

# *2010 Compound Bow Evaluation*

**Mathews Z7**

*By Anthony Barnum*



# Mathews Z7

## Introduction:

For 2010, Mathews continues to push the envelope in technological advancements. Their flagship model, the Z7, incorporates several new features that help maintain great speed while also providing a very quiet hunting bow and the smooth draw cycle that Mathews is known for. The Reverse Assist roller-guard is probably the most recognizable difference from previous model years. The unique design of the Reverse Assist roller-guard places the cables behind the rollers, closer to the archer, instead of in the traditional location in front of the rollers. This effectively reduces friction throughout the draw cycle by helping to minimize the horizontal load on the string and cable as the bow is brought to full draw. Essentially, as the limbs deflect under load, the cables move even closer to the archer resulting in minimal contact with the roller-guard, helping to reduce horizontal torque. The machining on the Reverse Assist mimics the cutouts that are found in the all new Grid Lock Technology riser, helping to provide a seamless look to the Z7. The Grid Lock pattern features great structural rigidity and integrity, allowing Mathews' engineers the latitude to minimize the amount of material used on the riser and, thus, the overall weight of the bow. The SE<sup>4</sup> Composite Slim Limbs from previous model years are paired up with the all new Z7 Solocam, providing good speed in a light weight shooting package.

The Z7 sample that was provided for this evaluation was measured to have a brace-height of 6.980 inches, while the axle-to-axle length was measured to be 30 inches. The requested 29 inch, 60 pound model was measured straight out of the box to have a 29 3/8 inch draw length and peak draw-weight of 62.2 pounds. When shot by hand with a 300 grain arrow, the Z7 achieved an average speed of 315.8 fps in the out of box configuration with only a brass nock added to the string. Per request from Mathews, a slight adjustment to the limb bolts was made to bring the Z7 down to the peak draw-weight specification of 60.0 pounds. **Note: Per request from Mathews, the Z7 was tested in the "out of box" draw-length configuration; no adjustments to draw-length were made.**

## Subjective Test Results:

### Fit & Finish:

The Fit and Finish on the Z7 sample provided for this evaluation was very good, bordering on excellent. As we've come to expect from Mathews, the tolerances are very tight and there was no "slop" in the Limb Turret or the Spherelock Pivoting Limb pocket. The only imperfections I was able to find film-dip finish were on the front of the riser just below the stabilizer hole, but they were minimal to barely noticeable. Some minor machining marks were noticed on the Dead End String Stop assembly and the interior portions of the eccentric.

### Grip:

Mathews provides the all new SlimFit Inline grip standard on the Z7. This grip maintains the same look and feel as previous model years while reducing the overall size of the handle. It offered consistent hand placement each time I drew the bow by hand, but I was able to intentionally torque the bow relatively easily. The contours of the SlimFit grip fit nicely in my hand and the red wood inlay affords a useful centerline indicator while matching the rest of the trim of the bow very nicely.

### Draw Cycle:

As mentioned previously, the design of the Z7 Solocam and the Reverse Assist roller-guard help to provide a smooth, friction free draw cycle. The bow stacks relatively steeply to peak draw weight early in the cycle with only a slight "hump" before dropping into a nice valley. The wall is quite nice, as well, with only very little play. On average, the Z7 stores 3.78 ft-lbs. of energy for each inch that you draw it back.

### Sound & Vibration:

At the shot, there is very little jump, shock or residual vibration. The bow is basically dead in the hand. I was quite impressed by the sound output, or the lack thereof, from the Z7. The Monkey Tails, String Suppressors, String Grubs, Dead End String Stop and Harmonic Stabilizer/Dampers combine to provide a very quiet and shock free shot.

## Mathews Z7

Contact Info: Mathews Inc.

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

MSRP:	\$899	Draw Length:	25"-30" *
Cams:	Z7 Solocam	Draw Weight:	40-70, 65*
Limbs:	SE <sup>4</sup> Composite Slim Limb	Brace Height:	7" *
Grip:	SlimFit Inline Grip	Axle to Axle:	30" *
Let-off:	80% *	Mass Weight:	3.7 lbs.*
String:	Zebra Bowstring & Cable		*Advertised
Damping:	Harmonic Stabilizer, Monkey Tails, Dead End String Stop		
Finish:	Black, Lost Camo		^Measured

### Performance at a Glance (60 lbs, 29 3/8"):

Arrow	Speed	K.E.	Momentum
300 Grains	309.1	63.6	13.2
360 Grains	285.9	65.3	14.7
420 Grains	266.9	66.4	16.0
540 Grains	238.0	67.9	18.4

Arrow (Grains):	300	360	420	540
Dynamic Efficiency:	81.5%	83.7%	85.1%	87.0%
Speed Per Inch of PS:	15.0	13.9	12.9	11.5
Noise Output (dBA):	85.5	82.9	82.4	80.9
Total Vibration (G):	263.4	233.9	205.8	171.7



