

# 2009 Compound Hunting Bow Evaluation

## Mathews McPherson Series Monster XLR8 Test Results



By Anthony Barnum

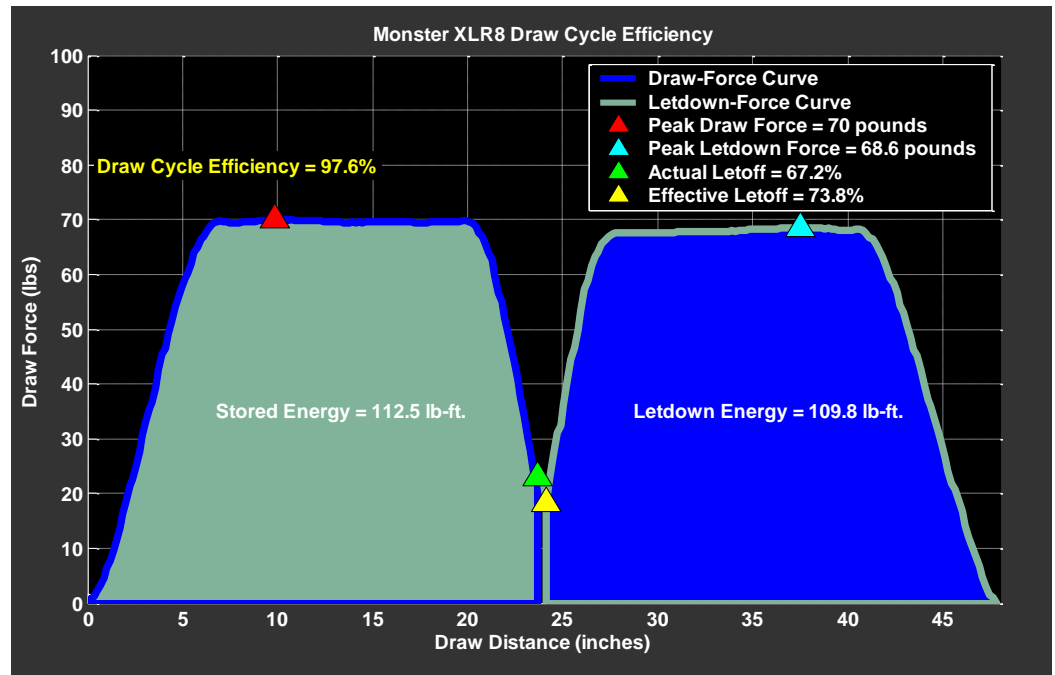
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# Mathews McPherson Series Monster XLR8



## Introduction:

Making a breakthrough into the speed bow market, Mathews has developed a new dual cam system called the Advanced Vectoring System (AVS™). Resurrecting the name of Matt McPherson's first bow company, AVS is incorporated on the McPherson Series line of bows that includes the Monster and the Monster XLR8. Both of these McPherson Series bows provide speeds that plant them firmly in the speed-bow segment, but the Monster XLR8, with its 5 inch brace-height, offers advertised IBO speeds in excess of 360 fps making it the company's speed bow offering for 2009. The AVS system is the basis for this speed and is truly unique in that it provides additional mechanical advantage through a rotating bearing. This bearing provides a cam action that helps to store energy throughout the draw cycle while also acting as a synchronization mechanism to keep the dual cams firmly in time. The modularly adjustable AVS™ cam system is paired with highly preloaded split limbs that utilize a v-lock limb pocket, which ensures proper limb alignment throughout the draw cycle. This setup provides some of the highest efficiency numbers that we've tested to date! The use of String Grubs, a Harmonic Stabilizer and the Dead End String Stop helps to minimize felt vibration and noise, and rounds out the innovations to the bow.

