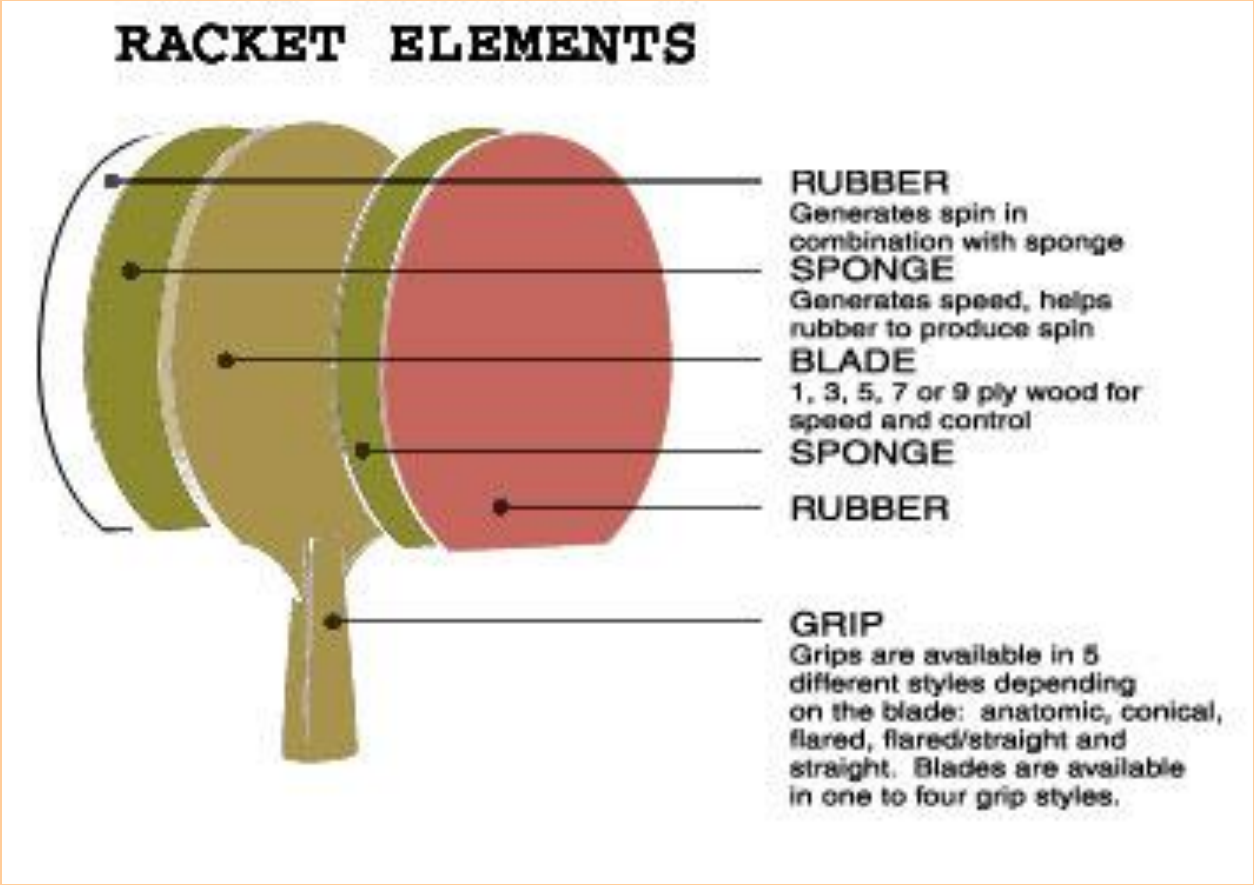
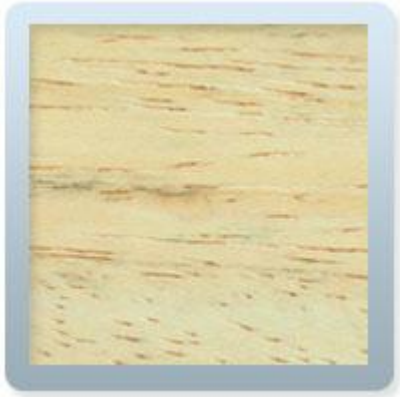
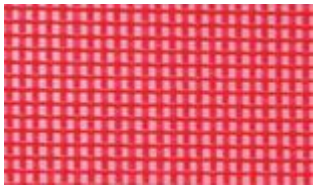
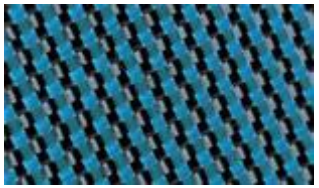
WOOD TYPES AND MATERIALS FOR TABLE TENNIS BLADES

