

A Guide to Arrows

By Hugh Turner

Introduction

After you've purchased your own equipment, there comes a time when you need some new arrows to replace the club arrows to suit you and your bow, usually as you move up in poundage. Arrows come in many forms, thicknesses, materials, and stiffness, each of which has an influence on the flight of an arrow. This guide will help to demystify the jargon and help you on your way.

Target Audience

This guide is intended for recurve archers that are emerging from beginners and becoming intermediate level archers. They should be competent on a "Roo Shoot" to 30m or more (OzBow Red 30 if you're following that Archery Australia scheme), and have their own bow.

A Note on Arrow Brands and Vendors

This document uses particular brands of arrows as an example only, it is not intended as an endorsement of the brands, but just to illustrate a point. The same is true of any website screenshots, these are used as an example of what ordering options may be available.



Table of Contents

Introduction	1
Target Audience	1
A Note on Arrow Brands and Vendors	1
Table of Contents	2
Choosing The Correct Arrow	3
Draw Weight	3
Draw Length	4
Arrow Spine	4
Arrow Choice	6
The Arrow Chart	7
Example 1 - Skylon	7
Example 2 - Easton	8
Points, Nock Pins, and Nocks	9
Points	9
Pins	10
Bushings and Press-Fit Nocks	11
Nocks	12
Buying your Arrows	13
Fletches & Arrow Wraps	14
Fletches	14
Arrow Wraps (optional)	15
Thanks for Reading	17
Appendix A - Skylon Arrow Chart	18
Appendix B - Easton Arrow Chart	19



Choosing The Correct Arrow

Choosing the right arrow for you is based on a two main criteria:

- Draw weight
- Draw length

These two numbers determine the correct spine of the arrow you need to buy (which we'll get to later).

Draw Weight

Draw weight is the amount of weight that you hold at full draw, and is related to the strength of your limbs. Limbs are usually constructed with the "standard" 28 inch draw length in mind, so in theory, a 28lb limb set would have a draw weight of 28lb at a draw length of 28 inches. All limbs (and archers) are not equal however, so the only way to know for sure what your current draw weight is with your existing limbs is to measure it.

To measure your draw weight, the club has a handheld digital bow scale:

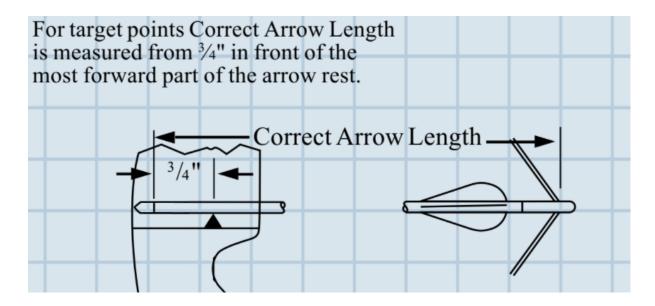


Ask one of the coaches to get it out and help you measure your draw weight at full draw.



Draw Length

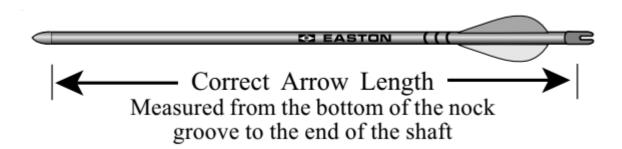
Once that's out of the way, you need to know what your draw length is. This is important to work out how long your arrow shafts need to be. MPB has a special arrow used for this, but you can also use your existing (long) arrows and a marker to measure your ideal arrow length. Easton have a handy diagram in their arrow tuning guide that we have simplified for a recurve target arrow:



The black triangle represents the arrow rest, and you need to allow at least ¾" past that to the end of the shaft. For the first time you measure your arrow length with recurve bows, it is recommended that you add an extra ½" to 1" to that arrow length. This is because as you become stronger and your shooting technique improves, the arrow will not be too short. You can always cut an arrow down, but you can never make it longer!

One of the main reasons for cutting your arrows to this precise length is when you start to use a riser mounted clicker. You will want to make sure your arrow is not too long to use with it.

What you might note from this diagram, is that the arrow length is measured from the tip of the shaft (back of the point) to the bottom of the nock groove where the string sits, and NOT just to the back of the arrow shaft. If you ever buy arrows online and ask for pre-cut arrows, make note of this (Alternative Services actually tell you on their website).





