2009 Compound Hunting Bow Evaluation

Anderson Bow Company Crow XL Test Results

By *Anthony Barnum*

www.ArcheryEvolution.com

Anderson Bow Company

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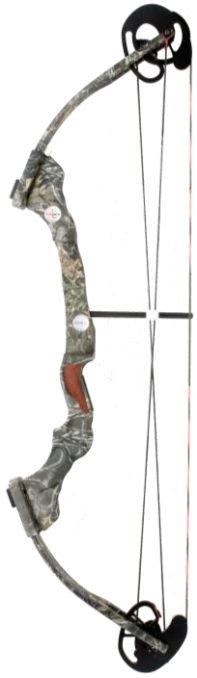
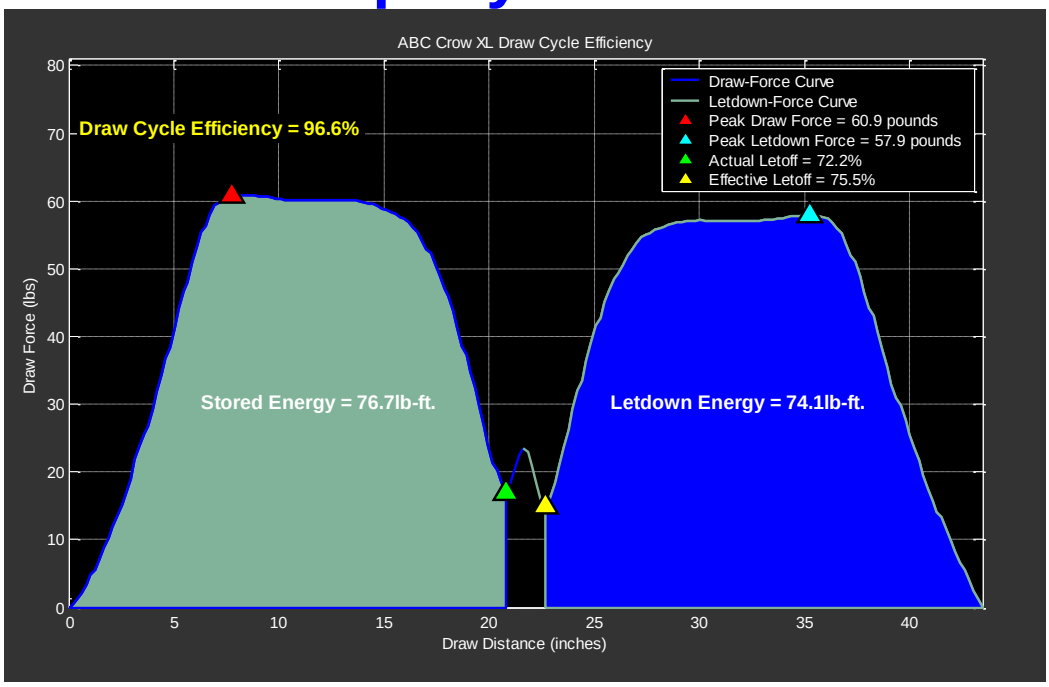
Anderson Bow Company Crow XL





Introduction:

Teaming up with Ed McPherson, who is a veteran in the archery industry, Anderson Bow Company offers three different compound bow models including the Crow, the Crow Ltd., and the Crow XL. The Crow XL is Anderson's flagship offering for the 2009 model year. Modifying the time-tested hybrid cam system design into its own unique cam system called SBDT™ (Statically Balanced, Dynamically Tuned), the Crow XL provides modularly adjustable draw length through the use of an integrated rotating module. Timing marks are also provided on both the top and bottom eccentrics to aid in the tuning process. The back-weighted riser is designed to be in perfect balance at full-draw and prevent the tendency to drop forward. This provides a unique feel both during and after the shot and helps to keep the bow on target. The two piece Cocobolo Wood side plate grip works in conjunction with a leather palm insert to provide a consistent contact point to the bow. Through the combination of proven technology with unique balance concepts, the Crow XL is a solid shooting platform.