The Monster XLR8 sample that was provided to Archery Evolution was measured to have a brace-height of 4.975 inches, while the axle-to-axle length was measured to be 33 19/32 inches. The requested 30 inch, 70 pound model was measured straight out of the box to have a 30 3/8 inch draw length and peak draw-weight of 69.5 pounds. At these settings, the Monster XLR8 achieved an average speed of 356.6 fps when shot by hand in the out of box configuration with a 350 grain arrow. When shot from the shooting machine with the addition of a string loop, the Monster XLR8 achieved an average speed of 353.2 fps at these settings. A slight adjustment to the limb bolts was made to bring the Monster XLR8 up to the exact draw-weight specification of 70.0 pounds. **Note: Per request from Mathews, the Monster XLR8 was tested in the "out of box" draw-length configuration; no adjustments to draw-length were made.**

A thorough examination of the finish quality showed only minimal imperfections. There was a small area where the film dip finish appeared to be worn near the bottom of the riser, and 2 small "pin-prick" areas void of film-dip were noted near the site attachment area on the outside of the bow. The In-Line Grip™ had one small indentation and some machining marks were noted on the Dead End String Stop assembly as well as on the interior portions of the many riser cutouts. Other than these few minor items which do not impact the performance of the bow, the fit, finish, look and feel of the Monster XLR8 is quite good and is on par with what we've come to expect from Mathews.

## Mathews McPherson Series Monster XLR8

Contact Info: **Mathews Inc.**

[www.mathewsinc.com](http://www.mathewsinc.com)

<b>MSRP:</b>	\$959	<b>Draw Length:</b>	25"-30" *
<b>Cams:</b>	AVS™	<b>Draw Weight:</b>	40-80*
<b>Limbs:</b>	Quad V-Lock Limbs™	<b>Brace Height:</b>	5" *
<b>Grip:</b>	In-Line Grip™	<b>Axle to Axle:</b>	33 1/2"*
<b>Let-off:</b>	80%*	<b>Mass Weight:</b>	4.4*
<b>String:</b>	Zebra Bowstring & Cable		
<b>Damping:</b>	Harmonic Damper/Stabilizer, String Grub, Dead End String Stop		
<b>Finish:</b>	Mathews Lost Camo / Black <span style="float: right;">*Advertised</span>		

### Performance at a Glance (70.0 lbs, 30 3/8"):

Arrow	Speed	K.E.	Momentum
<b>350 Grains</b>	355.0	97.4	17.7
<b>420 Grains</b>	327.4	99.9	19.6
<b>490 Grains</b>	304.7	101.0	21.3
<b>540 Grains</b>	291.6	101.9	22.5

Arrow (Grains):	350	420	490	540
<b>Dynamic Efficiency:</b>	87.0%	88.8%	89.8%	90.6%
<b>Speed Per Inch of PS:</b>	15.0	13.8	12.9	12.3
<b>Noise Output (dBA):</b>	91.8	89.9	89.6	88.8
<b>Total Vibration (G):</b>	274.2	228.5	192.7	174.1



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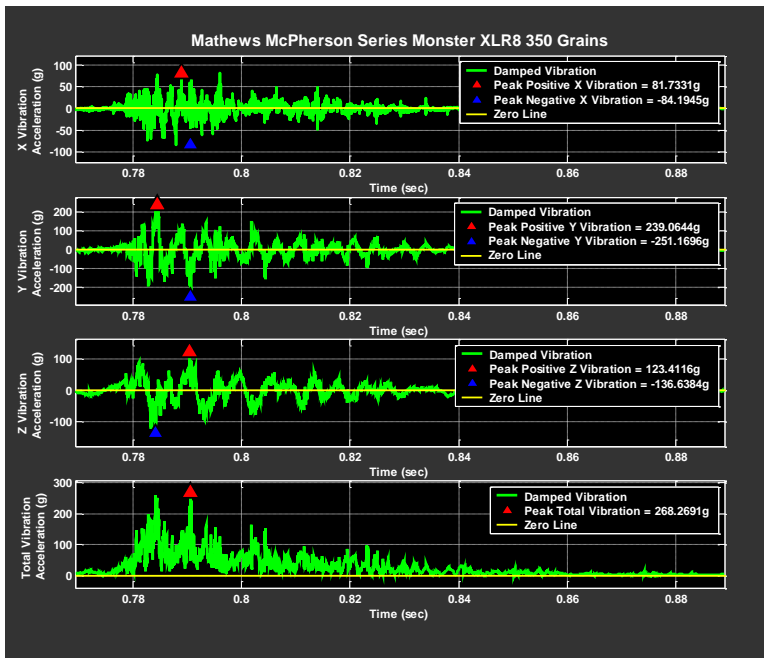
## Detailed Test Results:

