

Strother SX-1 Bow Report

By Jon E Silks

Strother is a young bow manufacturer that is sure to grab your attention if the quality of the people that run the operation is any indication. After several conversations by phone and email with their leadership team I am convinced that they have the goals and ambitions to be one of the top bow makers in the industry. Keep an eye on these folks!

The company's flagship model for 2011 is the SX-1. It is home to the Hyper-S cam system, Dual Sync operational configuration, a set of past parallel split limbs, pivoting pockets, two-piece laminated wood grip, reflex riser and riser-mounted string suppressor.

No Nonsense, Get it Done Design

Strother set out to design a shooter's bow with the added benefit of great speed. To do this they utilize a cam that was born out of countless hours in the engineering room. The Hyper-S Cam is a key component of the Dual

Sync System, which locks the operation of both cams together as one. The cam has only two tracks - one track is used for the string while the other is used for both cables. As the bow is drawn one cable is being let out while the other is being taken in - all on the same plane. What this boils down to is a narrower cam. Because only two tracks are needed rather than three the width of the cam can be minimized and the entire string and cable system is held closer to the center of the axle. During the draw cycle much of the applied load is focused on the cables so it stands to reason that if the cables are anchored near the end of the axle then that end of the axle wants to dip toward the side when the bow is drawn. The result is limb twist/cam lean. A cam that leans to one side is not as efficient as one that is centered like the Hyper-S. Adding to the overall benefit is Strother's Dual Sync system, which forces the cams to work together so that the shooting qualities of the rig is not compromised

by common issues such as string stretching and mechanical seating. It doesn't end there though. The naturally equalizing effect of the Dual Sync system make it basically hassle free and also eliminates the tell-tale double bump felt at the end of the draw cycle on a traditional dual cam bow when it is out of time. Strother advertises the IBO speed of the SX-1 to reach upwards of 347 fps.

Draw lengths are adjustable between 26 and 30 inches in half inch increments through a series of modules. Since the modules actually contain the track for the two cables they do require a bow press to change out. Strother also outfits their Hyper-S Cam system with dual draw stops, which can



Strother's Hyper-S cam is designed to keep the applied load near the center of the axle thereby reducing the opportunity for efficiency robbing limb twist and cam lean. On the SX-1 the two cams are harnessed together in a Dual Sync system.

Bow Specifications			
Manufacturer:	Strother Archery		
Model:	SX-1		
Website:	www.strotherarchery.com		
Draw Weights	50, 60, 65, 70 and 80 lb peak	Finish	Predator Brown Deception
Draw Lengths	26-30" in .5" incr - modular	Grip	2-Piece Wood
Axle-to-axle length	34 - 1/16"	Riser	Reflex, CNC Machined
Brace Height	6.5"	Limb Pockets	Pivoting
Mass Weight	4.1 lbs	Limbs	Split, beyond parallel
Let-off	80 percent, adj draw stops	Cable Guard	Rod and slide
Advertised IBO	Up to 347 fps	Warranty	Limited Lifetime
Eccentrics	HYPER-S, Dual	MSRP	\$839.00
Strings/Cables	Crackers		

be adjusted to change the letoff and feel of the valley at the end of the draw cycle. Letoff is adjustable up to 80 percent. The machined aluminum cams ride on stainless steel axles and precision ball bearings. Strother uses Crackers string and cables and the string has two No-Gloves to dampen vibration. Eccentrics are anodized in black.

Talking Points – Cams

All else being equal, speed is a friend. Judging distance is somewhat less critical, kinetic energy is higher and trajectories are flatter.

An 80 percent letoff allows you to hold on target for that extra few seconds needed in a critical hunting situation.

A system that is low maintenance is a big bonus – most of us want to dial our bows in for the season and not have to mess with them again. We especially want no problems when we are in the field and confronted with the shot of a lifetime!

Can-Do Riser

Strother doesn't have a bunch of catchy names for the technologies that make up their riser – rather, they just focus on functionality. As with many risers on the market today the SX-1 riser is reflex in geometry. A reflex configuration is one that positions the limb pocket pivot points in front of (further away from the shooter) the deepest part of the grip. This is done to increase what is known as the power stroke. Power stroke is the actual distance that the archer moves the string from its resting position to full draw. Thinking in extremes will help to understand how this works – if the bow had an extremely deflexed riser the limb pockets would be positioned far behind (closer to the shooter) the grip. This would place the cams and string much closer to the shooter as well, which means that the string would need

to move only a short distance to get to full draw – a very short power

stroke. Of course, the opposite is true of a reflex geometry riser. The string is much closer to the grip and the archer has to move the string significantly further to get it back to full draw. All else being equal, the longer the power stroke, the faster the bow. When a manufacturer chooses between deflex and reflex they have to consider trade offs in terms of stability versus speed, as deflex risers are considered more stable and steady where reflex risers have been labeled as faster but more critical.