Every once in a while the topic of wood species will pop up on a forum. This is pretty handy information to have when you choose a blade or have a custom blade made. This information are given about them in hopes of aiding anyone is looking to construct a custom blade or is just curious. The technical references made will include a rating on the Janka Hardness Scale, the specific gravity, and weight per cubic foot of each wood. The Janka rating is determined by measuring the force required to embed an 11.28 mm (0.444 in) steel ball into wood to half its diameter (thus leaving an intention of 100mm sq). It'll keep it consistent by using pound-force readings. The specific gravity of a wood is its relative density to water. And the pounds per cubic foot is (as the phrase implies) the weight of a cubic foot of the wood measured in pounds.



Name	Description	Physical and mechanical properties Rollover the properties for more info.
Ayous or Abachi or Obeche or Samba or Wawa 	Ayous, Abachi, and Samba are all the same species, but are from different parts of Africa. Also known as Obeche, Wawa, Arere, Ayus, M'bado, Bado, African Maple. Soft wood, tends to tear easily in thinner plys; mainly an outermost ply wood, pairs up well with many woods; This African fast-growing tree is light weight, offers high elasticity and is not very pliable. It is often used as core veneer and sometimes as surface veneer. This wood is in 90% or more of all blades on the market. It's used as outer, medial, and core plies, as well as for some single-ply blades. Ayous is useful to both maintain some lightness in the core of the blade but not be as crazily light as balsa; it is not that great as top veneer wood. It feels like limba. It is a lightweight, flexible and stiff wood that is excellent for close-to-the-table counterdrive play.	**Density = 0.38 g/cm³** **Monnin Hardness = 1.1** **Compressive strength = 30 MPa** **Bending strength = 52 MPa** **Stiffness = 7260 MPa** **Janka = 430** **SG = 0.38** **PCF = 24**
Anigre (Yellow) 	Also known as Kali, Osan, Landojan, Mukali, Muna, M'boul, N'Kali, Mukangu, Aniegre, Tutu, Kararo, Asanfena. A light-tan hard wood native to Africa. Grubba Pro blades use yellow anigre wood for the outer and secondary plies. Anigre is a mid hard and solid, a non-elastic wood, being waterproof, it is mostly used as surface veneer. Anigre can be found in two colours basically (yellow and red); the red one can be used as a replacement for fossil tree. This African hardwood is suitable for medial and top plies, it has a nice soft/woody feel and a very smooth texture. Yellow anigre is the ultimate control wood; providing a soft feel on contact, this wood is favored by many all-round styles of	**Density = 0.54 to 0.57 g/cm³** **Monnin Hardness = 2.5** **Compressive strength = 48 MPa** **Bending strength = 84 MPa** **Stiffness = 13690 MPa** **Janka = 740** **SG = 0.40** **PCF = 30-34**

	players; Good for DEF+ to OFF- depending on the other plies it's used with.	
Aramid	High strength, high stiffness fiber. Slightly softer than Arylate. Usually yellow.	
Aramid-Carbon	A composite material comprised of a soft Aramid fiber and hard Carbon fiber. Aramid fiber makes the blade fast but not quite so hard as pure Carbon.	
Aratox	Softer and more elastic (Donic & Andro) fiber than Aramid.	
Arylate   	Also known as Vectran™. A spun resin-based liquid crystal polymer used in high strength applications, such as body armor. Typically harder and stiffer than Aramid and Kevlar™. Fibers are usually blue or pale yellow. These reinforcing Arylate fiber used to expand the sweet spot of the blade and also to provide unsurpassed vibration control making the racket more consistent and provides shock absorption for the blade. Lightness is a major characteristic with 75% being carbon fiber. This characteristic will generally result in a racket with a 'medium' or 'soft' feel which is ideal for players who emphasize spin or require more touch.	
Arylate-Carbon (ALC) 	A woven combination of Arylate and Carbon (ALC). These blades feature the best of both the Carbon and Arylate benefits. Used in popular blades such as the Timo Boll Spirit. The speed and large sweet spot of Carbon combined with the great vibration control and soft feel of Arylate. Blades using Arylate-Carbon have power, speed and control. Perhaps the ultimate in blade technology.	