The Crow XL sample that was provided to Archery Evolution was measured to have a brace-height of 6.395 inches, while the axle-to-axle length was measured to be 36 9/16 inches. The requested 29 inch, 60 pound model was measured straight out of the box to have a 28 15/16 inch draw length and peak draw-weight of 60.9 pounds. At these settings, The Crow XL achieved an average speed of 298.7 fps when shot by hand in the out of box configuration with a 300 grain arrow. When shot from the shooting machine with the addition of a string loop, the Crow XL achieved and average speed of 296.7 fps at these settings. Note that at the time this report was written, the Crow XL was the only bow that was within tolerance of the test specifications. As such, no adjustments were made to the Crow XL and testing commenced without any modifications necessary.

Anderson Bow Company Crow XL

Contact Info: Anderson Bow Company
www.andersonbow.com

MSRP:	$799	**Draw Length:**	27"-30" *
Cams:	SBDT™ Hybrid	**Draw Weight:**	40-70*
Limbs:	14" Solid Composite	**Brace Height:**	6 3/8" *
Grip:	Cocobolo Wood / Leather	**Axle to Axle:**	36 1/2" *
Let-off:	75%*	**Mass Weight:**	4.4 ^
String:	BCY 452X		
Damping:	N/A		*Advertised
Finish:	Super Flauge Game camouflage		^Measured

Performance at a Glance (60.9 lbs, 28 15/16"):

Arrow	Speed	K.E.	Momentum
300 Grains	296.7	58.6	12.7
360 Grains	274.9	60.4	14.1
420 Grains	257.9	62.0	15.5
540 Grains	230.0	63.4	17.7

Arrow (Grains):	300	360	420	540
Dynamic Efficiency:	77.6%	79.9%	82.0%	83.9%
Speed Per Inch of PS:	14.3	13.2	12.4	11.1
Noise Output (dBA):	95.1	86.3	83.9	81.9
Total Vibration (G):	323.3	205.1	260.4	218.4

A thorough examination of the finish quality showed a number of imperfections, although none of them would be considered major. Specifically, the riser had many small "pin-prick" areas void of film-dip finish, especially in the recessed areas of the riser near the sight window. These same voids in the camo finish were also found on both the limbs and limb pockets, where sizeable areas were noticed. Other than that, the grip, cable guard, and eccentrics look good and no noticeable machining marks were found. Aesthetically, the Crow XL could be more refined through the use of cut-outs on both the riser and the cams and the use chamfered, filleted or rounded edges. That having been said, the bow balances well in the hand and is quite steady throughout the shot sequence.

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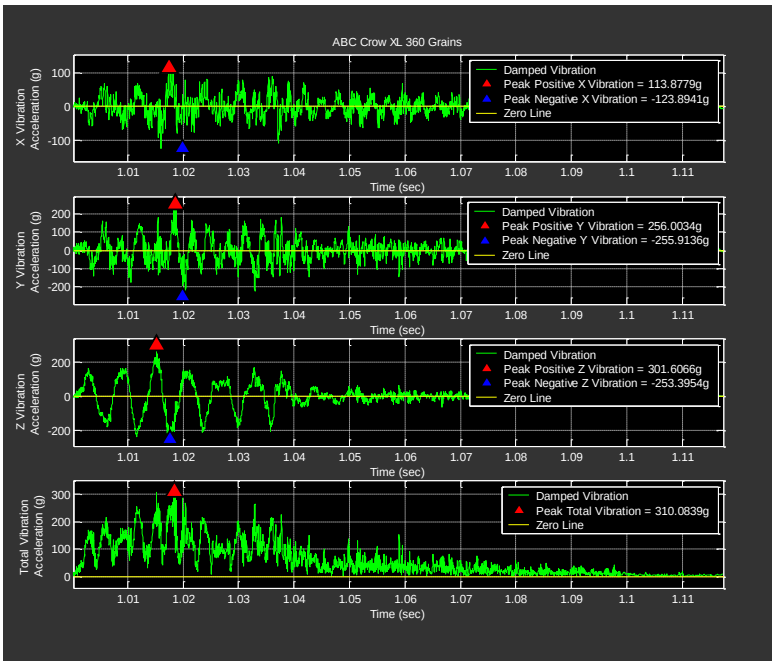
Detailed Test Results:

Speed / Performance Measurements:

Speed measurements were made with 4 different arrow weights to determine the average speed of the bow per inch of Power Stroke. Utilizing the stored energy obtained from the Force-Draw curve, average dynamic efficiency was calculated.