Arrow Spine

Arrow spine was mentioned earlier, but what exactly is it? Well, the spine rating of an arrow is simply a measurement of its stiffness. The same model of arrow comes in a variety of stiffnesses; the lower the number, the stiffer the arrow. For example, a 330 arrow is stiffer than a 500 spine arrow.

Spine ratings are measured using "static spine", which is how an arrow reacts when an 880-gram (1.94 lbs.) weight is suspended from the center of the arrow. The arrow must be 29" in length and supported by two points, which are 28" apart. The number of inches the arrow deflects or bends is multiplied by 1000. This is the spine size or measurement of an arrow. So, a 500 spine arrow bends 0.5-inches when the weight is applied (and a 1000 spine arrow bends 1 inch).

It's worth noting here that if you cut an arrow to be shorter, it will stiffen it. This is really important when it comes to selecting the right spine of arrow. If you use a sight mounted clicker (and therefore have a long arrow), and then decide to chop 3 inches off it to move to a riser mounted clicker, you'll stiffen it (as much as 300). You will need to bear this in mind when it comes to the arrow chart - and we'll get to that a little later. Talk to your coach about when you're ready to move onto a clicker, and what type of clicker you should use.



Arrow Choice

Now that we know the draw weight and length, we can get to the fun part, selecting the right arrow! If you've had the club arrows, you'll likely have got either Avalon Classic, or their direct replacement, the Skylon Radius. These are fine arrows for beginners, but there is a world of choice out there.

Some of the manufacturers you might consider are:

- Skylon
- Easton
- Fivics
- Carbon Express

Here's a handy chart of just some of the options (for regular target arrows - no maximum diameter indoor arrows here):

Brand	Arrow	Straightness Tolerance	Level	Notes
Carbon Express by Feradyne	MAXIMA PRO RZ RECURVE	+/- 0.0025"	High Performance	ID5.94 (0.234"). A "fat" arrow (Carbon fibre).
Easton	Avance Sport	±0.006"	Beginner or Intermediate	ID4 Parallel Shaft (Carbon Fibre) Replaces the Easton Apollo
Easton	Avance	±0.003"	Intermediate	ID4 Parallel Shaft (Carbon Fibre) Replaces the Easton Carbon One
Easton	A/C/E	±0.0015"	High Performance	ID4 Barrelled Shaft (Carbon fibre bonded to Aluminum core)
Easton	X10	±0.0015"	Olympian	Barrelled Shaft (Carbon fibre bonded to Aluminum core)
Fivics	Five-X	±0.001"	High-Performance	ID3.15 Parallel Shaft (Carbon Fibre)
Skylon	Brixxon	±0.001"	Intermediate	ID4.2 Parallel Shaft (Carbon Fibre)
Skylon	Performa	±0.006"	Intermediate	ID3.2 Parallel Shaft (Carbon Fibre)
Skylon	Precium	±0.004"	Intermediate	ID3.2 Parallel Shaft (Carbon Fibre)
Skylon	Paragon	±0.002"	High Performance	ID3.2 Parallel Shaft (Carbon Fibre)
Skylon	Preminens	±0.001"	High Performance	ID3.2 Parallel Shaft (Carbon Fibre)

ID = internal diameter (in mm).

What you choose, and why you choose it is largely up to you. If you have money to burn, go ahead and buy some X10s. They are great arrows and have won every Olympic title in recent years, but will they make you a better shot? No; that's up to you and your technique. Will a cheap arrow make you worse? Maybe, if it's made to poor tolerances and with poor materials badly put together, but none of the arrows listed above fall into that category.

In general terms though, an arrow built to tighter tolerances will perform more consistently with the others in the batch it comes with, but in the end it usually comes down to budget, and historically, a lot of club members have bought the Easton Carbon One (though this is now discontinued in favour of the Easton Avance). Bear in mind you *will* lose and/or break arrows at some point.



The Arrow Chart

Once you've selected which type of arrow you want, you need to know what the spine value needs to be. To do this, you consult the arrow chart of the manufacturer in question. We'll walk you through 2 examples.

