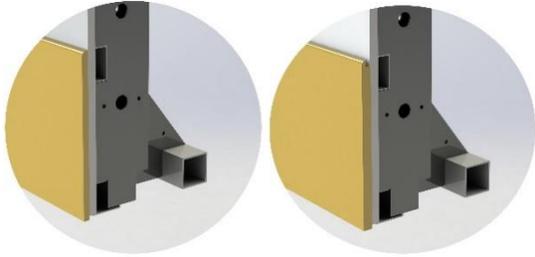


Technical drawings

Project-specific anchor layout is always included in Vepe-Icepro dasher board delivery. Drawings are available in PDF and DWG formats. Ask for BIM model!



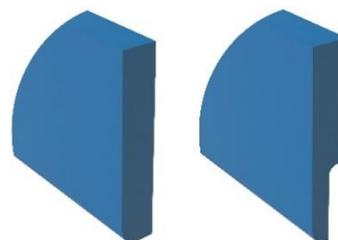
3 ELEMENTS

<p>Dimensions of the board element</p>	<p>Height 1,1m from concrete slab, ca. 1,07 m from ice level. Standard element length 3m</p>	
<p>Frame, material and finish</p>	<p>Double-frame structure of the lower part. Single-frame structure in the middle enables better flexibility of the boards in a collision. Steel EN 10149-2, hot dip galvanization EN ISO 1461</p>	
<p>Thermal barrier</p>	<p>V-Series element ends are equipped with thermal barriers to prevent condense water running to ice side</p>	
<p>Materials</p>	<p>Kick lists and board lists are made of the same material as the boards ensuring consistent extension/shrinking and impact resistance.</p>	
<p>Puck board</p>	<p>10mm UV protected white HD polyethylene (HDPE)</p>	
<p>Kick plate</p>	<p>8mm UV protected yellow HD polyethylene (HDPE) without ad panel OR 12mm UV protected yellow HD polyethylene (HDPE) with ad panel</p>	

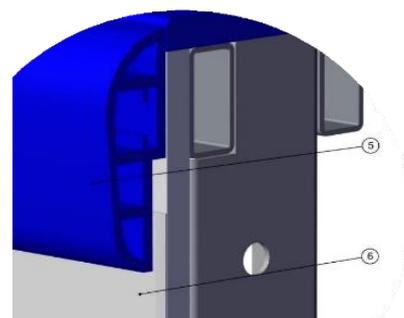
Top sill UV protected blue HD polyethylene (HDPE)
Freestanding shielding integrated inside frame.



Cap rail Front cap rail is always used. Standard front cap rail when puck board HDPE 10mm. Front cap rail with groove when advertising system is used.



Soft cap rail (optional extra) Soft cap rail is a safety profile on the upper part of the board element, in the edge of puck board and top sill. It is made of elastic rounded rubber mixture. Soft cap rail suppresses impacts to head and upper body. Soft cap rail has an integrated groove for advertisement panel installation.



Line markings Lines are integrated in the kick list. HDPE blue/red.



Advertisement panels (optional extra) 4 mm clear polycarbonate (PC) sheet installed in a groove under cap rail and in kick list. Fastened to board element with 2 flush hexagon socket head cap screws. Fastening materials are made of stainless steel.



Rear panels
(standard)

PP Foam 6mm, color: white.
Protects the frame from materials
that do not belong there.
Completes nice look to the boards.



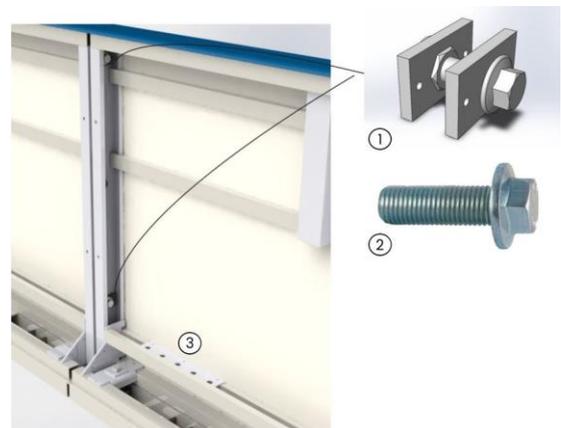
Fastening

V-Series board elements are
equipped with Fast2Fix quick
fastening system as standard.

- 1) Reinforcement plate+
counterpart pre-installed to the
frame.
- 2) Bolt tightened into the
counterpart.
- 3) Bolt rack inside section frame.