Speed per inch of Power Stroke: 12.7
Dynamic Efficiency: 80.8%

Speed Point Blank - 29" ± 1/4", 60# ± 1#	ABC Crow XL							
	Brace Height = 6.395		Draw Weight = 60.9		Draw Length = 28 15/16		Axle-to-Axle = 36 9/16	
Grains	300 Grains		360 Grains		420 Grains		540 Grains	
Chronograph	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono
1	296.9	295	275.0	274	~~258.5~~	258	230.0	230
2	~~296.4~~	295	~~275.5~~	275	258.1	258	~~230.1~~	230
3	296.7	295	~~274.7~~	274	257.8	257	230.0	230
4	296.5	295	275.0	274	257.8	257	230.0	230
5	~~297.2~~	296	274.8	274	~~257.7~~	257	~~229.9~~	229
Avg. Speed	296.7	295	274.9	274	257.9	257	230.0	230
Kinetic Energy	58.6	58.0	60.4	60.0	62.0	61.7	63.4	63.4
Momentum	12.7	12.6	14.1	14.1	15.5	15.4	17.7	17.7
Power Stroke	20.793							
Speed per inch of Power Stroke	14.3	14.2	13.2	13.2	12.4	12.4	11.1	11.1
Avg. Speed per inch of PS	12.7							
Stored Energy	75.6							
Dynamic Efficiency	77.6%	76.7%	79.9%	79.4%	82.0%	81.7%	83.9%	83.9%
Avg. Dynamic Efficiency (BFM)	80.8%							



Vibration Measurements:

Vibration measurements were made with 4 different arrow weights to determine the average vibration in 3 dimensions as well as the total average vibration.

Positive X-Vibration: 103.6 g
Negative X-Vibration: -102.7 g

Positive Y-Vibration: 215.5 g
Negative Y-Vibration: -217.8 g

Positive Z-Vibration: 244.5 g
Negative Z-Vibration: -237.6 g

Total Vibration: 276.8 g

Sound Measurements:

Sound measurements were made with 4 different arrow weights to determine the average sound output, the average A-Weighted sound output (mimicking the human ear) and the average C-Weighted sound output.

Unweighted Sound Output: 106.8 dB
A-Weighted Sound Output: 86.8 dBA
C-Weighted Sound Output: 97.1 dBC

The addition of the 12 inch B-Stinger Pro Stabilizer with a 14 ounce weight yielded a reduction of peak A-weighted sound Output when measured with a 360 grain arrow.

Noise & Vibration	ABC Crow XL											
	Brace Height = 6.395				Draw Weight = 60 9/10				Draw Length = 28 15/16			Axle to Axle = 36 9/16
Parameter	Peak Noise Output (dB)				Peak A-Weighted Noise Output (dBA)				Peak C-Weighted Noise Output (dBC)			
Grains	300 Grains	360 Grains	420 Grains	540 Grains	300 Grains	360 Grains	420 Grains	540 Grains	300 Grains	360 Grains	420 Grains	540 Grains
Measurement	Max				Max				Max			
1	~~110.3~~	~~107.2~~	105.8	102.3	94.8	~~85.3~~	84.4	82.7	101.7	~~96.9~~	95.6	91.9
2	~~112.4~~	108.0	106.4	102.9	~~95.9~~	~~87.8~~	~~84.6~~	~~85.0~~	~~104.1~~	97.8	96.3	~~94.6~~
3	112.1	~~108.5~~	~~105.3~~	~~102.0~~	95.4	86.3	83.9	81.5	103.6	~~98.7~~	~~94.7~~	92.0
4	110.5	107.3	~~106.8~~	~~103.8~~	95.0	86.9	83.3	~~81.3~~	~~101.6~~	97.1	~~96.8~~	93.2
5	110.4	107.8	106.4	102.2	~~93.3~~	85.8	~~82.7~~	81.5	101.7	97.7	96.3	~~91.8~~
Average	111.0	107.7	106.2	102.5	95.1	86.3	83.9	81.9	102.3	97.5	96.1	92.4
Total Average Max	106.8				86.8				97.1			