The SX-1 features a two-piece laminated wood grip that produces a medium grip position (somewhere between neutral and high wrist). One of the goals of anyone designing a grip is to reduce the part it plays in producing torque. A grip that has a sticky rubber surface will “grab” the shooter's hand and actually induce torque. On the opposite end of the spectrum a smooth, slippery grip will allow the shooter's hand to return to the same position time and time again and will not catch a portion of the hand that is not intended. Strother's two-piece grip is well formed and contoured to be comfortable and functional. The wood and rounded section of the handle that make up the grip are both smooth.

In addition to the standard sight and rest mounting holes the SX-1 riser is also home to a built in broadhead guard, metal stabilizer mounting insert and String Stop. The broadhead guard, which is formed in the machining process, serves to add a measure of protection to the shooter's bow hand, especially when using broadheads. If you draw your broadhead back over the shelf this feature will keep your hand safe in the event that the arrow falls off the rest. If you have ever read one of my bow reviews you probably know that I consider a metal stabilizer insert a “must have” on all top rigs. What I especially like about the Strother insert is that they finish it in black rather than attach a shiny metal piece on the front of the bow – bowhunter friendly. The String Stop consists of a machined aluminum rod tipped with a soft and pliable rubber stopper. The rod, which is adjustable, mounts opposite the stabilizer insert. SX-1 bows may be purchased in all camo or all black or in a combo of the two - camo limbs and a black riser or a camo riser and black limbs.

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Split limbs on the Strother SX-1 mean there is no notch that could weaken and develop cracks over time. Limbs are decorated with the bow model name and the company's motto which is “Extend Your Range.”

Test Equipment	
Last Chance Archery Power Press	ProChrono Digital Chronograph with indoor lighting system
Spot-Hogg Hooter Shooter portable shooting machine	Easton Professional Chronograph with an infrared lighting system
Elite Archery Draw Board	Easton Digital Bow Scale
Calibrated Mitutoyo Dial Calipers – 8”	Calibrated steel rule – 36”
Calibrated Chatillon DFIS 200 Digital Force Gauge	Easton Archery Arrows
NAP QuikTune 3000 Arrow Rest	Tru Ball Chappy Boss Mechanical Release
American Whitetail Large Bag Target	

Talking Points – Riser

The SX-1 grip is a nice blend of comfort and functionality.

I have long been a big fan of Predator camo as I believe it to be more effective than many other patterns. Strother recognizes the value of Predator and offers it to their customers.

Metal stabilizer inserts – it would be great if every bow had one. Especially a black one like the SX-1.

Who can argue with a reduction of vibration and noise? The string suppressor does both.

Reflex geometry = added speed!

Beyond Power

The SX-1 showcases a set of split limbs that reach well beyond parallel at full draw. Strother is protective of their limbs in terms of keeping the manufacturing processes and materials secret. The company's name for their limbs even indicates their secrecy – PLT (Proprietary Limb

Technology) limbs. So, let's talk about what we do know – the limbs are split meaning there are two pieces that make up the “limb” and four pieces that make up a set. We know that split limbs eliminate a couple of common stress points known to be the downfall of many a solid limb - the area around the limb bolt and the area where a solid limb forks out to accept the eccentrics. Taking those stress points out of the equation equals a longer lasting limb. We also know that the 13 inch limbs reach a beyond parallel position at full draw. Limbs that reach a parallel or past parallel position at full draw distribute the force from release in equal and opposite directions. Basically this causes the leftover energy after propelling the arrow to be cancelled out as the limbs act in opposition to one another. If you were to place pictures of bows from the past ten years side by side and in chronological order you would see the gradual “laying back” of the limb

Test Parameters

- Bow weight: 70 pounds +/- 0.1 pounds
- Draw Length will be set to 30” (+ 0.25” -0.00”)
- Properly spined arrows will be selected according to the formula set out in the I.B.O. rules for minimum grains per pound (350 grains)
- All arrow velocity ratings must be measured using a shooting machine with mechanical release
- A minimum of five shots must be chronographed using an arrow as defined above. The five shots will then be averaged to obtain the final result. All velocity values for a given arrow must fall within a range of 2 ft/sec
- A chronograph with a minimum of two gates set no more than 48” apart will be used. The initial gate will be set at 36” from the front of the bow's handle.



Strother's two-piece grip is contoured to be comfortable and functional. The wood and rounded section of the handle that make up the grip are both smooth, which reduces any tendency to torque the bow.

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position increasing over time. Bow manufacturers have found that this one design feature has been a huge benefit in terms of lack of shock, vibration and noise at the shot.

Limbs are finished in either camo or black and are available in the following peak draw weights: 50, 60, 65, 70 and 80 pounds.

Limb pockets are simple in design, containing the limbs both horizontally and vertically while also maintaining the width between the two pieces. An important aspect of the machined aluminum pockets is that they pivot during the draw weight adjustment process keeping a consistent relationship between the limb and pocket. A pivoting pocket is a superior design to those that allow the limb to move when cranking the limb bolts. This is vital at the critical limb to riser interface as any misalignment is amplified at the shot creating a rig that

is not shooter friendly. The pockets are minimal in material to keep the overall mass weight to a minimum.