Arylate Carbon Fibers 		
Ash 	Cross between Cypress and Ayous, needs hide glue to fully bring out the playing characteristics. This is a wood best suited for fast all-wood blades. It's heavy and hard so it's best paired with lighter and softer core and outer plies. It's rarely used and when it is, it's generally a medial ply.	**Density = 0.6 g/cm³** **Compressive strength = 51 MPa** **Bending strength = 103 MPa** **Stiffness = 12000 MPa** **Janka = 1320** **SG = 0.66** **PCF = 42**
Balsa 	Also known as Balso, Pau de Balsa, Lanu, Lanilla, Guano, Gatillo, Topa, Algodon, Bois Flot. An extremely light, soft, porous, springy wood that has a non-linear effect at ball contact; hard, direct contact results in a big springing effect, while light or grazing contact results in a more controlled carom, and the difference is greater than what you'd expect; readily available but not usually in widths required for blades, so gluing will most likely be required; primarily useful as core and in rare cases second plys due to its fragility; deteriorates very quickly unless sealed; a thick balsa core tends to result in very springy, offensive blades; due to its softness, it can allow the ball to sink in, resulting in high dwell time, which is good for loopers and	**Density = 0.14 g/cm³** **Monnin Hardness = 0.3** **Compressive strength = 11 MPa** **Bending strength = 24 MPa** **Stiffness = 5140 MPa** **Janka = 88** **SG = 0.17** **PCF = 11**

	choppers who want to manufacture a lot of spin. Also, due to its softness and non-linear effect, it is useful for deception and spin variation. Balsa is one of the most diverse woods used in blade making. Due to its durability it's only practical use is as a core (or handle for ultra light blades). Its density can vary significantly and its behavior is relative to its thickness, thus it can be used for any range of speed. Balsa wood is very light weight and available in different variations. There are several options: very hard and heavy, or soft and light. It is commonly used as core veneer.	
Bass wood 	Also known as Linden, Bee-tree. This wood is well suited to blade making. It's in that ambiguous range of hardness and density which can be used for any ply. It's generally used in cheaper blades but it can certainly make a quality product. This hard wood still used in lower end all-round blades. Its behavior is widely determined by the plies and thus it is another very diverse wood. Bass wood has been a mainstay in racket making for over fifty years due to its high degree of control and economical price. It is favoured by the close-to-the-table counterdriver as well as players looking to purchase their first professional racket.	**Density = 0.37 g/cm³** **Janka = 410** **SG = 0.41** **PCF = 27**
Beech		**Density = 0.71 g/cm³** **Monnin Hardness = 4.2** **Compressive strength = 57 MPa** **Bending strength = 111 MPa** **Stiffness = 15300 MPa**

		Janka = 1300
Carbon 	A layer of Carbon is often used in blades in order to increase the speed and the 'sweet' spot to make more of the blade surface ideal for ball contact making the racket more consistent. Carbon also acts as a reinforcing layer which will strengthen the racket and tends to stiffen the blade. While fast, the bigger sweet spot provides for a shocking level of control. Due to this, most Carbon blades have a 'hard' feel which are ideal for hitters and power play.	
Carbon Glass fiber (G-Carbon) 	Glass fiber and Carbon combined into a resin base. This latest blade technology contains fiber Glass. Similar to Carbon, speed and stability is increased by the use of fiber Glass. But compared to Carbon, fiber Glass is not as hard and offers more feeling. Stiff and soft, lower speed than other Carbon composites. Shatters easily.	
Carbotox	Softer and more elastic (Donic & Andro) fiber than Carbon.	
Cedar (Red Western)	This wood is a good substitute for cypress. It has a soft woody feel and a very nice grain pattern when quarter sawn. It's a perfect candidate for single ply-blades.	**Janka = 350** **SG = 0.37** **PCF = 23**

