

## Arredondo Powder Drop Slide with Micrometer For the Dillon Auto Powder Measure\*

Thank you for buying the Arredondo Powder Drop Slide with UniqueTek Micrometer for your Dillon Precision Auto Powder Measure. Before installation, please take a few minutes to read these instructions. The Arredondo Powder Drop Slide has several unique features compared to the original powder bar supplied with your press.

- Tighter Fit Prevents "galling" with Vectan SP2 and other ultra fine-grained powders.
- Super small powder drop ... as low as 0.7 grain (with Win 231)
- The UniqueTek Micrometer Powder Bar Kit™ is preinstalled and provides finer adjustment with zero backlash.

### Custom Fitting Powder Bar to Your Powder Measure

The Arredondo Powder Drop Slide is intended to be a tighter fit than your original powder bar to prevent powder leakage with ultra fine-grained powders. To achieve the optimum fit, it is recommended to let it break in on its own ... which may require 100 or more cycles. But on some powder measures, it may require fitting. If this is the case, Arredondo Accessories recommends sanding it to fit using a sheet of 500 to 600 grit wet/dry sandpaper. Wet it thoroughly (roll it up and let it hydrate several minutes in a class of water), then slick it down onto a flat hard surface (a Formica counter top, sheet of glass, etc.) and then lightly sand the bottom of the slide. The micrometer head is larger diameter than the thickness of the powder drop slide, so you'll need to let it hang over the edge of the table. Sand only the bottom. It will not require much sanding to get it fitted, so work slowly and test fit frequently. To achieve the optimum fit, it is recommended to stop short of a smooth sliding fit and then let the powder drop slide break in the rest of the way on its own.

### Do I need a Powder Bar Post?

With the new style Dillon Auto Powder Measure (without return springs), a powder bar post (part #13951) is not needed on any powder bar with the Micrometer Powder Bar Kit™ installed. If you have the old style powder measure that uses Return Springs (part #149036), you must install a Powder Bar Post (part #13951) to provide a place to anchor the springs.

### Installing a Powder Bar Post

The Arredondo Powder Drop Slide does not come with a Powder Bar Post. This part can be removed from your original powder bar or you can order one from Dillon Precision. Before installing a powder bar post into the Arredondo Powder Drop Slide, you must file the inside surfaces of the powder bar post to prevent it from touching the micrometer shaft. Use a small file, emery board or rolled up sand paper. This is very soft metal so only a few strokes should be required. Test fit the powder bar post. DO NOT FORCE! If any resistance is felt, remove the powder bar post and file the powder bar post where it touches the micrometer shaft. With the powder bar post installed, check that the micrometer operates smoothly. There must be absolutely no contact between the powder bar post and the micrometer shaft. The post must also be fully seated in the powder drop slide. If not, the extra leverage can bow the powder bar. Some sanding of the outside of the powder bar post may also be needed to attain a proper fit.

## How to read your Micrometer Powder Bar setting

A micrometer or dial caliper should be on every reloading bench. But some times I get a little rusty if I don't use my micrometer frequently. So I've included these instructions, just as a refresher. The photo below shows the Micrometer Powder Bar set to a random setting of 0.332.

To read that setting;

1. First, find the largest whole number on the linear scale. In this case it is 3.

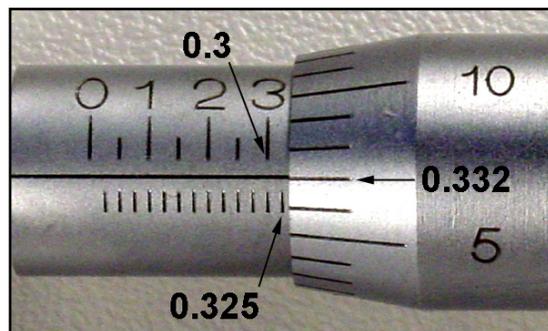
**Setting is > 0.3**

2. Next, read the subdivisions on the linear scale. Each sub-division is 0.025. In this case, one sub-division is visible so add 0.025 to 0.3.

**Setting is > 0.325**

3. Now read the dial. Each division on the dial is 0.001. The dial reads 7, so add 0.007 to 0.325.

**Final setting = 0.332**



That said, you may find it easier to read the settings as if each whole number on the linear scale is 1.0 instead of 0.1. Reading the micrometer this way, the final setting shown above is 3.32 instead of 0.332. I personally find it easier to read micrometer powder bar settings this way. Either way will yield equivalent results.