Example 1 - Skylon

For this first example, we'll pick the Skylon Brixxon, a reasonably priced intermediate arrow (roughly \$85 per dozen - shafts only).

Appendix A has the arrow chart for their 2021 catalogue. Let's start with your draw weight and say it's 28lb. Look at the far right of the table under the "Recurve Bow" column. You'll see 24-29# listed on one of the rows. Now move left along that row until you hit your correct arrow length in inches. You should round your arrow length up or down to the nearest inch. For argument's sake, we'll say we have an arrow length of 28 inches.

The value where the row and the column meet up for this is Group A3. Have a look at Group A3 and you'll see the various spines suitable for you based on your arrow type.



For the Brixxon arrows for a recurve bow, the table for group A3 says you need the 850-800 spine arrows (be careful not to mix it up with the compound row, which would have a stiffer spine of 750).

OK, great, that's a choice of 2 different spines, 850 or 800! Which one you pick is down to you. If you're on the higher side of the poundage range, or the longer side of the draw length (remember you rounded up or down), you might want the stiffer arrow, so the 800 might be the right choice for you (which we'll use as our example going forward)..

If in doubt, ask your coach. You can tune an arrow to a certain extent with various methods (which we won't go into), so it's not the end of the world.



Example 2 - Easton

Let's pick the Avance arrow here for our Easton example (roughly \$160 per dozen - shafts only).

We'll do the same draw weight and length of 28lb and 28". Take a look at the chart in Appendix B for the 2021 example, or use Easton's "Target Shaft selector" on their website: https://eastonarchery.com/targetshaftselector/ (note it may not reflect the latest catalogue).

Again the recurve poundage is on the right, and the draw length along the top. You should find yourself in group T3. The Avance in that group is the 730 spine, so only one choice.

Group T3				
*720•780R	0.720•0.780	A/C/E	6.4	
*700•750R	0.700•0.750	X10	6.7	
720	0.720	ProTour	6.2	
750	0.750	Inspire	8.1	
840	0.840	Apollo	6.5	
1813	0.874	75	7.9	
1814	0.799	X7	8.6	
1816	0.756	75	9.3	
730	0.730	Avance	5.0	
710	0.710	PRO	6.5	

Note that different manufacturers will recommend different spines based on the construction of their arrows (and the spine value may not be constant all along the shaft), so don't expect equivalence between brands or even different arrows from the same brand.



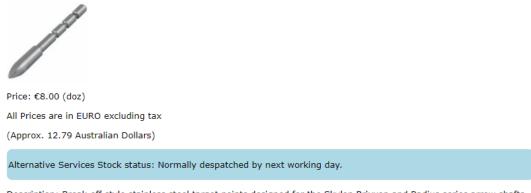
Points, Nock Pins, and Nocks

When you buy arrows, generally speaking they don't come with points, pins, or nocks; you need to buy them separately. We'll stick with the Skylon Brixxon here for our example.

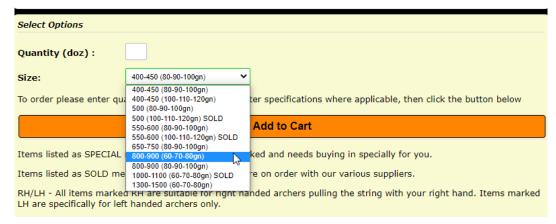
Points

Find the point for the Brixxon arrows in the shop of your choice. The website shots for this are from Alternative Services in the UK (other vendors are available).

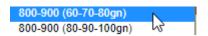
Skylon Brixxon / Radius points (doz)



Description: Break-off style stainless steel target points designed for the Skylon Brixxon and Radius series arrow shafts. Will also fit other arrow shafts with 4.2mm internal diameter (ID4.2) such as the Avalon Tec One and Avalon Classic shafts. Sold as a pack of 12.



We have a lot of options, but don't despair! The number on the left is the spine range, so we can quite happily narrow this down to two options based on our choice of an 800 spine arrow:



Now we come to the second set of numbers in brackets - the weight of the point in grains (one grain is 0.065 grams). Note that there are three numbers here, that's because these are "break-off" points. You can break off bits of the point to reduce the weight of it by 10 grains each time. But which one do you need? A heavier point will make the arrow slightly weaker (less stiff), and a lighter point will make it stiffer (so you can fine tune your arrow stiffness this way if you need to). So again, this depends on which side of the scale you were on and if you are more likely to need to stiffen or weaken your arrow. Some points only have one choice of point weights for a given spine.