Dasher board elements are
fastened to each other with two
fast2fix bolts. Fast2fix system is
also used to fasten dasher board
to the ice dam system.
Fast2fix system speeds up rink
installation and reduces the
number of tools during installation.

Fast2fix built-in quick release
system allows fast installation and
dismounting. Designed especially
for new multipurpose arenas
where the rink is dismantled
several times a year. When
dismantling the rink, we have taken
note of the retention of the
fastening parts. Storage for bolts
inside the section frame to keep
the fastening components
in order for next use.



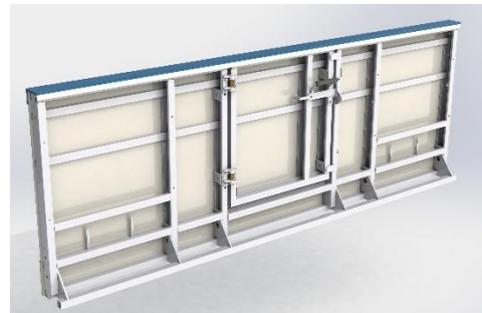
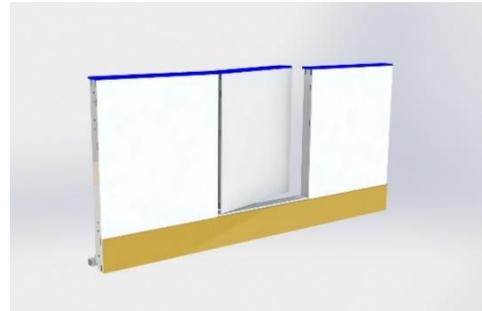
4 GATES

Player gates 4pcs. (standard)

Width 80cm (standard)
Width 100cm (optional extra)

Threshold 210mm (standard)
Threshold 50 / 310mm (optional extra)

Strengthened frame structure
Adjustable hinges
Robust self-locking latch

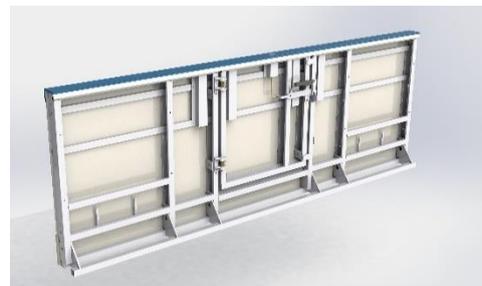
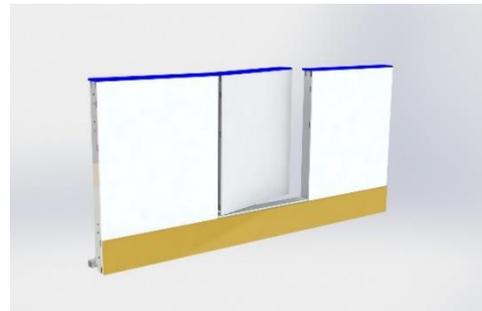


Penalty gates 2pcs. (standard)

Width 80cm (standard)
Width 100cm (optional extra)

Threshold 210mm (standard)
Threshold 50 / 310mm (optional extra)

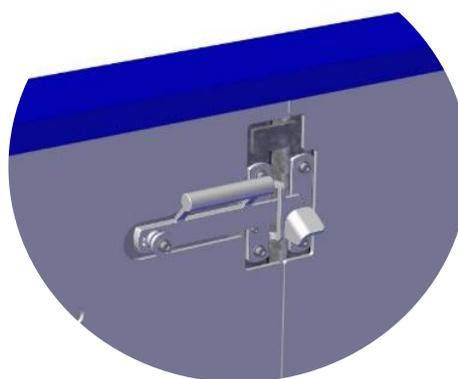
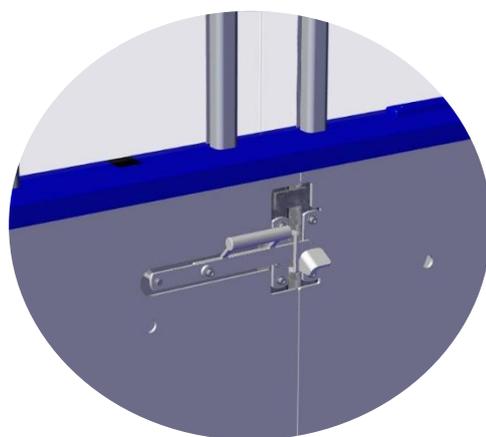
Push button device to open gate from ice side
Strengthened frame structure
Adjustable hinges
Robust self-locking latch



Extra gates Width 80 / 100 / 120cm
Threshold 50 / 210 / 310mm

Push button device to open gate from ice side
Strengthened frame structure
Adjustable hinges
Robust self-locking latch

Locking: player and penalty gates Reliable self-locking latches. Gates with public protection have a push button with which the gate can be opened from the ice side. There is no hole in the public protection at the vicinity of the bottom.