		
Cedar Port Orford (Kiso Hinoki) 	Also known as Port Orford Cedar, Oregon, Oregon Cedar, Lawson Cypress. A bit harder and denser than it' s previously mentioned cousin, this wood is also a good candidate for a single ply, as well as a lovely substitute for Hinoki Cypress. A prized Japanese wood that is soft and bouncy. Kiso Hinoki is a very light, solid type of wood. This particular cypress is used for blade manufacturing only when having 300 years or more in age. 'Kiso' denotes the top Hinoki woods, available only from a single location in Japan; considered the 'golden' wood of blades, Hinoki is a form of Cypress, and much of the Hinoki used just as outer plies is really Cypress. Hinoki has the property of being very soft with a nice soft touch in the short game, but very fast when hitting. The biggest drawbacks are probably weight and cost. It can be found in all types of veneers in table tennis blades.	**Janka = 720** **SG = 0.44** **PCF = 30** **Density = 0.43 g/cm³**
Cypress or Hinoki	There are several different species of cypress and they're all usable for making blades. The Chamaecyparis obtusa, or Hinoki wood is perhaps the most sought after wood for	**Janka = 300-800 (depending on species)** **SG = 0.20-0.46**

	blades. Cypress is very much like cedar in its feel and appearance, but it tends to be more yellow. Cypress and the two cedars mentioned can serve as cores, medial plies, and outer plies. The classic Asian attacking wood. Favoured by attackers for several decades because of its unique combination of speed and softness. Good, cheap and readily available. Tends to work best with woods similar to it in playing quality such as Ayous, Ash and varieties of pine. Smells nice. There are several different species of cypress and they're all usable for making blades.	**PCF = 32**
Douglas Fir 	It is very rare to see blades made with Fir especially for medial plies. It's very much like the last three woods mentioned.	**Janka = 650** **SG = 0.50** **PCF = 34**
Ebony		**Density = 0.9 g/cm³** **Monnin Hardness = 7.0** **Compressive strength = 58 MPa** **Bending strength = 130 MPa** **Stiffness = 15500 MPa**

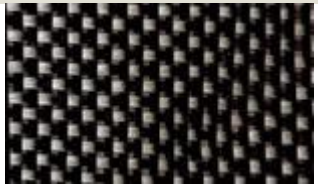
		Janka = 3220
Fir	Called Tanne in Germany.	**Density = 0.49 g/cm³** **Monnin Hardness = 2.5** **Compressive strength = 41 MPa** **Bending strength = 80 MPa** **Stiffness = 14300 MPa** **Janka = 650**
Jatoba 	This wood is very hard and very heavy. Its only practical use is as a very thin top ply. It melds well with balsa to create a long pips-friendly blade.	**Janka: 2820** **SG = 0.71** **PCF = 56**
Gaboon	(Okoume - Angouma).	**Density = 0.35 to 0.55 g/cm³** **Monnin Hardness = 1.6** **Compressive strength = 36 MPa** **Bending strength = 62 MPa** **Stiffness = 9690 MPa**

Glass fibre	Similar to Carbon in its purpose but resulting in less blade stiffness.	
Kevlar™	High stiffness, high strength fiber. Usually used in conjunction with Carbon.	
Kiri 	Also known as Paulownia, Royal Paulownia, Princess Tree, and Empress Tree. This wood is from the Paulownia family. A light weight, soft but very tight and torsion ally stiff type of wood, mainly used as core veneer. (Almost every Butterfly table tennis blade that is made in Japan has a Kiri core.) More durable, heavier and harder than Balsa. (This is one of the main reasons why Butterfly blades are heavier than other manufacturer's blades.) It's a bit over double the hardness of balsa, but it remains very light-weight. This is a great core wood for faster blades with heavier medial and outer plies. Just like balsa, it cuts down on vibration and makes a blade with a little less feeling than something made with a wood like cypress.	**Density = 0.26 to 0.35 g/cm³** **Janka = 250** **SG = 0.26** **PCF = 16**
Koto 	Also known as Anatolia, Poroposo, Ofete, Kakende, Ikame, Ake, Awari, Kyere, Kefe. It tends to feel pretty hard and has a sharp tone. The wood is tight and rather solid. It has a nicely striped, decorative design and therefore is often used as surface veneer (with a thickness of 0.7/0.8 mm). Soft topspin wood, typically used in extremely thin outer plies to produce a faster and stiffer blade. Great wood for players who rely on both looping and countering techniques. Koto wood surface plies encourage crisp, fast blocks and hard hitting for sharper ball contact and faster rebound. Usually quarter sawn for the pattern. This wood is widely used by Butterfly. It's a good offensive wood.	**Density = 0.59 g/cm³** **Monnin Hardness = 2.5** **Compressive strength = 54 MPa** **Bending strength = 96 MPa** **Stiffness = 13140 MPa** **Janka = 950** **SG = 0.65** **PCF = 35**