Pins

Nock pins are the bits on the end of your arrow that go in the back of the shaft so you can attach a pin-style nocking point to it:

Skylon Pins (doz)



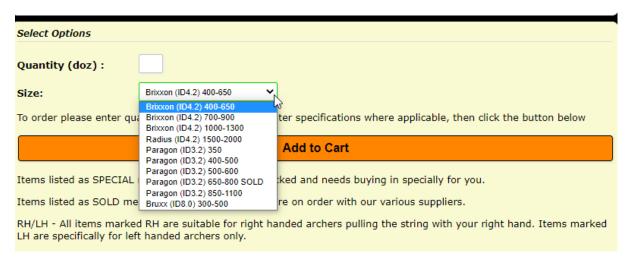
Price: €3.20 (doz)

All Prices are in EURO excluding tax

(Approx. 5.12 Australian Dollars)

Alternative Services Stock status: All options normally stocked.

Description: Pins in various sizes suitable for the Skylon Brux, Empros, Brixxon, Radius, Performa, Precium and Paragon series shafts. Accepts industry standard pin nocks. Sold in packs of 12.



Picking the right pin is easy, and as it happens, Skylon usually include some pins with your arrow shafts (which is nice), however, they are likely to break/dent if you do a "Robin Hood", so a spare set is always a good idea. In this example, you have a choice of pins, we'll need the second option (Brixxon (ID4.2) 700-900). This is so that the outside diameter of the "ring" at the back of the pin lines up with the outside diameter of the arrow shaft we're buying. After you've got your pin, you need a nock (see later).



Bushings and Press-Fit Nocks

The alternative to the pin-style nock fittings is the press-fit type (like Easton's G-Nock). You can install these directly in the arrow shaft, or, into a bushing designed for your arrow. Bushings are generally made of aluminium and may provide extra protection for your arrow shaft against impacts.



Which option you take is a personal choice. Whatever you use, make sure they'll fit your arrow.



Nocks

Next we need some pin nocks (if you're using nock pins). These are a personal choice, but you'll need ones that fit your pins. Skylon offer a range of colours, but only two types, long nocks (large) for compound, and small (shorter) nocks for recurve. We'll pick a pack of lurid fluro green for recurve here:

Skylon Pin Nocks (pk/100)



Price: €16.96 (pk/100)

All Prices are in EURO excluding tax (Approx. 27.12 Australian Dollars)

Alternative Services Stock status: Normally despatched by next working day.

Description: Low cost pin style nocks with industry standard fitting. Our suppliers have extensively tested them with 75lbs hunting compound bows with no deformation. The Skylon factory used Chinese army grade composite materials in the production. Available in recurve small and compound large size options in a wide range of solid and flu colours. Save money when purchasing these factory packaged quantities of 100 pieces.

Select Options	\$			
Quantity (pk/100):	1			
Colour:	Recurve Small - Flu Green			
To order please enter qua	antity required, choose or enter specifications where applicable, then click the button below			
	Add to Cart			
Items listed as SPECIAL means it is not normally stocked and needs buying in specially for you.				
Items listed as SOLD means it is sold out and more are on order with our various suppliers.				
RH/LH - All items marked RH are suitable for right handed archers pulling the string with your right hand. Items marked LH are specifically for left handed archers only.				

Personally, I find that Skylon nocks are slightly on the small side (in terms of the gap for the string), so you may want to consider an alternative if you find this to be the case. Ask to try someone's nocks to see which brand suits your string best before you buy.

Whatever you choose, buy enough so you have a good supply of spares, the better you get, the more likely you are to hit your own arrows and damage nocks. NEVER shoot an arrow with a damaged nock (all that force going through a damaged nock can have nasty consequences).



