



i Goals

Goals are crucial pieces of equipment. They should be good quality in terms of both playing performance and durability.

This information is in line with the basic requirements in relation to shape, size and colour stated in The Rules of Hockey

Goals:

- Two vertical goal-posts joined by a horizontal crossbar are placed at the centre of each back-line on the external marks.
- The goal-posts and cross-bar are white, rectangular in cross section, 50 mm wide and between 50 mm and 75 mm deep
- The goal-posts must not extend vertically beyond the cross-bar and the cross-bar must not extend horizontally beyond the goal-posts
- The distance between the inner edges of the goal-posts is 3.66 metres and the distance from the lower edge of the cross-bar to the ground is 2.14 metres
- The space outside the field, behind the goal-posts and cross-bar and enclosed by the net, side-boards and backboard is a minimum of 0.90 metres deep at the cross-bar and a minimum of 1.20 metres deep at ground-level.

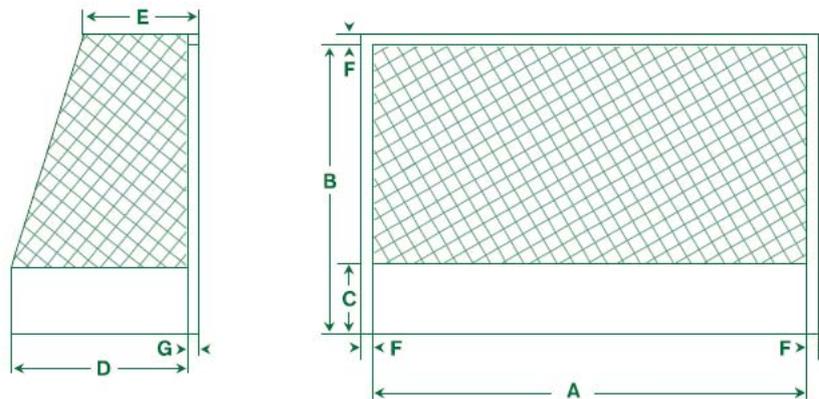
Side-boards and back-boards:

- Side-boards are 460 mm high and a minimum of 1.20 metres long
- Back-boards are 460 mm high and 3.66 metres long
- Side-boards are positioned on the ground at right angles to the back-line and are fixed to the back of the goal-posts without increasing their width
- Back-boards are positioned on the ground at right angles to the side-boards and parallel to the back-line, and are fixed to the end of the side-boards
- Side-boards and back-boards are of a dark colour on the inside.

Nets:

- The maximum mesh size is 45 mm
- Attachment to the back of the goal-posts and cross-bar is at intervals of not more than 150 mm
- The nets hang outside the side-boards and back-board
- The nets are secured so as to prevent the ball passing between the net and the goal-posts, cross-bar, sideboards and back-boards
- The nets are fitted loosely to prevent the ball rebounding.

Goal Dimensions



Code	Metres	Code	Metres
A	3.66	E	minimum 0.90
B	2.14	F	0.050
C	0.46	G	0.050 to 0.075
D	minimum 1.20		

Construction of Goals

Goal Frame and Fittings

In the past, goals have traditionally been made with wooden frames and metal supports at the back to support the posts and cross-bar. These days, steel or heavy-duty aluminium (not lightweight aluminium) is more commonly used. Steel should be hot-dipped galvanized. Aluminium should be sufficiently heavy to avoid movement of the structure. The internal cross section of aluminium posts and cross-bars should be reinforced to avoid denting and splintering on impact. Reinforcement should preferably be of the same material and manufactured as an integral part of the cross section. Reinforcement with wood is not recommended because the timber may rot.

The goal posts and cross-bar should be painted to produce a chip resistant finish. The frames of the back-boards and other components should have similar durable finishes.

Backboards are made of various materials. Again, metal has replaced wood in more recent constructions not least because it is more durable. Wooden backboards must be strong and resistant to splintering but do not necessarily require additional coverings on the inside surfaces. However, the inside surface of metal backboards must be covered with a shock absorbing material, such as thick rubber sheeting, which greatly reduces ball rebound. It is dangerous to players if the ball rebounds at speed from the backboard.

The goals should not have any additional fittings that could cause danger to players. For example, if a goal is fitted with rubber-tyre wheels to facilitate easy movement to a side-line for training



purposes and to save wear and tear in the goalmouths, the wheels should be located at the back (and not the side) of the goal so that players do not easily trip over them during play. In addition, handles may be attached to the sides of the goals to help with pulling/pushing the goals into position. These handles sometimes project towards the field of play creating a potentially dangerous protrusion. All such fixings should be completely demountable and physically removed prior to any match.