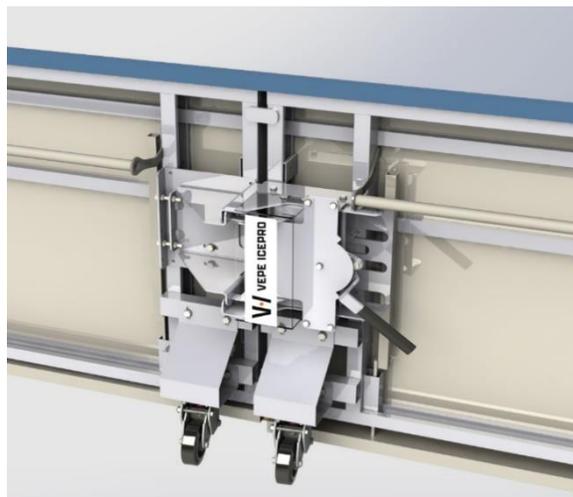


Service gates Width 3,5m (standard), 1 pc.
Strengthened frame structure
Adjustable hinges.
Adjustable kick list (hem) at the lower end.
Adjustable diagonal supports on both sides to guarantee the best stability
Nose wheels to support gate leaves when opening



Locking: service gates

Service gate has a reliable locking mechanism with which the gate can be opened and closed fast and reliably with one hand grip.



Additional information

Number of gates can be increased as needed. Location of these extra gates (player/public entrance and service gate) can be determined based on needs of end customer.

Lift gate (optional extra)

Standard service gate may be replaced by a lift gate, which is suitable for the tightest places because it needs very little space at the back side of the boards.

Liftgate can be either straight or in a curve. Standard width is 3,5m.



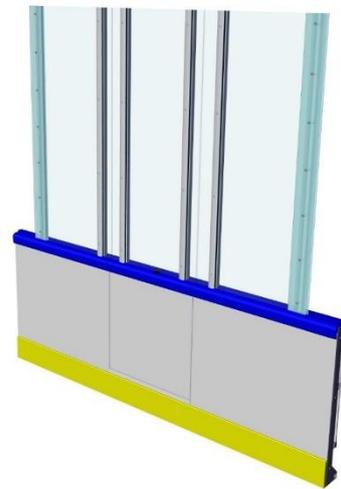
5 PROTECTIVE SHIELDING

Height	H=1,5m / H=1,8m / H=2,0m / H=2,4m	<i>According to the IIHF Official Rulebook: Height of public protection in short ends and curves 2,4 m, height of public protection in sides 1,8 m</i>
Material	Polycarbonate (PC) 8 / 10 / 12mm Acrylic (PMMA) 12 / 15mm	
Hard coating (HC) (optional extra)	Hard coated PMMA and PC have a better scratch resistance and good optical qualities when compared to non-coated. Hard coated sheets are also easier to keep clean.	
Termination points	Curved acrylic 12mm / R500mm	<i>Where the public protection deviates from the boards at the vicinity of player boxes, there are curved, flexible player protections made from PMMA.</i>
Lower end of the shielding	Protective shield integrated into the board structure.	

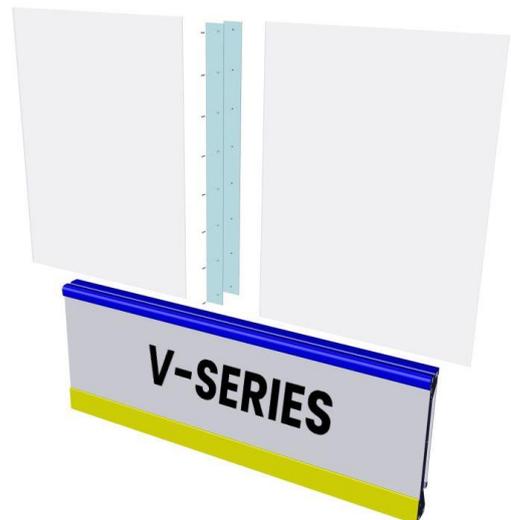


6 POSTS / H-LISTS

Aluminum post Gates are always equipped with aluminum posts which keep the protective shielding straight and provide the best safety for players.



H-lists H-lists are installed between every protective shield to avoid dangerous gaps. Nice and smooth design guarantees the best visibility for spectators.