Buying your Arrows

Once you know your arrow length and the spine, you need and go and buy your arrows by filling in the right fields on the website:

Skylon Brixxon shafts (doz)

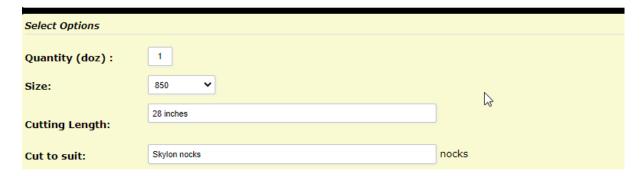


Price: €51.36 (doz)

All Prices are in EURO excluding tax (Approx. 82.14 Australian Dollars)

Alternative Services Stock status: Normally despatched by next working day.

Description: Replaces the Avalon Tec One shafts. The Brixxon shares the same 24-ton carbon construction, +/-0.001in straightness tolerance and 4.2mm internal diameter (ID4.2) as the Tec One but is also available many more spine sizes. Supplied as a set of 12 shafts with pins included.



Make sure you fill this in correctly, and as before, it's better to get your shafts too long rather than too short. If you'd prefer to get the full shaft length and cut them at the club, that's also an option, as we have an arrow saw in the workshop; feel free to ask Keith Frewin or Bob Burnell (or any member that's been trained and authorised to use the saw) to help you out - preferably with the advice of your coach.



Fletches & Arrow Wraps

Fletches

You'll need some fletches (or vanes) to go on your arrows. Your options here are extremely varied, and much of it will be personal choice, however there are a few guidelines for vanes.

- In general, for shorter distances (i.e. indoors) a higher drag set of vanes is preferable so that they can straighten the arrow out in-flight much quicker than a low drag set of vanes. High drag vanes tend to be longer and higher.
- For longer distances, shorter and lower vanes produce less drag, and therefore affect arrow speed much less (which is good over distance), but you still need enough of a vane to help straighten the arrow out.
- Most people who shoot both indoors and outdoors and have one set of arrows will tend to settle on the smaller end of the scale, but the choice is up to you.

There are a couple of types of arrow vanes used for recurve, namely:

Rubber style vanes that are stuck on with glue.



Spin wing style vanes that use adhesive tape to stick on the vane, and anchor tape to protect
the leading and trailing edges (which can also be customised with various designs and
colours).



Rubber vane pros:

- Much sturdier than the spin wing vanes.
- Generally cheaper.
- Can be fletched straight or helically (using the right jig).

Rubber vane cons:

- The glue used with rubber vanes tends to leave a messy residue behind when you remove a vane, you may need to do some very careful scraping.
- Usually requires a fletching jig takes longer to fletch.

Spin wing vane pros:

- Much easier to fletch especially using marked arrow wraps (see later).
- Easy to remove cleanly.
- Designed to impart a spin on your arrows for more stable flight.



Spin wing vane cons:

- Generally more expensive.
- Easy to remove unintentionally (such as when you shoot through your clicker).

Ultimately, the choice is a personal one, but by all means ask other archers what they prefer and ask about their experiences and why they made the choice they did. Not all spin wings are created equal, and the same goes for the rubber vanes.

Arrow Wraps (optional)

Arrow wraps are specially measured stickers that are designed to fit around the rear of your arrow like so:



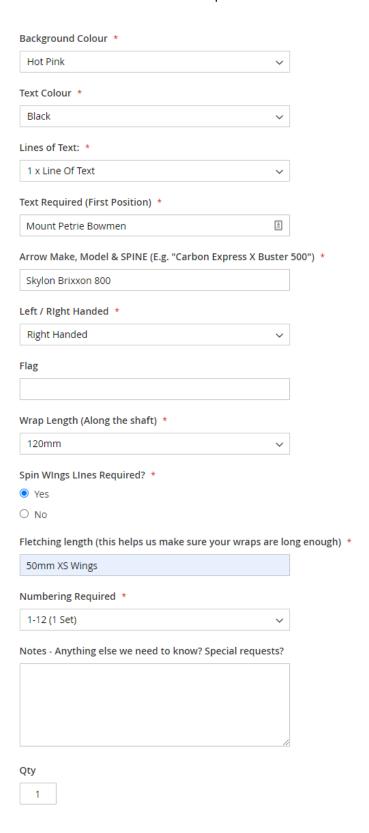
They serve no practical purpose in terms of arrow flight, but they are still useful:

- They look great the massive variation in designs can make your arrows stand out.
- They can be printed with your name (which can be handy, since you are required to identify your arrows on the shaft for competitions). This looks better than a shaky attempt with a paint marker
- They can be bought in numbered sets, so you can identify individual arrows.
- They can be marked with spin wing lines (as shown below). These serve as guides that are in the right place for your arrows to attach the spin wings.





