











## Competitive Blade Comparison

### Overview

Criteria	<a href="#"><u>Standard Pattern 99</u></a>	<a href="#"><u>Standard Gold Seal</u></a>	<a href="#"><u>Standard Phantom</u></a>	<a href="#"><u>Standard Coronation Ace</u></a>	<a href="#"><u>MK Dance</u></a>
<b>Manufacturer</b>	John Wilson	John Wilson	MK	John Wilson	MK
<b>Blade Type</b>	Standard Parabolic K-Pick Revolution	Standard Parabolic K-Pick Revolution	Standard Parabolic K-Pick Revolution	Standard Parabolic K-Pick Revolution	Standard
<b>Discipline</b>	Singles, Pairs	Singles, Pairs	Singles, Pairs	Singles, Pairs	Dance, Synchro
<b>Suggested Skating Skill</b>	Advanced	Advanced	Advanced	Intermediate	Advanced
<b>Blade Style<sup>1</sup></b>	Parallel	Tapered Hollow ground	Tapered Hollow ground	Parallel	Parallel Narrow Edge
<b>Pick Picture</b>					
<b>Toe Pick<sup>2</sup></b>	Aggressive	Medium	Aggressive	Medium	Fine
<b>Material<sup>3</sup></b>	High Carbon Steel and Chrome Finish	High Carbon Steel and Chrome Finish	High Carbon Steel and Chrome Finish	High Carbon Steel and Chrome Finish	High Carbon Steel and Chrome Finish
<b>Carbon Content</b>	0.75%	0.75%	0.75%	0.75%	0.75%
<b>Manganese Content</b>	0.71%	0.71%	0.71%	0.71%	0.71%
<b>Weight for Size 10.25" Blades</b>	390 g	390 g	360 g	390 g	360 g
<b>PBHE Sharpens</b>	Yes	Yes	Yes	Yes	Yes
<b>PBHE's Price CND \$</b>	\$550.00	\$640.00	\$605.00	\$240.00	\$599.00
<b>Life Time Manufacturer's Warranty</b>	Yes	Yes	Yes	Yes	Yes

## Additional Technical Information on Blade Design

Criteria	<a href="#">Standard Pattern 99</a>	<a href="#">Standard Gold Seal</a>	<a href="#">Standard Phantom</a>	<a href="#">Standard Coronation Ace</a>	<a href="#">MK Dance</a>
Pick Picture					
Toe Pick	Aggressive	Medium	Aggressive	Medium	Fine
Toe Pick Size <sup>1</sup> (inches)	$\frac{12}{32}$	$\frac{6}{32}$	$\frac{12}{32}$	$\frac{6}{32}$	$\frac{3}{32}$
Pick Sequence <sup>2</sup>	In Line Parallel Straight Cut	In Line Cross Cut Point	In Line Cross Cut Point	In Line Cross Cut Point	Curved Parallel Straight Cut Blunt
Base Pick Size <sup>3</sup> (inches)	$\frac{4}{16}$	$\frac{4}{16}$	$\frac{4}{16}$	$\frac{4}{16}$	$\frac{3}{16}$
Root Radius <sup>4</sup> (inches)	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{5}{16}$
Bulge Curve <sup>5</sup>	12-14"	12-14"	12-14"	12-14"	12-14"
Blade Main Curve <sup>6</sup>	8 ft.	8 ft.	7 ft.	8 ft.	7 ft.
Blade Style	Parallel	Tapered Hollow ground	Tapered Hollow ground	Parallel	Parallel Narrow Edge
Blade Thickness <sup>7</sup>	.155"	.155" - .130"	.155" - .130"	.155"	.130"
Blade Hardness [HRC] <sup>8</sup>	HRC 56	HRC 58	HRC 59	~HRC 58	~HRC 58
Stanchions Silver Brazed	Standard	Re-enforced	Standard	Standard	Standard
Toe Plate <sup>9</sup>	Cut Out Plate	Full Plate	Cut Out Plate	Cut Out Plate	Cut Out Plate
Toe Plate Width (inches)	$2\frac{14}{16}$	$2\frac{14}{16}$	$2\frac{9}{16}$	$2\frac{14}{16}$	$2\frac{9}{16}$
Heel Plate Width (inches)	$1\frac{8}{16}$	$1\frac{8}{16}$	$1\frac{9}{16}$	$1\frac{8}{16}$	$1\frac{9}{16}$
Positioning Holes	Yes	Yes	Yes	Yes	Yes
Oval Adjusting Drill Holes	Yes	Yes	Yes	Yes	Yes

## Definitions

### Blade Style <sup>1</sup>

**Parallel Blades** are blades that have the same thickness for the full length of the blade. The side of the blade is straight which makes the blade stiff, with less flex. Since the blade is the same thickness, the edge angle or sharpness is consistent for the full length of the blade.

**Tapered Blades** are blades that get narrower from about the mid position to the end of the blade. This makes the blade marginally lighter while maintaining a strong edge on the front half of the blade. The narrower portion of the blade has slightly less edge for a given grind. The removal of material at the back of the blade makes the back of the blade more flexible. The more flexible the blade the more stored energy. Some skaters feel this is beneficial while others feel it is harder to control.

**Hollow Ground Blades** are slightly hollowed out on the sides which reduces weight and reflects light making the blade more appealing. The removal of material on the sides of the blade makes the blade more flexible. The more flexible the blade the more stored energy. Some skaters feel this is beneficial while others feel it is harder to control.