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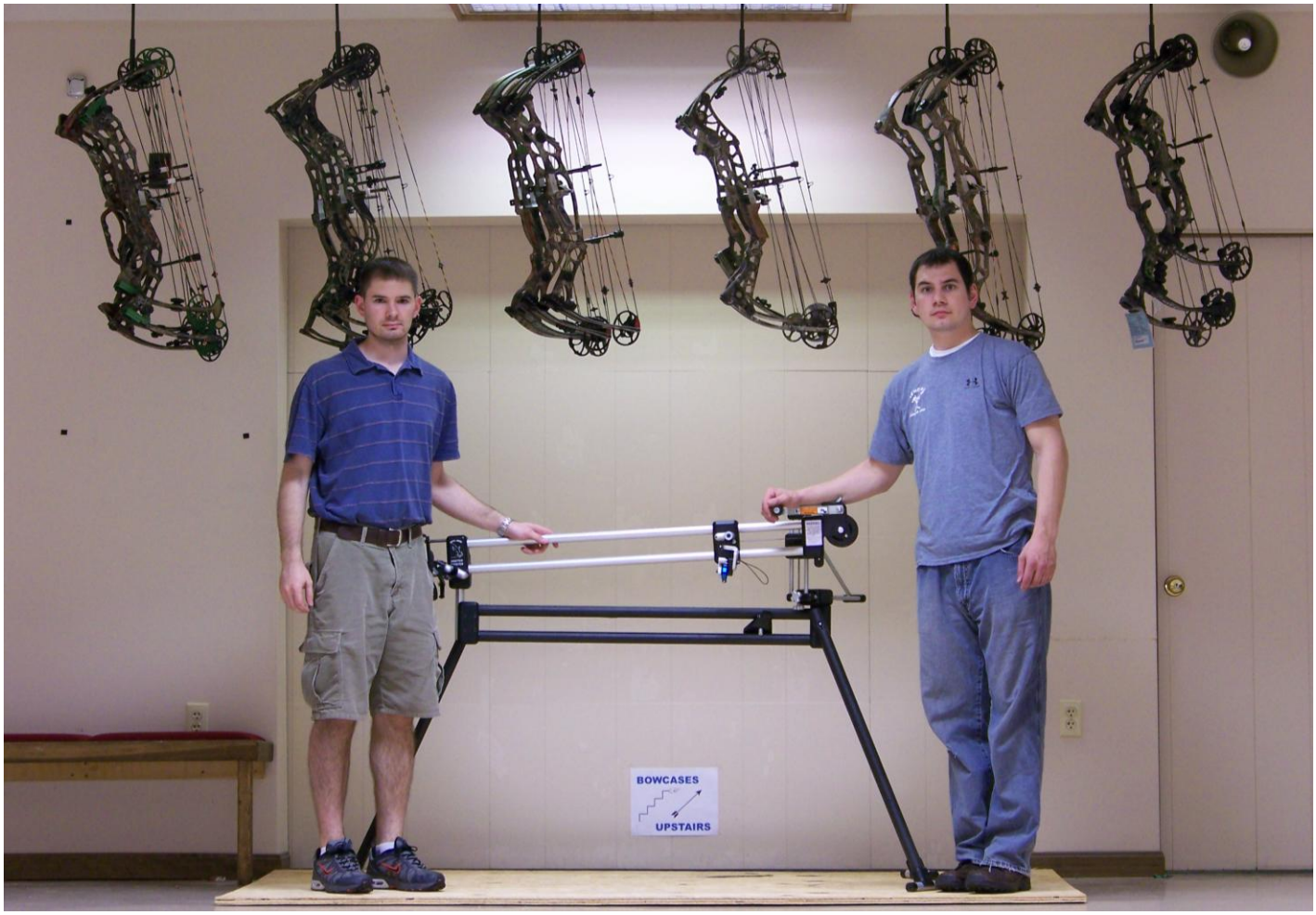

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