When you buy a set of wraps, you'll be asked to specify the arrow model and the spine - this is so they can be printed to be the correct size with no overlap:





That said, if all you want is a name label, some arrow wrap companies offer these too:



Some archers choose not to use wraps, as they believe they upset the makeup of the arrow, and they can alter the weight distribution and stiffness. Ultimately, what arrow wraps you choose is up to you, you can choose to stand out, or just have something simple and practical, or you can just leave your arrows as they come.

Thanks for Reading

We hope you gained some insight into the world of arrows and that this information proves useful.



Appendix A - Skylon Arrow Chart (2021)

спирпи	ID ROW - REI FASE	AID PEAK BOW WE	IGHT (LRS)			CUBI	DECT APPO	JW LENGTH	FUB TVBB	FT - FIFI D	- 3D (INCH)		
							CEUT ARRE	JW ELINOTTI	TOK TAKO		OD (INGII	,		
Compound Bow <276 FPS	COMPOUND BOW 276-300 FPS	COMPOUND BOW 301 - 340 FPS	COMPOUND BOW 340 - 360 FPS	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	RECURVE Bow
				Y1	Y1	Y2	Y3	Y4						16-19#
29-35#				Y1	Y2	Y3	Y4	Α1	A2	ΕА	A4			20-23#
35-40#	29-35#			Y2	Y3	Y4	A 1	A2	АЗ	A4	A5	A6		24-29#
40-45#	35-40#	29-35#				A 1	AZ	EΑ	A4	A5	A6	Α7		30-35#
45-50#	40-45#	35-40#	29-35#		A 1	AZ	ΕА	A4	A5	A6	Α7	AB	A9	36-40#
50-55#	45-50#	40-45#	35-40#	A 1	AZ	ΑЗ	A4	A5	A6	A7	AB	A9	A10	41-45#
55-60#	50-55#	45-50#	40-45#	A2	ΕА	A4	A5	A6	Α7	АВ	A9	A10	A11	46-50#
60-65#	55-60#	50-55#	45-50#	ЕА	A4	A5	A6	Α7	A8	A9	A10	A11	A12	51-55#
65-70#	60-65#	55-60#	50-55#	A4	A5	A6	Α7	АВ	A9	A10	A11	A12	A13	56-60#
70-76#	65-70#	60-65#	55-60#	A5	A6	Α7	AB	A9	A10	A11	A12	A13		61-65#
76-82#	70-76#	65-70#	60-65#	A6	Α7	AB	A9	A10	A11	A12	A13			66-70#

LOW POUNDAGE RECURVE BOW

R 2000 RADIUS

R 1800 RADIUS

R	1000	BRIXXON
C	900	BRIXXON
R	1000-900	PER/PRE/PAR
C	900	PER/PRE/PAR
R	1000-900	RADIUS
C	900	RADIUS

GROUP A2 R 900-850 BRIXXON BRIXXON R 900-850 PER/PRE/PAR R C 800 PER/PRE/PAR RADIUS

	GROUP A3				
R	850-800	BRIXXON			
C	750	BRIXXON			
8	00	EDGE			
R	850-800	PER/PRE/PAR			
С	750	PER/PRE/PAR			
R	750-700	RADIUS			
С	700	RADIUS			

GROUP A4				
R 750-700	BRIXXON			
c 650	BRIXXON			
800-700	EDGE			
R 750-700	PER/PRE/PAR			
c 650	PER/PRE/PAR			
R 700-650	RADIUS			
c 650	RADIUS			

GROUP A5					
R 700-650	BRIXXON				
c 600	BRIXXON				
700	EDGE				
R 700-650	PER/PRE/PAR				
c 600	PER/PRE/PAR				
R 650-600	RADIUS				
c 600	RADIUS				

R	1500	RADIUS
	GRI	DUP Y4
R	1100	BRIXXON
C	1100	BRIXXON
R	1000	PARAGON
R	1000	PERFORMA
R	1000	PRECIUM
R	1300	RADIUS
R	1100	RADIUS

