



**Operation Manual for the:**

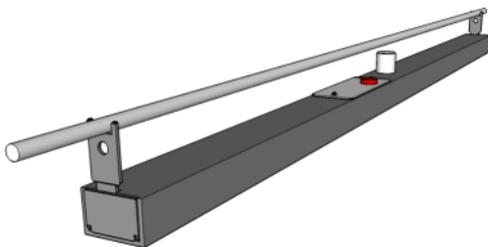
# **Arrow Analyzer**

**One Device Measures:**

Arrow Spine

Arrow Straightness

Arrow Mass Weight



**26" distance**

## Intended use

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This device measures the static spine, the weight, and the straightness of parallel (cylindrical) arrows.

For accurate readings please place the device on a stable surface.

The measured data can be transferred to a PC by use of an USB connection.

### Note!

Only parallel (cylindrical) arrows/shafts will show correct absolute values. However, the relative measuring of tapered or barreled arrows is possible.

## Features

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- 26" distance of arrow rests
- Measures the static spine of an arrow
- Displays spine in; AMO, ASTM or both (toggle)
- Measures the weight of an arrow
- Displays weight in; gram, grain or both (toggle)
- Displays results stay on screen until a new arrow is placed on the device
- Supports spine measuring from two side (second measure)
- Displays a straightness indicator value (second measure)
- Audio feedback is standard
- Customizable (display, sound, ...)
- Weighs individual arrow points - place them in the holes on the arrow rest
- Automatic zero correction
- Bright OLED Display
- USB data output
- Auto Power-Off
- Aluminum housing with stainless steel arrow rests

## Precautions

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### Please observe the following

- Place the device on a firm, level surface.
- Avoid extreme heat as well as temperature fluctuation caused by proximity to a heat source or in direct sunlight.
- Protect the device against high humidity, vapors, and dust.
- Avoid jarring during weighing.
- Do not leave a permanent load on the arrow rests.
- Do not overload the arrow rests in excess of the maximum load rating of 750g each.
- Avoid shaking, dropping, or otherwise shocking the scale. This is a precision instrument and must be handled with care.
- Structural alterations must not be made to device. This can lead to incorrect measuring results and can cause serious damage to the device.
- Clean the device with a clean, soft cloth.

## Main power supply

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Electrical power is supplied by means of an external USB power source. The device has a Micro-USB connection which can be connected to a PC, a common USB power adapter or a USB powerbank as a power source.

We recommend using a regular USB power adapter or a PC connection.

### Note!

The device draws only a small amount of current (~30mA), therefore some powerbanks don't recognize the device and may turn off after a while.

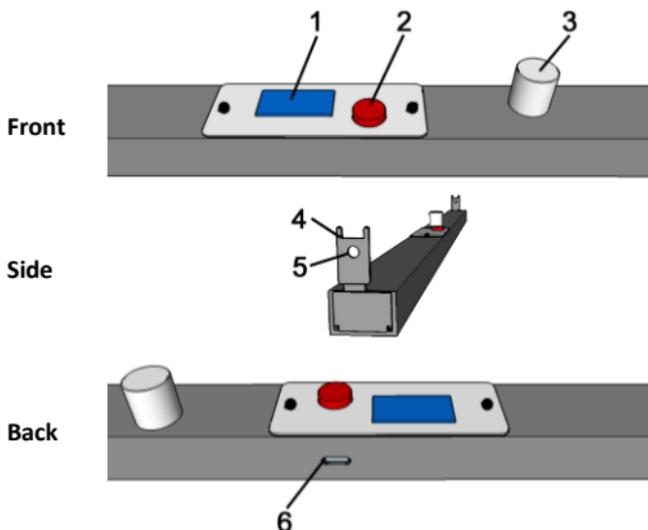
## Software

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- Transfers arrow measuring results to your PC for viewing.
- Allows for recording your readings and results.
- Offers color coding your results based on your target settings.

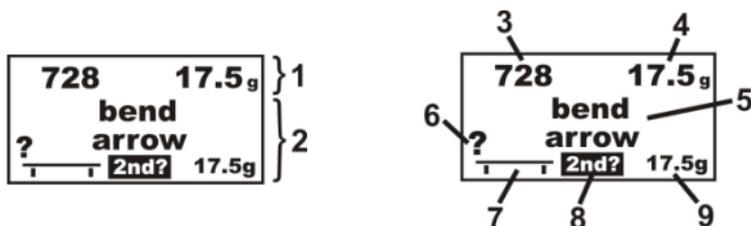
And much more...