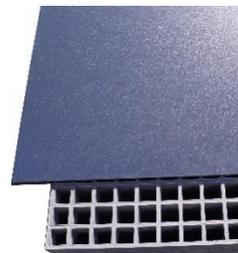


Height Post and H-list height always according to protective shielding height

7 BOXES

Size	Standard setup according to IIHF Rulebook	Player boxes 1,5 x 10 m, 2 pcs Scorekeeper box 1,5 x 6,5 m, 1 pc Penalty boxes 1,5 x 4 m, 2 pcs
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Box floor	Adaptable and robust grating structure made of steel
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Walls	Behind and at both sides of player boxes. Behind and at both sides of scorekeeper box. Behind and at both sides of penalty boxes.
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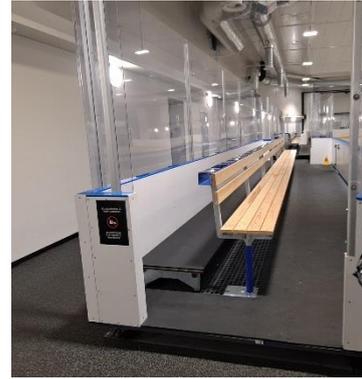


Protective shielding	All sides
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Doors	At both sides of player boxes (total 4 pcs) as standard. All other configurations as optional
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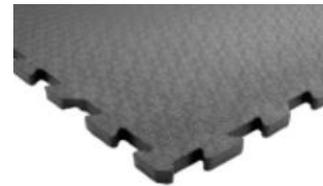
Furniture

Bench frame made of galvanized steel, coated with wooden lacquered planks, with back rest equipped with drink bottle holder for player boxes.
 Coach walkway made of galvanized steel, coated with plywood for player boxes. H=20cm, W=50cm.
 Bench frame made of galvanized steel, coated with wooden lacquered planks for penalty boxes.
 Table with 6 seats for scorekeeper box.



Rubber mats

Mabomat module mat as standard, black
 ERGO P12 module mat as optional, black



Roof (optional extra)

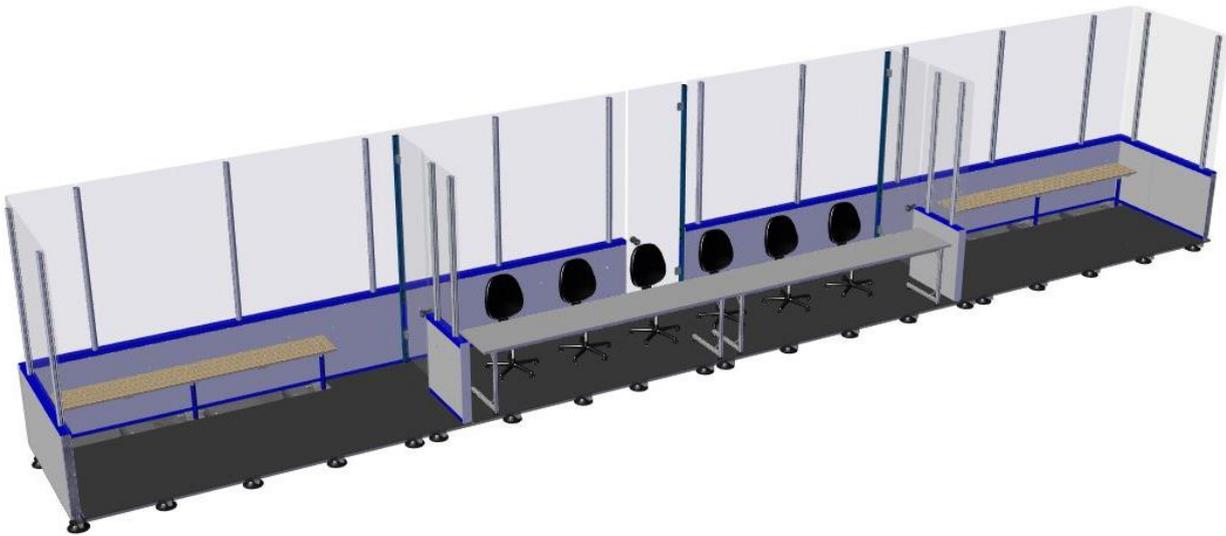
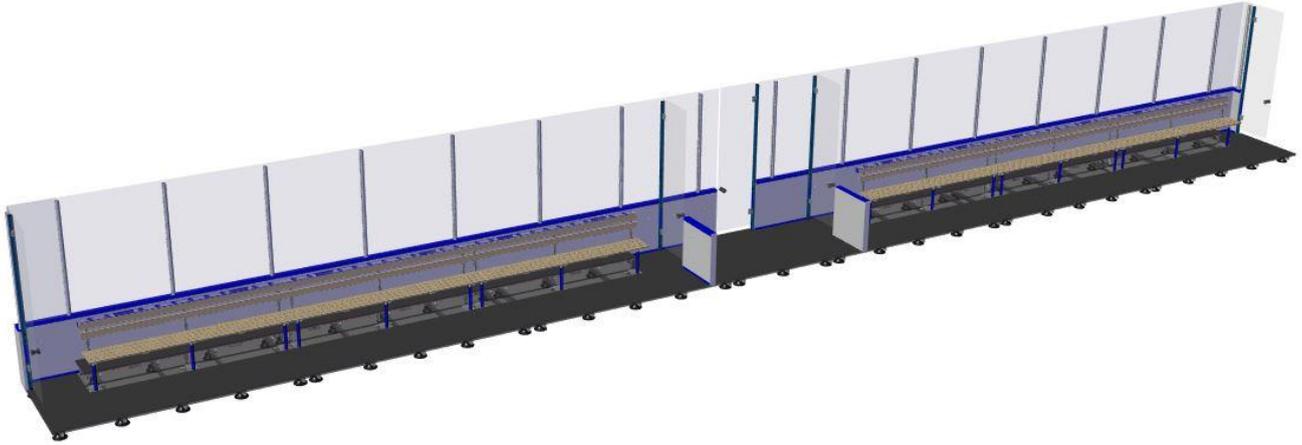
All boxes may be equipped with roof to provide more protection from spectators