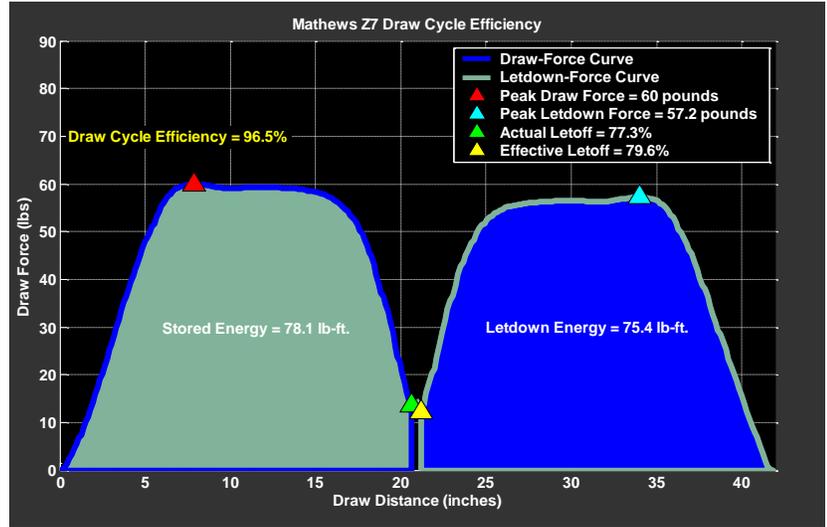
# Mathews Z7

## Objective Test Results:

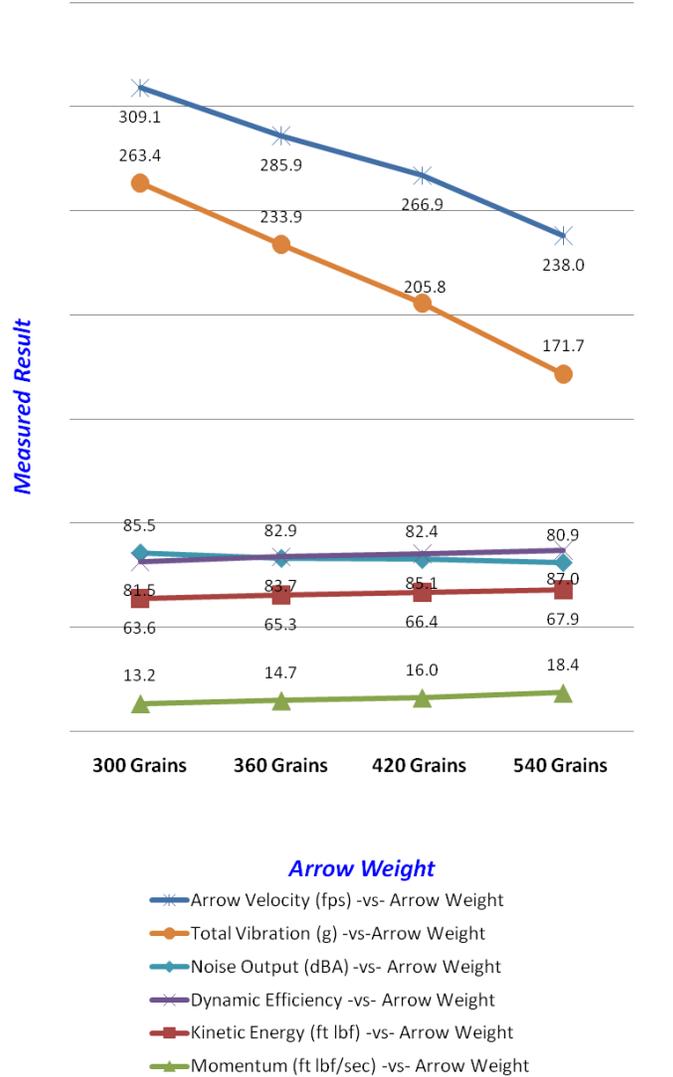
### Speed / Performance Measurements:

Speed measurements are made with 4 different arrow weights to determine the average speed of the bow per inch of Power Stroke. Draw Cycle Efficiency is calculated using the stored energy and the let-down energy captured in the Force-Draw curve. The stored energy is used further to determine the average dynamic efficiency of the bow.

**Speed per inch of Power Stroke:** 13.3  
**Dynamic Efficiency:** 84.3%  
**Draw Cycle Efficiency:** 96.5%



### Performance Characteristics



### Vibration Measurements:

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

**Positive X-Vibration:** 94.9 g  
**Negative X-Vibration:** -90.0 g  
**Positive Y-Vibration:** 182.3 g  
**Negative Y-Vibration:** -200.0 g  
**Positive Z-Vibration:** 102.3 g  
**Negative Z-Vibration:** -127.8 g  
**Total Vibration:** 218.7 g

The addition of a 12 inch B-Stinger Pro Stabilizer with a 14 ounce weight yielded a significant reduction of peak total vibration when measured with a 360 grain arrow.

**B-Stinger Reduction:** 1.6%

### 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:** 101.8 dB  
**A-Weighted Sound Output:** 82.9 dBA  
**C-Weighted Sound Output:** 92.0 dBC