Download: <http://www.arrow-analyzer.com>



| No. | Name                | Function   |
|-----|---------------------|--|
| 1   | Display             | Shows the result and the current state   |
| 2   | ZERO button         | <ul style="list-style-type: none"> <li>- Zeroing the total weight</li> <li>- Enter and exit menu (&gt;3sec.)</li> <li>- Start/cancel a second measure</li> <li>- Wakeup device when in sleep mode</li> <li>- Change active menu</li> </ul> |
| 3   | Counter block       | Press the arrow against this block to measure the spine  |
| 4   | Arrow rest          | <ul style="list-style-type: none"> <li>- Place the arrow on the two arrow rests for measuring</li> <li>- Tip arrow rest to change menu selection</li> </ul>  |
| 5   | Tip hole            | Accepts arrow tips for weighing  |
| 6   | Micro-USB connector | Power source and data output   |

## Display overview



| No. | Info                         | Menu name (units)             |
|-----|------------------------------|-------------------------------|
| 1   | results of stable measure    |                               |
| 2   | current state / instructions |                               |
| 3   | stable spine                 | TOP LEFT (AMO, ASTM, both)    |
| 4   | stable weight                | TOP RIGHT (gram, grain, both) |
| 5   | current value / instructions | CENTER (AMO, ASTM, both)      |
| 6   | "not stable" indicator       |                               |
| 7   | state symbol / straightness  |                               |
| 8   | second measure symbol        |                               |
| 9   | current total weight         | BOT. RIGHT (gram, grain)      |

## Arrow placement

### Bare arrow shaft

Place the arrow shaft evenly centered on the arrow support arms.

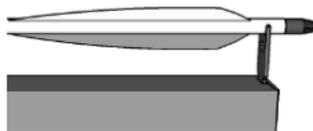
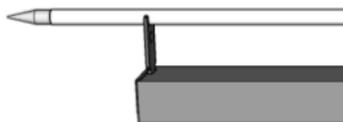


### Arrow with tip and feathers

Place the arrow with the bare shaft on the arrow rests.

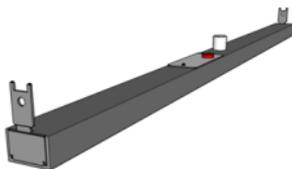
Front: Place the arrow behind the tip and/or insert on the arrow rest.

Back: Place the arrow between nock and feathers on the arrow rest.



## Preparing to measure

Plug in the USB power connector or wake up the device by pressing ZERO.

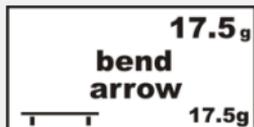
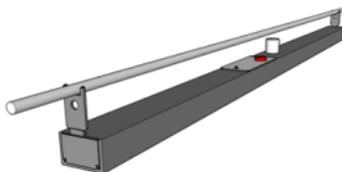


- Ensure that the total weight (right bottom) shows 0
- The total weight can be zeroed by pressing the ZERO button

## Measuring

### Step 1 – To measure arrow weight

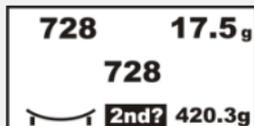
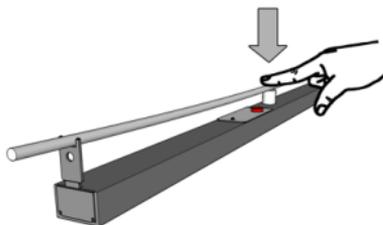
Place an arrow on the arrow rests and wait until the arrow weight is determined.



- The arrow weight will be shown in the top right of the display
- **Note:** You can also measure tip weights by using the holes in the arrow rests

### Step 2 – To measure arrow spine

Bend the arrow by pushing it straight down to the centered block and hold until the spine is determined.



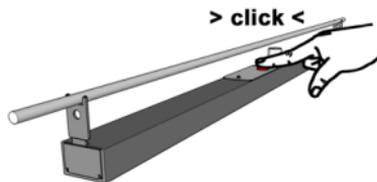
- **Do not push too hard!**  
The arrow just has to touch the block
- The arrow spine will be shown in the top left of the display

After the first measurement, you can continue with a second measurement (Step 3) or you can remove the arrow and start a new measurement (Step 1).

### Step 3 - Second measurement (optional)

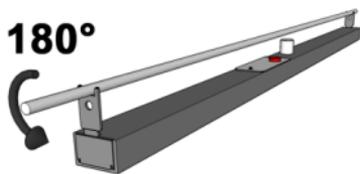
The second measurement feature allows you to determine the exact spine of arrows that are not straight by measuring an arrow from two sides.

Start a second measure by pressing ZERO while "2nd?" is shown in the bottom of the display...

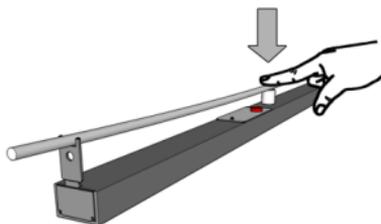


...rotate the arrow 180 degrees...