Fully closed scorekeeper box (optional extra)

Standard scorekeeper box may be replaced by fully closed option to provide the best possible protection for off-ice officials. The walls are also insulated in order to keep the box warm.





8 OPTIONAL EQUIPMENT

Ice hockey goals

Competition and training goals with all necessary parts and accessories.



Stick racks

Different stick racks to be fastened to the wall or if necessary removable, movable and provided with locks.



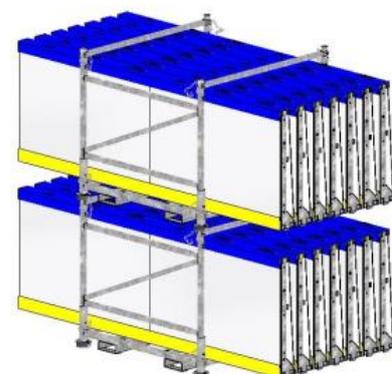
Alternative mat models for boxes

Several different options for covering box floors. Mats and covers are very comparable in quality. The biggest differences lie in the material sizing, shaping and surface slipperiness.



Storage racks

Storage racks for board elements, protective shielding and supporting posts.

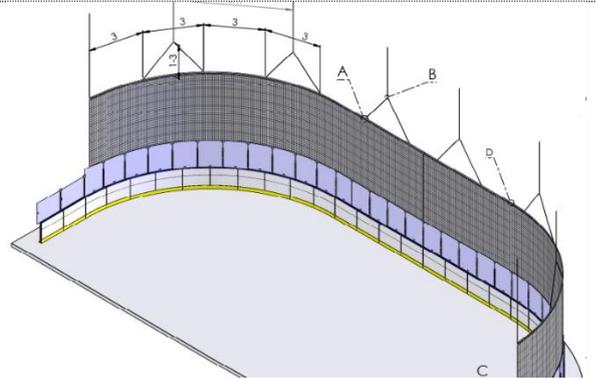


Kevlar® safety nets

Unnoticeable, durable safety net. #38/1,2mm, black. NHL tested and approved.

PP safety nets Basic safety nets to the ends and curves as well as to sides.
Material: polypropylene.
Options:
Mesh #42mm, thread 2mm, black
Mesh #40mm, thread 2.3mm, black
Mesh #40mm, thread 2.3mm white
Mesh #30mm, thread 1.5mm, black
Mesh #30mm, thread 1.5mm, white

Net holding bars Steel bars with installation material for safety nets.



Net lifting hoists Mechanical net lifting hoists to facilitate lifting, installing and dismantling of nets.

9 STANDARDS AND CERTIFICATES

- Internal quality auditing certificate 0416-CPR-8823-02 Certificate for steel production EXC1 and EXC2/ EN 1090-1:2009+A1:2011
- Material acquired by company with ISO 9001 certificate
- Surface treatment by company with ISO 9001 and ISO 14001 certificates
- Hot-dip galvanizing according to SFS-EN ISO 1461
- Tested according to BFU test procedures considering board flexibility and player safety