**Narrow Edge Blades** are also known as Slim Line blades. Narrow Edge blades are thinner and parallel.

### Toe Pick <sup>2</sup>

**The Toe Pick** is the top pick in the Pick Sequence and is evaluated by its size, and cut. Since all skater`s pick into the ice with difference force and angle, choosing the right toe pick is a personal preference.

### Material <sup>3</sup>

**High Carbon Steel** hardened/tempered to approximately 60 Rockwell –C holds an edge very well.

**Stainless Steel Blades** do not sharpen as well as high carbon steel blades. The chromium content in stainless causes the edges to roll and therefore the edges are not as sharp. The chromium also plugs the grinding wheel and affects the finish resulting in reduced glide. 440 C and AUS 8 stainless is a very difficult stainless to sharpen properly and always leaves a substantial bur on the side of the blade. Stainless has the advantage that it resists rust and can be hardened to approximately HRC 60.

### Toe Pick Size <sup>4</sup>

**The Toe Pick Size** is the length of the toe pick from the notch below to the furthest point of the Toe Pick.

## Pick Sequence <sup>5</sup>

**The Pick Sequence** design is the least understood part of the blade. Pick Sequence is also called Toe Rake. The Pick Sequence is the teeth between the toe pick and the base pick and varies between blade types. There are many different designs for the Pick Sequence including In Line, Curved, Parallel, Point, Cross Cut, and Straight Cut.

- **In Line Pick Sequences** are sequences where all the picks are relatively the same height.
- **Curved Pick Sequences** are sequences where the middle picks are larger than the outer most picks creating a curve.
- **Parallel Pick Sequences** are when the picks have a horizontal cut that are parallel to each other.
- **Cross Cut Pick Sequences** are when the picks crisscross or when the picks are slanted resulting in less side slip.
- **Point Pick Sequences** are when the picks come to a point.
- **Straight Pick Sequences** is when the picks do not come to a point but come to a horizontal line. Straight Pick Sequences may result in side slip, however is easier to manufacture resulting in a lower cost.
- **Blunted Pick Sequences** are used for dance blades to reduce pick contact. Since dancers don't jump they don't require aggressive sharp picks.

## Base Pick Size <sup>6</sup>

**The Base Pick Size** is measured from the pick point of the base pick to the start of the blade. MK Dance blades have a smaller base pick that is rounded specially designed to optimize dance requirements and skills.

## Root Radius <sup>7</sup>

**The Root Radius** is extremely important and determines the amount of edge and grip on the ice. The proper root radius depends on the skater's weight, skill level, and ice temperature. Light skaters (60 - 80 lb.) on hard ice, requiring fine control, will need a smaller root diameter. Heavier skaters on soft ice will need a larger root diameter for the same edge grip on the ice. Skill level is also a major component to the equation. Roots that are too deep for the skater's weight, skill level, and ice temperature cause drag by cutting too deep into the ice.

## Bulge Curve <sup>8</sup>

**Bulge Curve** is very specific to figure skaters. The bulge curve is the area behind the base pick and is usually set to a 12" - 14" radius curve. The length of the bulge area is approximately 6 cm long. The contact on the ice at the bulge curve when the base pick is also touching the ice is called the touch point and approximately 4 cm back from the base pick. When the base pick and touch point are in contact with the ice it determines the heel lift (distance between the ice and the back of the blade). To maximize performance the heel height must be at least 1.7cm. The curve on each side of the touch point is between 12 and 14 inch radius.

## Blade Main Curve <sup>9</sup>

**The Main Curve** is the area after the bulge curve (approximately 6 cm back from the base curve) and runs the length of the blade. The main curve can vary between a 6 foot radius and a 9 foot radius. Manufacturers produce blades with main curve radiuses between 6.5 ft. and 8.5 ft. In general a smaller radius gives more agility and quicker turns where and larger radius gives more speed and power.

## Blade Thickness <sup>10</sup>

**Blade Thickness** is measured along various parts of the blade resulting in a thickness range. The approximate thickness measurement measures the blade thickness just above the blade edge along the side grind. For MK and John Wilson blades the initial blade material is approximately .160" thick. From this stock the blade is machined for various styles, including hollow ground blades. The manufacturer's also removes the chrome plating along the edge of the blade also known as side grind.

## Blade Hardness (HRC) <sup>11</sup>

**Blade Hardness** is measured by Rockwell C (HRC). High Carbon Steel used in making good quality figure skating blades should be around HRC 60. This hardness will determine how long your skates will stay sharp under normal use with no metal to metal contact and no rust. The blade must get softer as you move away from the edge to allow the blade to flex, otherwise the blade may crack. There are specific metallurgy properties and machining operations that go into making a good blade for competitive skaters. This is the reason the cost of blades vary from \$30.00 to \$650.00.

## Toe Plate <sup>12</sup>

**The Toe Plate** attaches the blade to the skate boot sole. The toe plate and heel plate widths are becoming more important due to the factor that many boots are becoming narrower. This reduces the ability to position the blade for maximum control. Both the toe and heel plate have two oval holes cut in each plate to allow for adjusting screws. These screws allow the skater to get the blades correctly positioned on the boot. There are also six or more round countersunk holes in the toe plate and two round countersunk holes in the heel. These are for positioning screws, which ensure the blade does not move once the correct position of the blade is determined. Blade positioning is a very precise operation and can be reviewed at PBHE's Blade Mounting.