### 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: 13.5**  
**Dynamic Efficiency: 89.1%**

Speed Point Blank - 30" ± 1/4", 70# ± 1#	McPherson Monster XLR8 by Mathews							
	Brace Height = 4.975		Draw Weight = 70.0		Draw Length = 30 3/8		Axle-to-Axle = 33 19/32	
Grains	350 Grains		420 Grains		490 Grains		540 Grains	
Chronograph	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono
1	355.0	354	327.3	326	305.2	304	291.8	291
2	354.7	354	327.6	326	304.5	304	291.4	291
3	354.9	354	327.5	326	304.6	304	291.6	291
4	355.0	354	327.4	326	305.0	304	291.5	291
5	355.4	354	327.4	326	304.6	304	291.7	291
Avg. Speed	355.0	354	327.4	326	304.7	304	291.6	291
Kinetic Energy	97.9	97.4	99.9	99.1	101.0	100.5	101.9	101.5
Momentum	17.7	17.7	19.6	19.6	21.3	21.3	22.5	22.4
Power Stroke	23.650							
Speed per inch of Power Stroke	15.0	15.0	13.8	13.8	12.9	12.9	12.3	12.3
Avg. Speed per inch of PS	13.5							
Stored Energy	112.5							
Dynamic Efficiency	87.0%	86.6%	88.8%	88.1%	89.8%	89.4%	90.6%	90.2%
Avg. Dynamic Efficiency (BFM)	89.1%							