It is recommended that adjustments be made to the nearest 0.001 increment and not use settings between the lines on the dial. This will have no significant impact on powder weight accuracy as the micrometer has much finer screw threads (40 threads per inch) than the original powder bar adjustment screw (28 threads per inch). An adjustment of 1 increment on the dial is equivalent to only 0.002 grains with Winchester 231.

The Dillon Auto Powder Measure instructions recommend turning the powder bar adjustment screw in 1/4-turn increments when adjusting the powder charge. The micrometer has finer screw threads so the equivalent adjustment is more than 1/4 turn or 0.009 increments on the dial. To keep it simple, we recommend using 0.010 increments for initial powder charge adjustments and then using smaller increments as you get close to the final powder weight. Also, the micrometer works in reverse compared to the original powder bar adjustment screw ... turning the micrometer counterclockwise increases the powder charge. So a larger number yields a larger powder charge.

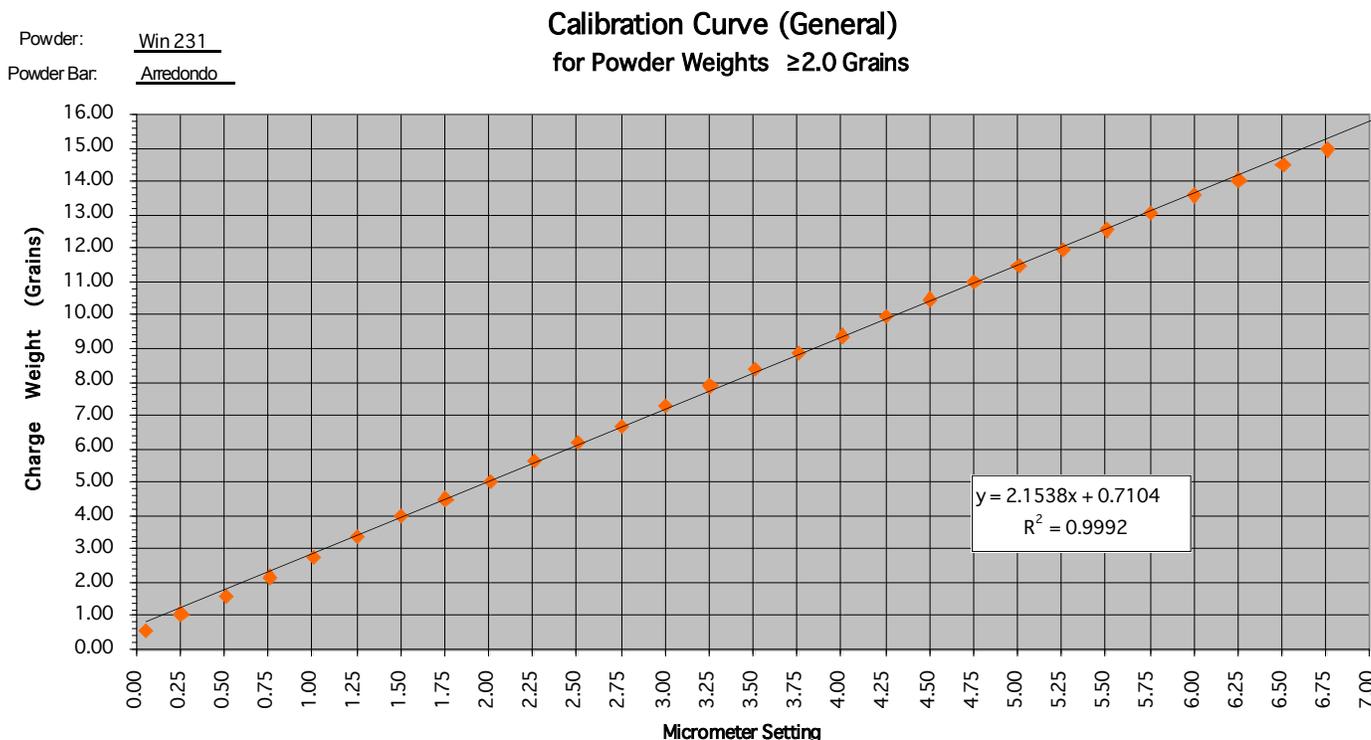
Record the powder weight you obtain at each micrometer setting as you work toward your desired charge weight. This data can be charted to give you a calibration curve (see below) for that particular powder. Using the calibration curve, you can easily predict the micrometer setting that will yield a particular charge weight. Just dial the micrometer to that setting and confirm the charge weight by weighing.