Talking Points – Limbs and Limb Pockets

Pivoting limb pockets maintain precise limb alignment through a consistent pocket-to-limb interface. The result is a bow that will perform as consistently and accurately as you will.

Past parallel limbs are basically the key component in assuring a reduced shock and vibration shot. A big plus.

Velocity Test Results					
	350 Grain Arrow		425 Grain Arrow		540 Grain Arrow
Shot # 1	334		305		272
Shot # 2	334		305		273
Shot # 3	334		304		273
Shot # 4	334		305		272
Shot # 5	334		304		273
5 Shot Total	1670		1523		1363
Average Velocity	334		304.6		272.6

TestID:	strsx1at	Draw Length:	30.25"	Speed:	334 ft/sec
Tested By:	jes	Brace Height:	6.6"	Power Stroke:	1.83'
Min Load:	16.6 lbs	Max Load:	70 lbs	Kinetic Energy:	86.72 ft-lbs
Min Pos:	30.25"	Max Pos:	23.00"	Stored Energy:	102.98 ft-lbs
				Dynamic Eff.:	84.21%
Distance (in)	Load (lbs)			Brace Height:	▲
8.35	0.00			Peak Draw Weight:	▲
9	6.00			Full Draw Condition:	▲
10	16.50				
11	27.50				
12	39.90				
13	50.90				
14	61.20				
15	67.90				
16	69.60				
17	69.30				
18	68.70				
19	68.90				
20	69.10				
21	69.00				
22	69.50				
23	70.00				
24	69.70				
25	69.00				
26	68.60				
27	68.10				
28	64.80				
29	52.80				
30	28.40				
30.25	16.60				

Load (lbs) vs **Distance (in)**

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Subjective Test Results

Shot Noise:

Shot noise was good for the speed of this rig. As with the shock and vibration levels, shot noise was improved with a stabilizer and damping accessories.

Grip Comfort and Function:

Very comfortable and functional with a smooth surface that seats the shooter's hand repeatedly.

Draw Cycle "Feel":

A bit stiff as you might expect with these speeds, however, the transitions to and from peak are relatively smooth and without harsh interruptions.

Shock and Vibration Levels:

A notable kick and low level vibration was experienced at the shot - neither were alarming and were improved with a quality stabilizer and add-on string silencers.

Objective Test Categories

Kinetic Energy: 86.72 foot-pounds

This is the energy that actually goes into propelling the arrow. Basically, it is the energy that is left over from the stored energy after all of the bow system friction is accounted for.

Stored Energy: 102.98 foot-pounds

When a bow is drawn energy is supplied to the limbs. The amount of energy that the limbs can hold is the stored energy.

Efficiency Rating: 84.21 percent

This is the amount of stored energy (in %) that can be successfully transferred into propelling the arrow upon release. The bow design, including limbs, limb pockets, cam systems, and axle types play into the bow's efficiency.

SE/PF Ratio: 1.47

This is the ratio of stored energy to peak force. In other words, what returns are you getting for the power you supply?

Testing

A single brass nock and QuikTune 300 Arrow Rest were attached to the bow – nothing more. With the exception of these two items every bow is tested, as it would be shipped to the dealer or customer. In other words, if it has string silencers or other components pre-installed it is tested with them installed. While the “official” velocity rating for our calculations will be taken with an arrow as defined below, we will also use two other test arrows as reference points. This will be done to bring a bracketed picture of the bow's speed performance to the reader. Test arrows include a lightweight 350 grain arrow, a mid-weight 425 grain arrow and a relatively heavy 540 grain arrow. Before recording speeds with these arrows the bow was first paper tuned with each one. Most every bowhunter/archer will be able to extrapolate their approximate arrow speed in relation to similar set-up parameters and results presented from the three test arrows.

The speed result from the 350 grain arrow is entered into the Silks Outdoors Bow Analysis Program, which then automatically calculates Kinetic Energy, Stored Energy, and Efficiency.

Potential customers will generally make their bow purchase choice based on several factors including the cost, speed, shot noise, shock/vibration level, grip and the draw cycle.

In our testing for *ArrowTrade Magazine* we try to give you a feel for how a bow performs in the “subjective” areas mentioned above. You can then focus on the bow's



notable subjective points when interacting with your customer. The term “subjective” can basically be translated into “opinion.”

Getting Down to Brass Tacks

Strother's SX-1 is one of my favorite rigs of 2011. It is a good performer all the way around. The draw is stiff as you might expect from such a fast bow but they do a good job of smoothing out the transitions to and from peak. There is a noticeable kick at the shot followed by a low level of vibration – both of which are nothing to get excited about and are reduced by a set of string silencers and a quality stabilizer. The SX-1 handles notably well and has that “quality” feel to it. I especially like the grip and when you shoot this bow you know you are delivering a devastating blow. Look for good things from this relatively young bow company.



String stoppers have become just about standard equipment as they are proven to reduce string oscillation and vibration. The design of the Strother string stopper allows you to adjust if needed to keep it centered on the string.

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