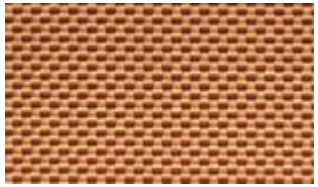
Limba 	Also known as Korina, Ofram, Frake, Afara, Akom. Limba is a hard west African wood of light yellow color. It is rigid and solid. It is mostly used as surface veneer with a thickness of 0.7/0.8 mm. Limba is a great wood for outer and medial plies. It has a medium-soft feel. Limba wood adds the soft feel and great control needed by today's modern topspin players. Limba is the classic European topspin wood (as compared to Hinoki, which is the classic Asian topspin wood) heavy and fast, but not springy. It is lighter and softer than Hinoki or Koto. Limba wood changes its color as the time passes so it is sometimes hard to spot a Limba wood by its color. Although Limba wood is soft, it can't give a soft feeling to the blade by itself, and when used with other veneers, a Limba blade can give a hard feeling. Limba has excellent acoustic properties and provides a good acoustic click sound when used with speed glue effect rubbers. Its vibrations or flex is liked by topspin players. The higher the thickness of the Limba ply, the greater the blade's hitting ability.	**Density = 0.45 to 0.65 g/cm³** **Monnin Hardness = 2.4** **Compressive strength = 47 MPa** **Bending strength = 80 MPa** **Stiffness = 11750 MPa** **Janka = 490** **SG = 0.45** **PCF = 34**
Mahogany		**Density = 0.57 g/cm³** **Monnin Hardness = 2.5** **Compressive strength = 46 MPa** **Bending strength = 77 MPa** **Stiffness = 11820 MPa** **Janka = 830**
Meranti		**Density = 0.54 g/cm³** **Monnin Hardness = 2.4** **Compressive strength = 48 MPa**

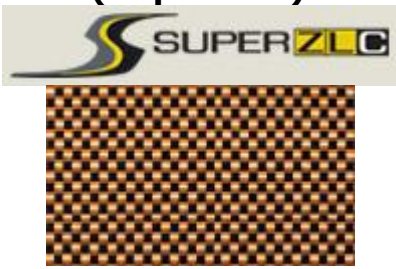
		Bending strength = 98 MPa **Stiffness = 14100 MPa**
Oregon	See Cypress and Hinoki.	
Padouk	The wood is hard and elastic, partly used as surface veneer (it has dark red color).	**Density = 0.79 g/cm³** **Monnin Hardness = 8.3** **Compressive strength = 65 MPa** **Bending strength = 116 MPa** **Stiffness = 15870 MPa**
Planchonello	Planchonello outer layers produce great speed. This wood is most often found in blades designed for the power attacker.	
Poplar 	Readily available, capable of being used as a core wood and as an outer ply, providing skill in matching thicknesses up. This wood is good and similar to ayous and basswood.	**Density = 0.45 g/cm³** **Monnin Hardness = 1.3** **Compressive strength = 35 MPa** **Bending strength = 62 MPa** **Stiffness = 9800 MPa** **SG = 0.42** **PCF = 30**
Pseudoacacia	It is named Akazie in German.	**Density = 0.75 g/cm³**