Another frequent problem arises from the metal stanchions used for supporting the goal net and, in some cases, to add weight and stability to the goal structure. A ball striking one of these stanchions can rebound dangerously into a group of players in the goalmouth. The rebounds can also confuse an umpire who may be uncertain about whether the ball rebounded back into play off a post or off a stanchion because only in the latter instance can a goal be awarded! All such stanchions should be covered for their full length by strong, rubber tubing (not less than 3mm thick), preferably black in colour, to dampen the force and the sound of any rebound. However, as an alternative design, see also the notes below about “free hanging” goal nets.

Goal Nets

It is important that the method of fixing nets to the goal-posts and cross-bar is secure and safe. The old-fashioned way of using hooks screwed into the back of the wooden posts and crossbar was susceptible to damage from a hard shot and can cause injury to players who get entangled in them. Metal cup hooks should not therefore be used and any spring hooks should have screw caps.

A better alternative is for D-shaped eyelets to be attached to the back of the posts and crossbar with just sufficient space in the eyelet for a 6-8mm diameter rope to pass through twice when tight. The rope is intertwined through the net and the eyelets in one direction and then the other direction.

The latest types of metal posts often have holes and slots, as an integral part of their cross section, to hold the net in place. Again for safety reasons, any external openings on the goalposts, cross-bar or other parts of the goal frame should be less than 8mm or greater than 25mm.

In addition to ensuring that the net remains securely attached to the goal, if possible it should be fixed in a way that avoids a strong rebound when the ball enters the goal. Any horizontal part of the net support frame across the back or sides of the goal should therefore be outside the net and fixed so that a ball entering the goal cannot rebound from it.

It is also recommended that any vertical part of the net support frame be situated outside and clear of the net. This results in a “free-hanging net” which avoids confusion about whether the ball rebounds from the back/side-boards or part of the net support frame following a hard shot. This sort of goal design is strongly recommended.



Goal Ground Fixing

On natural grass fields, the goal posts are usually fixed into sockets of some sort. However, on synthetic turf this is not recommended. This is because an aperture in the turf carpet and substructure will permit the entry of water and other materials, which could cause a weakness in the carpet around the aperture.

Instead, the complete goal structure should be placed in position on the playing surface and should be sufficiently heavy and/or secured at its rear to avoid easy movement.

Goal Standards

Hockey goals must comply with the requirements of the Rules of Hockey. Thereafter, there are no detailed performance requirements. However, there is a European Normation: EN750.

Amongst other things, this refers to stability of the goal structure so that it is held down by weight devices or with anti-tilt devices.

It is important for proprietors who procure hockey goals in the European Union to ensure that their equipment has the EN 750 compliance stamp. This normation also provides useful guidance in other countries. Pitch installers and proprietors should check for all relevant local legislation.

International Specification

For international hockey, the FIH has produced some notes which bring together many of the key points referred to above. They are a requirement for FIH events but are also recommended for other levels of hockey because they are beneficial to the playing and safety of the game.

- The goal-posts, cross-bar and other parts of the overall goal frame must be either white, the natural light colour of metal or some other light colour which contrasts with the pitch and the ball;
- The front corners and edges of the goal-posts and cross-bar must be rounded with a radius of 3mm +/- 1mm;
- Brackets supporting the net or parts of the goal frame must not protrude outside the 50mm width of the goal-posts and cross-bar;
- Frame fixings must not be attached to the side- or back-boards in a way that could result in a ball entering the goal rebounding from them;
- Side- and back-boards must be covered with a shock absorbing material such as rubber;
- Any vertical part of the net support frame must be outside the net and fixed so that a ball entering the goal cannot rebound from it;
- Any horizontal part of the net support frame across the back or sides of the goal must be outside the net and fixed so that a ball which has entered the goal cannot rebound from it;
- The net must be fixed so that the ball does not pass between the goal-posts and the net or between the cross-bar and the net;
- The net must be fixed at the back of the side- and back-boards so that the ball cannot pass beyond the net;



- The net must be fixed in a way that avoids injury to players; any external openings on the goal-posts, cross-bar or other parts of the goal frame must be less than 8mm or greater than 25mm; metal cup hooks must not be used and any spring hooks must have screw caps.

Flag-posts

- Flag-posts are between 1.20 and 1.50 metres in height
- Flag-posts are placed at each corner of the field
- Flag-posts must not be dangerous
- If unbreakable, flag-posts must be attached to a spring base
- Flag-posts carry flags, not exceeding 300 mm in width or length.