R 600-550	BRIXXON
c 600-550	BRIXXON
700-600	EDGE
500	EMPROS
R 600-550	PER/PRE/PAR
c 600-550	PER/PRE/PAR
R 600-550	RADIUS
c 550	RADIUS

R 550-500	BRIXXON
c 500	BRIXXON
500	EDGE
500-400	EMPROS
500	MAVERICK
R 550-500	PER/PRE/PAR
c 500	PER/PRE/PAR
R 550-500	RADIUS
c 500	RADIUS

GRC	JUP AB
R 500	BRIXXON
c 450	BRIXXON
500-400	EDGE
400	EMPROS
500-400	MAVERICK
R 500	PER/PRE/PAR
c 450	PER/PRE/PAR
R 500-450	RADIUS
c 450	RADIUS

		101 ~ 2
	R 450	BRIXXON
	c 400	BRIXXON
	400	EDGE
	400-350	EMPROS
	400	MAVERICK
1	R 450	PER/PRE/PAR
9	c 400	PER/PRE/PAR
	R 450-400	RADIUS
	c 400	RADIUS

GRO	UP A10
R 400	BRIXXON
c 400	BRIXXON
400-350	EDGE
350	EMPROS
400-350	MAVERICK
R 400	PER/PRE/PAR
c 400	PER/PRE/PAR
R 400	RADIUS
c 400	RADIUS

EGENDS:

: COMPOUND RROW LENGTH MEASURED

GRO	DUP A11
350-300	BRUXX
350	EDGE
350-300	EMPROS
350	MAVERICK
R 400	PER/PRE/PAR
c 400	PER/PRE/PAR

GR	DUP A12
300	BRUXX
350-300	EDGE
300	EMPROS
350-300	MAVERICK
c 350	PER/PRE/PAR

ı		GROUP A13
_	300	BRUXX
	300	EDGE
	300	EMPROS
	300	MAVERICK















Appendix B - Easton Arrow Chart (2021)