		Monnin Hardness = 9.5 **Compressive strength = 70 MPa** **Bending strength = 126 MPa** **Stiffness = 16900 MPa** **Janka = 1800**
RX-Carbon	RX-Carbon consists of hard black and soft red fibers. This mix speeds your game up, increases the energy efficiency and provides a natural touch.	
Sapele		**Density = 0.69 g/cm³** **Monnin Hardness = 4.2** **Compressive strength = 62 MPa** **Bending strength = 102 MPa** **Stiffness = 13960 MPa**
Spruce 	Called Fichte in Germany. Used to create better speed, Spruce plies result in big sound and good feeling when you hit the ball, but when this ply comes too much close to the rubber, the sound and feeling are too powerful, and the ball will not be very spiny, so it is better used beneath a surface ply. This wood is generally used as a medial ply. It's similar to cypress and the cedars in terms of its feel.	**Density = 0.45 g/cm³** **Monnin Hardness = 2.2** **Compressive strength = 46 MPa** **Bending strength = 78 MPa** **Stiffness = 11900 MPa** **Janka = 300 to 500** **SG = 0.43** **PCF = 27**

T-Tec	T-Tec technology exposes the wood to extreme heat during the manufacturing process. This heating technique changes the chemical composition of the wood making the blade extremely stable and very durable. The cell structure of the wood is tightly compacted which reduces the weight of the blade, increases the hardness and greatly reduces its ability to absorb moisture.	
Tamca® 5000 	A style of Carbon which is woven into a fabric or mesh. Typically stiff and fast, but not as hard as laminate type Carbon layers. TAMCA 5000 (Carbon Fiber) is strong and light, six times stronger and one fifth in weight compared with iron and steel. Blades using TAMCA 5000 are light and strong with high elasticity and enable high performance.	
Uniaxial Light Carbon (ULC) Tamca ULC 	Uniaxial Light Carbon. Carbon laid out with fibers aligned in a singular direction, typically north-south. Not as stiff, fast or hard as weave type Carbon layers. Considerably lighter (75-85%). TAMCA ULC employs many carbon fibers but only lengthwise. Usually for carbon sheets, fibers are woven evenly in every direction. Therefore, TAMCA ULC is light but does not sacrifice speed.	
Texalium™	An aluminum impregnated resin cloth layer that is formed into a solid ply. Hard, fast and quite stiff, but not as heavy as Carbon weaves.	
Tung	(Vernicia fordii) Used as inner plies. The wood of the tree is lightweight and strong, and is sometimes used as a	

	substitute for balsa, kiri or basswood.	
Walnut 	Dark colored wood that is fast, hard and expensive outer ply material. Pairs up well with a soft core. This one is mostly used as a top ply, but sometimes it is used as a medial ply. It has a hard but crisp feeling.	**Density = 0.66 g/cm³** **Monnin Hardness = 3.2** **Compressive strength = 64 MPa** **Bending strength = 117 MPa** **Stiffness = 11800 MPa** **Janka = 1010** **SG = 0.59** **PCF = 40**
Wenge		**Density = 0.87 g/cm³** **Monnin Hardness = 9.1** **Compressive strength = 85 MPa** **Bending strength = 144 MPa** **Stiffness = 21050 MPa** **Janka = 1630**
White Ash		**Density = 0.68 g/cm³** **Monnin Hardness = 5.1** **Compressive strength = 51 MPa** **Bending strength = 113 MPa** **Stiffness = 12900 MPa**

Willow 	Also known as Yanagi, Black Willow. A heavy wood used most often in choppers' blades, as an outer layer, due to its deadening effect, making hard, fast loops easier to control. This is an awesome defensive wood. It eats up the force of an incoming ball. It has a hollow feeling.	**Density = 0.39 to 0.42 g/cm³** **Janka = 360** **SG = 0.39** **PCF = 26**
Zebrano 	Another hard and heavy wood. It has a surprisingly good woody feel. It's not used by any major manufacturers. It's definitely an outer ply only.	**Janka = 1575** **SG = 0.74** **PCF = 46**
Zylon 	Also known as PB0 gold colored fiber. Used in high strength applications. Known issue where the fibers slowly degrade after contact with any form of water, but is not an issue in table tennis applications. Slightly lighter than other similar polymer fibers (Arylate, Aramid, Kevlar™) but slightly faster and stiffer. ZL Fiber has a detailed molecular	

