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# Hockey stick A-Z

Hockey stick manufcturers develop various technologies to improve stick performance. What are they and what do they do?

### <u>A</u>

Advance Matrix Construction (TK): a blend of carbon, aramid and fiberglass that results in greater potential output and increased feel.

**Aramid:** lightweight material good for impact absorption and durability. Fibres still allow for flexibility and a smooth feel. Often used on highimpact points such as stick edges and faces. In the shaft it enhances vibration dampening and edge protection for backhand skill execution.

### В

**Balance point:** where the weight is distributed evenly on either side of the stick. Impacts the overall feel of the stick.

- Higher point (further from the head): most of the weight is in the handle. Helps with skills and swing speed to create more powerful striking power. Good for drag flicks and aerial skills.
- Lower point: the lower, the heavier the toe feels.

**Ballistix (TK):** a high performance triaxial weave (see under T) for increased torsional rigidity to offer high power output and ultralight weight. Enables better maoeuvrability during the manufacturing process to offer greater performance and distribution of the materials in key areas.

**Basalt**: better quality material than fiberglass and cheaper than carbon fibre. Composed of plagioclase, pyroxene, and olivine.

**Bow:** the position of the arch in the stick. Distance measured between the surface and upper edge of the stick, measured while the stick is placed flat side down on a flat surface. These are the three main types, but brands also have their own variations for more options.

- Standard: 20-22mm curve. Maximises control and power.
- Low bow: 22-23mm curve. Increases ball control and makes aerial skills easier without affecting hitting technique.
- Extreme low bow: 24-25mm curve. For drag flicking, aerial and sweeping skills, and elite players use the shape to increase speed and accuracy for specialised skills.

#### С

**Carbon fibre:** light strands of carbon are woven into strips to add strength, stiffness and power to the stick. The higher the carbon percentage, the stiffer and stronger the stick,

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which increases hitting power, but also adds brittleness. When combined with kevlar/aramid the carbon becomes less brittle but performance can be impacted.

- 60-100% carbon: for advanced players.
- 30-60%: intermediate players.
- <30%: for beginners.</li>

**Carbotrax (TK):** a triaxial weave (see under T) that offers increased rigidity and structural strength. The weave results in increased torsional rigidity and lighter weight to produce high performance sticks that offer excellent power output and feel

Core: Kookaburra has three core technologies:

- 4-core: enhances resistance against torsional movement and improves power hitting.
- Tri-core: for stiffness and improved power.
- Dual-core: for high power and control.

**CVT** (Kookaburra): Counter Vibration Technology inserted in the handle help to reduce vibrations when striking.

### E

**Epoflex (TK):** a modified rubber technology that enhances the bonding of the rubber with epoxy molecules to create a material that pro-

vides improved shock absorption.

### F

**Fiberglass**: strong, durable, lightweight and flexible. Often used to reinforce material to add durability and strength, but some beginnger sticks are made from only fibreglass.

• Not as strong and stiff as composite materials based on carbon fibre, but it is less brittle and the raw materials are cheaper.

**Flexibility:** flexible sticks tend to be more durable than stiff ones.

### G

Geocentric Core Technology (Grays): allows weight and balance redistribution for a light and nimble pickup. The internal construction process uses polyurethane foam as a structural core in the head area and combines with the twin tube carbon fibre matrix top layer to create a highly stable and durable stick.

**Graphene:** very strong and light material. Redistributes weight and supports the stick against impact in key breakage areas.

**Grip:** wrapped around the top part of the handle. Foam lessens vibration and a textured one offers a better grip and more feeling.

### H

**Head**: the part of the stick that touches the ground while the player is controlling the ball. Flat on one side and round on the other for passing, shooting and stopping the ball.

- A concave face on the head helps to hold the ball better, making 3D skills, drag flicking and aerial shots easier.
- Brands developed their own head shapes. (see *Toe*).

Heel: where the head curves up and ends.

**Hybrid:** fuses a composite shaft with a wooden head to provide a stick that generates the power and stiffness of a composite, but with the feel and control of a wooden stick.

### K

**Kevlar:** a registered fibre name from DuPont. See *Aramid* for qualities.

**KCF** (Kookaburra): the textured playing surface generates a more secure contact area for better feel, control and agility.

**Kraibon (Gryphon):** forms a physical bond producing a balanced stick for the ultimate power and feel.

KVR (Kookaburra): the Velocity Ridge spine profiling gives instant power transfer without sacrificing control and feel, target- **To p44** 

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ing power directly into the stick head.

#### L

**Length** of the chosen stick will differ according to player preference, but a general guideline is that its top should be level with the player's hip. The average stick length for adults is 36.5 inches.