Technical Table and Team Benches

It is common to include team benches and space for a technical table in the overall pitch design. The basic requirements are proposed followed by specification for a pitch which could be used for international matches.

The requirements for international tournaments are very demanding so these guidelines do not suggest that providers of facilities for lower-grade matches follow them precisely. Nevertheless, it is hoped that such providers will consider the possible inclusion of some of the requirements in their planning and development.

Basic Requirements

The total area required will depend on the levels of matches likely to be played but the following guidelines should be regarded as minima:

- An area should be set back from one side of the pitch in line with the centre-line to allow space for technical officials and team benches;
- This area should be at least 2 metres from the pitch side-line so as not to interfere with players on the pitch, the umpires or the substitution procedures;
- The overall space should be a minimum of 2 metres by 15 metres;
- The space immediately opposite the centre-line should be left for a technical table which can seat 2 or 3 officials;
- The space either side of the technical table area is for team benches;
- If fixed team benches or seats are provided, they should accommodate up to 9 people; this will allow the benches to accommodate a full set of substitutes and team officials but the number of seats can be reduced if this is unlikely for the level of matches to be hosted at the venue;



- Protection from inclement weather (and in the case of the technical table, from errant balls) for the personnel at the technical table and on the team benches should be provided as far as the financial budget will permit.

International Specifications

Technical Table

The following would be required for the Technical Table area for use by tournament technical officials if the pitch is to be used for a top level international match:

- In line with the pitch centre line and on the side where there is least annoyance from the sun and/or hindrance to spectator viewing;
- Clear line of sight for Technical Officials to all parts of the pitch, team benches, score board and match clock;
- The front should be a minimum of 4 metres and maximum of 8 metres from the pitch sideline;
- The overall minimum space should be 6 metres by 3 metres;
- Open to the pitch and to the sides to permit easy access to the field of play;
- Protection from rain, wind, sun and pitch irrigation;
- Roof height adequate for tall officials;
- Overall height should not impact on sight lines from spectator viewing areas;
- If glass enclosed, there must be an opening for easy communication with the field of play; any glass must be suitably reinforced to provide safe protection from any hockey balls accidentally struck from the pitch;
- Raised floor a minimum of 250mm above the level of the pitch side-line;
- Table size a minimum of 3 metres by 1 metre;
- The front and two sides of the table should be closed completely from the top of the table to the floor;
- Table and seats (not stools) at a height suitable for writing and viewing the pitch;
- Seating for 4 persons; two seats for the technical officials on duty; one seat for the data recording assistant or clock/score-board operator; one seat for the reserve umpire;
- If possible, additional seating in the immediate vicinity for those who have authority to be there (e.g. FIH Representative, Tournament Director, Umpires' Manager, FIH Medical Officer, Local Medical Officer);
- Artificial light, adequate electric power outlets, heating if necessary, data and communications connections (including to the clock and score-board) all to workplace standards;
- A system of communication (e.g. telephone, radio) linked to the Tournament Director, Press Centre and Public Announcer;
- Four seats for temporarily suspended players, two on each side of the Technical Table positioned so as not to block sight lines of technical officials;



- Method of indicating time stopped/started to and from Umpires either by equipment which is loose (e.g. flags) or fixed or permanent (e.g. coloured or flashing light).

Team Benches

The following would be required for the Team Bench area for use by the two playing teams if the pitch is to be used for a top level international match:

- One on each side of the Technical Table enclosure;
- Not more than 5 metres from the Technical Table and at the same distance from the pitch side-line as the Technical Table;
- Open to the pitch but with a protective cover against sun, wind, rain and pitch irrigation;
- Roof height adequate for tall players and team support staff but the overall height should not impact on sight lines from spectator viewing areas;
- At pitch over-run level (i.e. no steps) but may include a low ball protection wall to the front;
- Artificial light, adequate electric power outlets, heating if necessary, data and communications connections all to workplace standards;
- Seating of adequate width for a minimum of 9 people in a single row (minimum recommendation: 450mm deep by 500mm wide per person);
- Seating with clear sight lines to all parts of the pitch including the score-board and clock;
- Space for support staff equipment, drinks container(s), ice container, etc;
- A stick storage facility between the enclosure of the Technical Table and each team bench area, with a moveable cover for protection against rain and pitch irrigation, sufficient to accommodate all the used and spare sticks of 16 players.

NOTE: Information adapted from the FIH Guide to installing Hockey pitches and facilities