	configuration that is strong and elastic. Its ratio is 10% lower than carbon fiber, thus making the blade both light and with a high performance level.	
Zylon-Carbon (ZLC) 	Zylon fibers woven into a Carbon weave. Generally around 50% Zylon 50% Carbon. Lightens the blade by 10% or 15% and retains the original speed. Stiffness is slightly lower and the feel is now soft. Carbon fiber has a high reaction level and the ZL Fiber provides strength, elasticity, and lightness. ZL Carbon, the super fiber, gives the blade a high level of performance.	
Super Zylon-Carbon (Super ZLC) 	Super ZL Carbon has gone beyond the present fibrous materials and stepped forward into the new territory. The remarkable reaction and control provided by the expanded high-reaction area has taken the blade to the next stage. Super ZL-Carbon is an evolved new material Butterfly introduces to the world with confidence.	

ΟΝΟΜΑΣΙΑ	ΞΥΛΟ ή ΥΛΙΚΟ	ΕΞΩΤΕΡΙΚΟ ΣΤΡΩΜΑ	ΕΣΩΤΕΡΙΚΟ ΣΤΡΩΜΑ	ΠΥΡΗΝΑΣ	ΙΔΙΟΤΗΤΕΣ	ΙΚΑΝΟΤΗΤΕΣ-ΑΙΣΘΗΣΗ	ΕΙΔΟΣ ΠΑΙΧΝΙΔΙΟΥ	ΠΑΡΑΤΗΡΗΣΕΙΣ
Ayous or Abachi or Samba	Ξ	■	■	■ (κυρίως)	ελαφρύ, ελαστικό, μαλακό και άκαμπτο		κοντινό-επιθετικό	
Anigre (Yellow)	Ξ	■	■		μέτρια σκληρό, συμπαγές, μη ελαστικό, υδραπωθητικό	απαλό, το απόλυτο κοντρόλ	All-round from DEF+ to OFF-	
Aramid	Υ		■		υψηλή αντοχή, άκαμπτο, πιο μαλακό από Arylate			
Aramid-Carbon	Υ		■		υψηλή αντοχή, άκαμπτο, λιγότερο σκληρό από Carbon	γρήγορο		
Aratox	Υ		■		πιο μαλακό και ελαστικό από Aramid			
Arylate	Υ		■		πιο σκληρό από Aramid και Kevlar, ελαφρύ	μέτριο έως απαλό, αύξηση sweet spot, σταθερό και με έλεγχο των κραδασμών	για σπιν και αίσθηση της μπάλας	
Arylate-Carbon	Υ		■		ελαφρύ	δυνατό και γρήγορο με κοντρόλ, αύξηση sweet spot, σταθερό και με έλεγχο των κραδασμών		
Ash	Ξ		■		βαρύ, πολύ σκληρό	γρήγορο		για γρήγορες καθαρά ξύλινες ρακέτες, απαιτεί κόλλημα στα λάστιχα
Balsa	Ξ		■ (σπάνια)	■ (κυρίως)	πολύ ελαφρύ, μαλακό, ανθεκτικό	δίνει ελαστική και ελατηριωτή αντίδραση στην μπάλα	δίνει πολύ σπιν	απαιτεί κόλλημα στα λάστιχα
Bass wood	Ξ	■	■	■	σκληρό	υψηλό κοντρόλ	All-round κοντινό-επιθετικό	
Carbon	Υ		■		σκληρό, υψηλή αντοχή	γρήγορο, σκληρό με κοντρόλ, αύξηση sweet spot	επιθετικό με κτυπήματα	
Carbon Glass fiber	Υ		■		πιο μαλακό από Carbon, σπάζει εύκολα	γρήγορο και σταθερό με κοντρόλ και καλύτερη αίσθηση από Carbon		
Carbotox	Υ		■		πιο μαλακό και ελαστικό από Carbon			
Cedar (Red Western)	Ξ	για μονόφυλλες ρακέτες			μαλακό			
Cedar Port Orford (Kiso Hinoki)	Ξ	για μονόφυλλες ρακέτες αλλά και για κάθε στρώμα			πιο σκληρό από το Cedar (Red Western), ελαφρύ	μαλακό και ταυτόχρονα γρήγορο στα κτυπήματα	κοντινό-επιθετικό	ακριβό διότι πρέπει να είναι τουλάχιστον 300 ετών
Cypress or Hinoki	Ξ	για κάθε στρώμα			μαλακό και ελαφρύ	μαλακό και ταυτόχρονα γρήγορο	επιθετικό	κλασικό ασιατικό επιθετικό ξύλο που συνεργάζεται με Ayous, Ash και ποικιλίες πεύκου
Douglas Fir	Ξ		■					
Jatoba	Ξ	■ (λεπτό στρώμα)			πολύ σκληρό και πολύ βαρύ		για μακρύδοντα λάστιχα	ταιριάζει με Balsa