### Ν

**Nano technology:** extremely small particles that enhance the mechanical strength of the stick to provide maximum stiffness and potential power output.

### Ρ

**PC2** (Kookaburra): two power channels in the stick profile provide strength in vital areas and generate greater power.

**Piezoelectric fibres:** dampens vibrations. Certain materials will generate an electric charge in response to applied mechanical stress. When piezoelectric material is placed under mechanical stress, a shifting of the positive and negative charge centers in the material takes place, which then results in an external electrical field. As a vibration damping material, the vibrations created from striking a ball create the *stress* within the fibres and create an electrical charge (dispersed as heat).

**Power:** the ability to generate the greatest ball speed for the swing speed, which is de-

pendent on a combination of the ball speed and stick stiffness.

**Precision Edge (Kookaburra)**: the backhand edge profile has been flattened, enabling improved execution of back hand shots.

### <u>R</u>

**Reactive Liquid Polymer (RLP):** reactive additives that impart rubber properties that can improve the strength, flexibility, durability and impact resistance of the stick.

### S

**Scoop:** the groove on the head of the stick that helps with maneuvering, cradling, and ball control.

**SFR (Kookaburra):** Soft-Feel Resin in the core construction of the stick creates durability and improves the feel on impact.

**STC (Kookaburra)**: the Soft Touch Compound creates good grip, touch and feel in all conditions.

**Stiffness:** stiffer sticks offer more power, but have a harder feel and can be more difficult to control.

### Т

**Taper Toe:** the toe is shaved away to a 45° angle on certain hockey stick ranges to give greater ball control, faster on-the-spot spins, precise pushouts and more control on fore-

sticks drags.

**TI Reinforcement (TK):** the wooden hook is reinforced by a blend of carbon, Aramid and fiberglass for more power, durability and strength.

### Toe: where the head curves up and ends.

- Shorti: most maneuverable and offers good control. Usually used by offensive players.
- Midi: good for beginners and midfield players, and for shooting, flicking and receiving.
- Maxi: large surface area for striking with power. Good for defensive players.
- Hook / J-shape: for players with an upright style and on grass surfaces. Has the largest surface area for increased ball control, and is good for dragflicks and using reverse skills.

**Traction Control:** a blend of carbon, aramid and fiberglass create an enhanced construction that results in greater potential output and increased feel.

**Triaxial weave:** elements are woven in three directions, making the material more resistant to shearing forces.

### W

**Weight:** typically forwards prefer a light stick and defenders heavier ones for extra power.

- 540-560gm: for quick, controlled stick movement. Very light sticks (<540gm) are only used by advanced players.
- Heavier sticks add more power to hits and are more durable.
  - ± 595gm: good for midfielders
- 620gm-680: for backs and defenders.

### Olympic International gives hockey field advantage



THE SOUTH AFRICAN Hockey Association has shown confidence in the technical qualities of Olympic International's hockey shoes by renewing its partnership with the brand as official supplier. The nature of the game requires hockey shoes to offer players cushioning, grip, support and a good fit – qualities that Olympic International offers at affordable prices. FLICK is a versatile hockey shoe in striking colours that is available in men's and youth sizes. The upper is made from a breathable sports mesh and sport specific synthetic material.

The toe area has a protective cap and the shoe offers a speed lace system of webbing loops. Both the tongue and the collar are padded for added comfort and ankle support. The inner sock is removable for easy replacement if needed. The upper has a strobel construction (eliminating the boardy insole) for added flexibility and comfort.

The sole has a sporty design with a light-weight phylon midsole and durable outsole with a gnarly tread pattern for added grip on all surfaces.

Contact your local agent for more information:Gauteng:Dilesh & Gary WilsonKwaZulu Natal:Kamal & HiltonFree State/Lesotho:OwenNamibia:Carl & BernidineEastern Cape;Wayne & DanieWestern Cape:Brent & Grant Way

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**ENFORCER** is Olympic International's top end hockey shoe that has been tested, and won the seal of approval, from international players. It offers a great looking upper made from a breathable sports mesh and sport specific synthetic material.

The tongue is breathable mesh and both the tongue and the collar are padded for added comfort and ankle support. The unique inner sock is removable for easy replacement if needed and also offers many comfort features.

The upper has a strobel construction that eliminates the need for a boardy insole that adds flexibility and comfort. The eyelets have a unique *lace lock* feature to help secure the foot in the shoe and prevent unnecessary movement.

The sole has a sporty design with a light-weight phylon midsole with a moulded waist support and durable outsole with a gnarly tread pattern for added grip on all surfaces.