**Note:** As when making any powder bar adjustment, throw several “dummy” charges before measuring any. This will allow the powder to “settle in” to the new powder bar adjustment and give an accurate reading.

**CAUTION:** When changing from a very large to a very small setting, you will compress powder in the powder bar and potentially overstress the micrometer threads. All micrometer adjustments should be made with the operating handle in the down position and the powder bar empty of powder.

## Creating Calibration Curves

If you reload a very wide range of charge weights with a particular powder, you can make a calibration curve for that powder. Once completed, you can dial the micrometer to any charge weight you want by looking up the micrometer setting from the curve. This will get you very close to the desired charge weight on the first attempt, greatly reducing the time needed to “dial in” the exact charge weight. Below is an example “Calibration Curve” for one of my favorite gunpowders ... Winchester 231.



**You can download a copy of the Calibration Curve Spreadsheet from the Micrometer Powder Bar Kit™ page on our web site at <http://www.uniquetek.com/site/696296/product/T1267>.**

Due to the different physical characteristics of various powders, you must make a calibration curve for each powder you use. As described previously, I find it much easier to read the micrometer as if each major increment were 1.0 instead of 0.1. This technique, although technically incorrect, makes reading the settings more intuitive. This example calibration curve was made using this micrometer reading technique.

You can look up the micrometer setting for any charge weight directly from the chart. But, if you have a computer and Microsoft Excel, you can fit a linear curve to the data and get the equation for the curve. From that equation, you will be able to quickly calculate the micrometer setting of any charge weight you desire! For example, if I want 4.0 grains of Winchester 231 the equation (using values from the above calibration curve) is;

$$\text{Micrometer Setting} = (\text{Desired Powder Weight} - 0.7104) \div 2.1538$$

$$\text{Micrometer Setting} = (4.0 - 0.7104) \div 2.1538 = 1.52$$

**CAUTION:** You must always confirm the charge weight with a powder scale, even when setting the Micrometer Powder Bar based on data from your own calibration curve.

Since I now know all calibration curves must be linear, I could make future curves with far fewer measurements (e.g. 0.00, 1.00, 2.00, 3.00, 4.00, 5.00, 6.00) and still get a reasonably accurate curve with a lot less work. For maximum accuracy over a short range of powder weights, you can also make calibration curves that cover just the range of powder weights you typically load, and measure at closer spaced micrometer settings. Always include one data point above and below the maximum and minimum powder weights you will actually use.

### **Powder Weights Below 2.0 Grains**

If you are loading powder weights below about 2.0 grains, it is highly recommend that you generate a calibration curve covering just that range of powder weights and use smaller micrometer increments. You can see on the Calibration Curve chart how the data points below about 2.0 grains don't fit the general curve very well. By generating more closely spaced data below 2.0 grains and fitting the curve only to those data points, a much better curve fit will result. It is also recommended that you use a high-precision powder scale with accuracy better than 0.1 grain. A scale with 0.05 grain or, better yet, 0.02 grain accuracy is recommended. It should be noted that only fine-grained gunpowders are likely to meter accurately at these small powder weights.

**CAUTION:** This calibration curve is supplied only as an example. Do not attempt to use it with your own micrometer powder bar. Due to the slight differences in the zero setting from one Micrometer Powder Bar installation to another, calibration curves for one Micrometer Powder Bar will yield slightly larger or smaller powder charges compared to another Micrometer Powder Bar. Thus, you must generate separate calibration curves for each of your Micrometer Powder Bars. You may wish to write a number on the side of each Micrometer Powder Bar so that you can keep track of which set of calibration curves goes with each Micrometer Powder Bar.

#### Disclaimers:

UniqueTek, Inc. is not liable for damages or personal injury that may be incurred as a result of using this product in an improper way or in a reloading press that has been improperly maintained or operated. It is your responsibility to ensure that your reloading equipment is properly assembled, is maintained in proper working condition, and is used according to the manufacturer's instructions and safe reloading practices.

\* Dillon Precision does not authorize the Micrometer Powder Bar Kit™ for use on any of its reloading presses and its use may void manufacturer or dealer warranties.