Glass fibre	**Y**		■		λιγότερο σκληρό από Carbon, υψηλή αντοχή	αύξηση sweet spot,		
Kevlar™	**Y**		■		υψηλή ακαμψία, υψηλή αντοχή			σε συνδυασμό με Carbon
Kiri	**Ξ**			■	μαλακό, σφιχτό και ελαφρύ, πιο βαρύ και διπλάσια σκληρό από το Balsa	γρήγορο, κόβει τους κραδασμούς		σε όλα τα ξύλα Butterfly
Koto	**Ξ**	■			σφιχτό, στέρεο και σκληρό	γρήγορο	offensive wood for looping and countering with fast blocks and hard hitting. For sharper ball contact and faster rebound.	
Limba	**Ξ**	■	■		άκαμπτο και στερεό, ελαφρύτερο και μαλακότερο από Hinoki και Koto	μέτρια μαλακό με κοντρόλ, πολύ ακουστικό σε συνδυασμό με speed glue	για topspin με κοντρόλ	κλασικό ευρωπαϊκό επιθετικό ξύλο, παχύτερο στρώμα δίνει δυνατότερα κτυπήματα
Oregon	**Ξ**							παρόμοιο με Cypress και Hinoki
Padouk	**Ξ**	■			σκληρό και ελαστικό			
Planchonello	**Ξ**	■				πολύ γρήγορο	για δυνατά κτυπήματα	
Poplar	**Ξ**	■		■	ελαφρύ, ελαστικό, σκληρό, όχι εύκαμπτο	καλό κοντρόλ		παρόμοιο με Ayous και Baswood
RX-Carbon	**Y**		■			γρήγορο		
Spruce	**Ξ**		■		πολύ ακουστικό	γρήγορο και δυνατό	για γρήγορα κτυπήματα	
Tamca® 5000	**Y**		■		λιγότερο σκληρό και γρήγορο από το Carbon, ελαφρύ και ελαστικό	γρήγορο και ισχυρό		
Uniaxial Light Carbon (ULC) Tamca ULC	**Y**		■		όχι τόσο δύσκαμπτο ή σκληρό και ταυτόχρονα πιο ελαφρύ από το Tamca 5000	γρήγορο		
Texalium™	**Y**		■		σκληρό και πιο ελαφρύ από το Carbon	γρήγορο		
Tung	**Ξ**		■		ελαφρύ και δυνατό	δυνατό		υποκαθιστά τα Balsa, Kiri, Basswood
Walnut	**Ξ**	■	■ (σπάνια)		σκληρό	γρήγορο	για αμυντικούς	
Willow	**Ξ**	■			βαρύ	απορροφά τα κτυπήματα με καλό κοντρόλ		
Zebrano	**Ξ**	■			σκληρό και βαρύ			
Zylon	**Y**		■		δυνατό και ελαστικό, ελαφρύτερο από Arylate, Aramid, Kevlar™	υψηλή απόδοση		
Zylon-Carbon (ZLC)	**Y**		■		ανθεκτικό αλλά ελαφρύτερο, ελαστικότερο και πιο μαλακό από	γρήγορο με μαλακή αίσθηση, αυξημένο sweet spot αρκετό κοντρόλ και υψηλή απόδοση		

					Carbon			
Super Zylon-Carbon (Super ZLC)	**Y**		■		ανθεκτικό αλλά ελαφρύτερο, ελαστικότερο και πιο μαλακό από Carbon	γρήγορο με μαλακή αίσθηση, αυξημένο sweet spot, αρκετό κοντρόλ και άμεση αντίδραση με υψηλή απόδοση		