COMPOUND BOW - K	elease Aid Calculated	l Peak Bow Weight—lbs			YOUR A	RROW	LENGT	H FOR TA	RGET • F	ELD • 3D				RECURVE BOW
w Rating - up to 275 FPS Bow Ra	ating - 276—300 FPS	Bow Rating - 301–320 FPS	Bow Rating - 321–340 FPS	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	Bow Weight–Ibs Finger Release
29–35 lbs. (13.2–15.9 kg)				00	01	02	03	T1	T2	T3				21-27 lbs. (9.5-12.2 kg)
35–40 lbs. (15.9–18.1 kg) 29–35	ilbs. (13.2–15.9 kg)			01	02	03	T1	T2	T3	T4	T5			27-32lbs. (12.2-14.5 kg)
40–45 lbs. (18.1–20.4 kg) 35–40) lbs. (15.9–18.1 kg)	29-35 lbs. (13.2-15.9 kg)		02	03	T1	T2	T3	T4	T5	T6	T7		32-36 lbs. (14.5-16.3 kg)
45–50 lbs. (20.4–22.7 kg) 40–45	5 lbs (18.1–20.4 kg)	35-40 lbs. (15.9-18.1 kg)		03	T1	T2	Т3	T4	T5	T6	T7	T8	Т9	36-40 lbs. (16.3-18.1 kg)
50-55 lbs. (22.7-24.9 kg) 45-50	lbs. (20.4–22.7 kg)	40-45 lbs. (18.1-20.4 kg)	35-40 lbs. (15.9-18.1 kg)	T1	T2	T3	T4	T5	T6	T7	T8	Т9	T10	40-44 lbs (18.1-20.0 kg)
55–60 lbs (24.9–27.2 kg) 50–55	i lbs. (22.7–24.9 kg)	45-50 lbs. (20.4-22.7 kg)	40-45 lbs. (18.1-20.4 kg)	T2	T3	T4	T5	Т6	T7	T8	Т9	T10	T11	44-48 lbs. (20.0-21.8 kg)
50–65 lbs. (27.2–29.5 kg) 55–60	lbs. (24.9–27.2 kg)	50-55 lbs. (22.7-24.9 kg)	45-50 lbs. (20.4-22.7 kg)	Т3	T4	T5	T6	T7	T8	Т9	T10	T11	T12	48-52 lbs (21.8-23.6 kg)
65–70 lbs (29.5–31.8 kg) 60–65	i lbs. (27.2–29.5 kg)	55-60 lbs. (24.9-27.2 kg)	50-55 lbs. (22.7-24.9 kg)	T4	T5	T6	T7	T8	Т9	T10	T11	T12	T13	53-57 lbs (24.0-25.9 kg)
70–76 lbs. (31.8–34.5 kg) 65–70	lbs. (29.5–31.8 kg)	60-65 lbs. (27.2-29.5 kg)	55-60 lbs. (24.9-27.2 kg)	T5	T6	T7	T8	Т9	T10	T11	T12	T13	T13	58-62 lbs. (26.3-28.1 kg)
76–82 lbs (34.5–37.2 kg) 70–76	i lbs. (31.8–34.5 kg)	65-70 lbs. (29.5-31.8 kg)	60-65 lbs. (27.2-29.5 kg)	T6	T7	T8	Т9	T10	T11	T12	T13	T13	T14	63-67 lbs. (28.6-30.4 kg)
32–88 lbs. (37.2–39.9 kg) 76–82	2 lbs (34.5–37.2 kg)	70-76 lbs. (31.8-34.5 kg)	65-70 lbs. (29.5-31.8 kg)	T7	T8	Т9	T10	T11	T12	T13	T13	T14		68-73 lbs. (30.8-33.1 kg)
G00931 **720-7808 0.700-780 Ar(15 6.4 **7700-7508 0.700-750 X10 6.7 720 0.720 Profour 6.2 750 0.750 Inspire 6.2	*670-7208 0.67 *650-7008 0.65 670 0.6. 740 0.7 1913 0.7	70 ProTour 6.5 30 Inspire 7.9 40 Apollo 7.2	1150 1.150 PRO Group 15 *620-470R 0.620-6.70 ArXE *600-450R 0.620-0.650 X10 620 0.620 Profour 630 0.630 Inspire 2013 0.610 7.5 1914 0.658 X7	6.1 *570-62 7.0 *550-60 6.7 570 9.0 610 9.3 2013	1.000 PRO Group 16 OR 0.570-0.620 ArC/E OR 0.550-0.600 X10 0.570 Protour 0.570 Inspire	6.3 7.5 6.9 8.2 8.1	520 3-18 3-28	1.000 Inspire 1.000 Vector 1.044 75 0.963 X7 1.079 75 Group 17 0.520-0.570 Art/E 0.500-0.550 X10 0.520 Prolour 0.560 Art/C	4.6 900 7.2 1714 5.0 1716 7.4 810 8.1 8.4 6.7 "470-5 7.8 "450-5 7.3 470 7.8 3-28 8.1 3-39	0.450-0.500 X10 0.470 ProTo 0.500 A/C/ 0.440 A/C/	8.1 9.0 6.1 6.8 8.1 ur 7.6 E. 8.1	PRO HSPEED 6.5 Matrix Avance +Spor Inspire SDRIVE 27 SDRIVE 25 SDRIVE 23 SDRIVE 19 75	Inspire Super Drive Super Drive Super Drive Super Drive	e 27 e 25 e 23
840 0.840 Apollo 6.5 1813 0.874 75 7.9 1814 0.799 X7 8.6 1816 0.756 75 9.3 730 0.730 Avance 5.0 710 0.710 PRO 6.5	1914 0.6 660 0.6 660 0.6	58 X7 9.3 60 Avance 6.2	1914 0.058 A7 1916 0.623 75 660 0.660 Avance RX7-21 0.525 RX7 610 0.660 PRO	9.3 2013 10.0 2014 6.2 1916 9.3 600 7.3 475 500	0.610 75 0.579 X7 0.623 75 0.600 Avance 0.475 SDRIVE 23 0.500 HSPEED	9.6 10.1 6.5 6.4	530 2212 2114 550 2016 475	0.530 FMJMatch 0.505 X7 0.510 X7, 75 0.550 Avance	8.8 2212 9.9 2213 6.7 2114 10.6 475	0.505 X7 0.460 X7,7 0.510 X7,7	5 9.9 /E 23 6.4	RX7 X7	RX7 Edips	