**180°**



...and repeat step 2



|                       |              |
|-----------------------|--------------|
| <b>728</b>            | <b>17.5g</b> |
| <b>bend<br/>arrow</b> |              |
| <b>2nd?</b>           | <b>17.5g</b> |



|                 |              |
|-----------------|--------------|
|                 | <b>17.5g</b> |
| <b>1st: 728</b> |              |
| <b>2nd: 0</b>   |              |
|                 | <b>17.5g</b> |

- The display shows the start of the second measurement
- The second measurement can be canceled by pressing ZERO

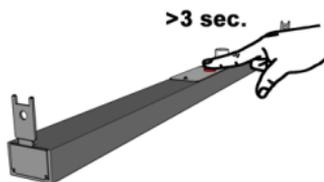
|                 |               |
|-----------------|---------------|
| <b>730</b>      | <b>17.5g</b>  |
| <b>1st: 728</b> |               |
| <b>2nd: 732</b> |               |
| <b>0.002</b>    | <b>419.5g</b> |

- The average spine value is shown in the top left, min/max values are shown in the center
- The straightness indicator is shown in the bottom left  
In this example, the straightness is near to +/- 0.001 (abs.: 0.002)

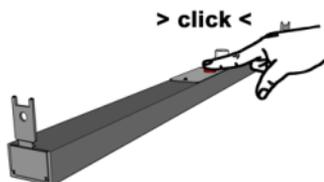
The straightness indicator value in the bottom left of the display shows the estimated height difference of the two measurements in inches. This reflects the straightness of the arrow. It has to be divided by two for the common +/- values found on many arrows.

**Note:** There is no official standard for measuring the straightness of arrows, because of that, the displayed value is only an estimation.

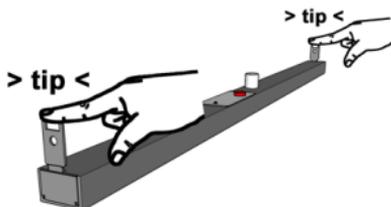
Remove arrow and press the ZERO button more than 3 seconds to enter the menu.



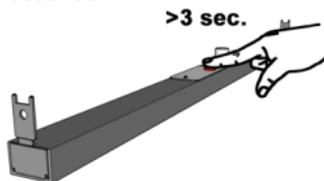
Change the active menu by pressing the ZERO button.



Change selected option by tipping gently on one of the arrow rests.



To exit the menu, press ZERO for more than 3 seconds.



### MENU

- ZERO to change menu
- Tip scale l/r to change selection
- long ZERO -> exit

- The opening screen of the menu is shown

### CENTER

AMO

ASTM

AMO & ASTM

- Menu selection is shown, the active configuration is inverted
- Click to scroll through the menu.

### CENTER

AMO

ASTM

AMO & ASTM

- **Tip gently!**  
No force needed
- The active setting changes with each tip (left = up, right = down)
- The selected option is immediately active

### Definition of static spine:

Static spine is a measurement of the deflection or amount of bend an arrow shows under a given load when supported by two uprights a given distance apart in a static or non-moving environment.

There are two commonly used standards for spine measurement:

#### AMO (ATA)

- Defined by: Archery Manufacturers and Merchants Organization
- Method: An arrow is placed on two uprights spaced 26 inches apart, then a 2 pound weight is hung from the center of the arrow. The amount of bend or deflection is then measured in thousandths of an inch.
- Primary unit: The bend or deflection spine is then converted to “pounds” by dividing 26 by the measured deflection (in inch).

The AMO standard is commonly used for wooden arrows and also known as the ATA standard. The *Archery Trade Association* is the successor organization of AMO.

#### ASTM

- Defined by: American Society for Testing and Materials
- Method: An arrow is placed on two uprights spaced 28 inches apart, then a 1.94 pound weight is hung from the center of the arrow. The amount of bend or deflection is then measured in thousandths of an inch.
- Primary unit: Measured deflection in thousandths of an inch.
- The ASTM standard is most commonly used for carbon arrows.

This device measures the stiffness in a different way and can calculate the corresponding values of the AMO and ASTM standard.

| <b>Name</b>                    | <b>Value</b>                        |
|--------------------------------|-------------------------------------|
| Readout                        |                                     |
| weight (gram/grain)            | 0.1 g / 1 gn                        |
| spine (ASTM/AMO)               | 1.0 / 0.1                           |
| Minimum load                   | 1.0 g / 16 gn                       |
| Maximum load                   | 750 g on each side                  |
| Spine range ASTM*              | approx. 2500 - 250                  |
| Spine range AMO*               | approx. 11 - 125                    |
| Maximum arrow weight           | 99.9 g / 1541 gn                    |
| Weight units                   | gram, grain                         |
| Spine units                    | AMO, ASTM                           |
| Arrow rests (stainless steel)  |                                     |
| Minimum arrow length           | ~66 cm / 26 inch                    |
| Maximum arrow diameter         | 10 mm / ~0.39 inch                  |
| Tip hole diameter              | 5 mm / ~0.2 inch                    |
| Permissible ambient conditions | 10°C to 30°C                        |
| Air humidity                   | max. 80 % relative (non condensing) |
| Dimensions (W x D x H) [mm]    | 670 x 30 x 51                       |
| Net weight approx. (g)         | 400                                 |
| Power supply                   | USB 5V DC 100mA                     |
| Stabilization time             | about 2 sec.                        |
| Display                        | 0.96" OLED                          |

\* Depends on arrow weight.



## **Bearpaw Products**

The leading manufacturer and distributor  
of quality products for Traditional Archery worldwide.

- Developed, engineered, designed and made in Germany -

- Patent pending -



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.