### 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: 68.7 g**  
**Negative X-Vibration: -74.2 g**

**Positive Y-Vibration: 207.0 g**  
**Negative Y-Vibration: -194.2 g**

**Positive Z-Vibration: 95.7 g**  
**Negative Z-Vibration: -107.0 g**

**Total Vibration: 217.4 g**

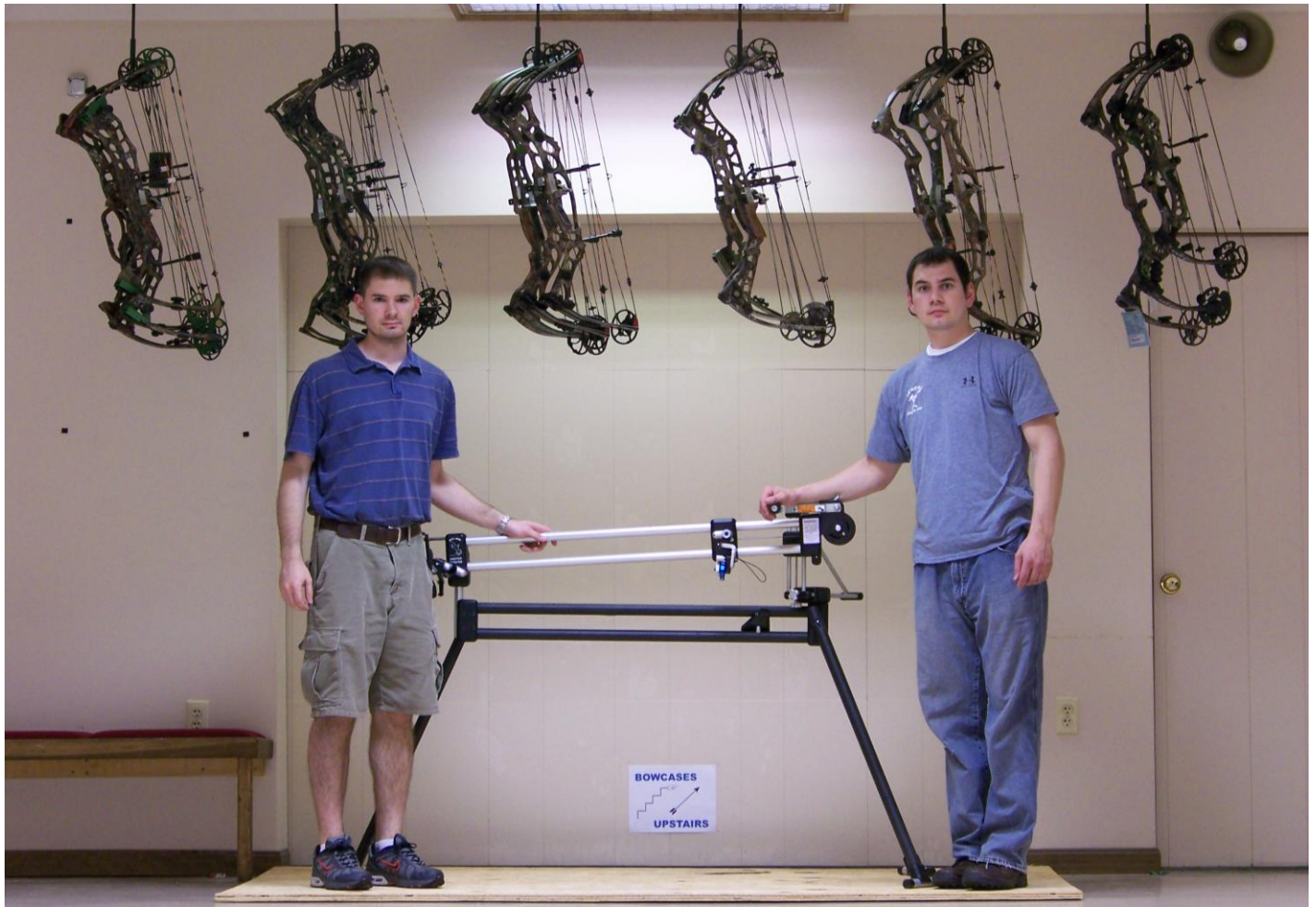
### Sound Measurements:

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: 107.1 dB**  
**A-Weighted Sound Output: 90.0 dBA**  
**C-Weighted Sound Output: 98.4 dBC**

Noise & Vibration	McPherson Monster XLR8 by Mathews														
	Brace Height = 4.975				Draw Weight = 70				Draw Length = 30 3/8				Axle to Axle = 33 19/32		
Parameter	Peak Noise Output (dB)				Peak A-Weighted Noise Output (dBA)				Peak C-Weighted Noise Output (dBC)						
Grains	350 Grains	420 Grains	490 Grains	540 Grains	350 Grains	420 Grains	490 Grains	540 Grains	350 Grains	420 Grains	490 Grains	540 Grains			
Measurement	Max				Max				Max						
1	414.3	106.6	104.7	105.7	91.9	88.9	91.0	89.6	102.5	97.7	96.6	97.0			
2	109.8	106.4	106.1	105.4	92.8	88.6	89.3	89.4	100.7	97.8	96.9	96.7			
3	109.8	108.0	105.1	105.4	91.9	90.7	89.0	88.1	100.9	99.5	96.8	96.6			
4	110.5	107.8	106.0	105.7	90.4	90.0	89.9	88.3	101.7	99.0	96.8	96.8			
5	109.8	108.2	104.6	106.6	91.7	91.9	89.6	88.6	100.9	99.3	95.6	97.0			
Average	110.1	107.5	105.3	105.6	91.8	89.9	89.6	88.8	101.2	98.7	96.7	96.8			
Total Average Max	107.1				90.0				98.4						





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Jonathan Teater

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