

Using My New Rockwell Hardness Tester

I finally bought a Rockwell hardness tester a couple of months ago. Yeah! I had previously used a rebound tester for hardness that translates from Leeb hardness scale to Rockwell. It worked pretty well, but I wanted to use something that is universally accepted. Since I have noticed that many knife makers are using the Grizzly Rockwell tester, I decided to purchase one.

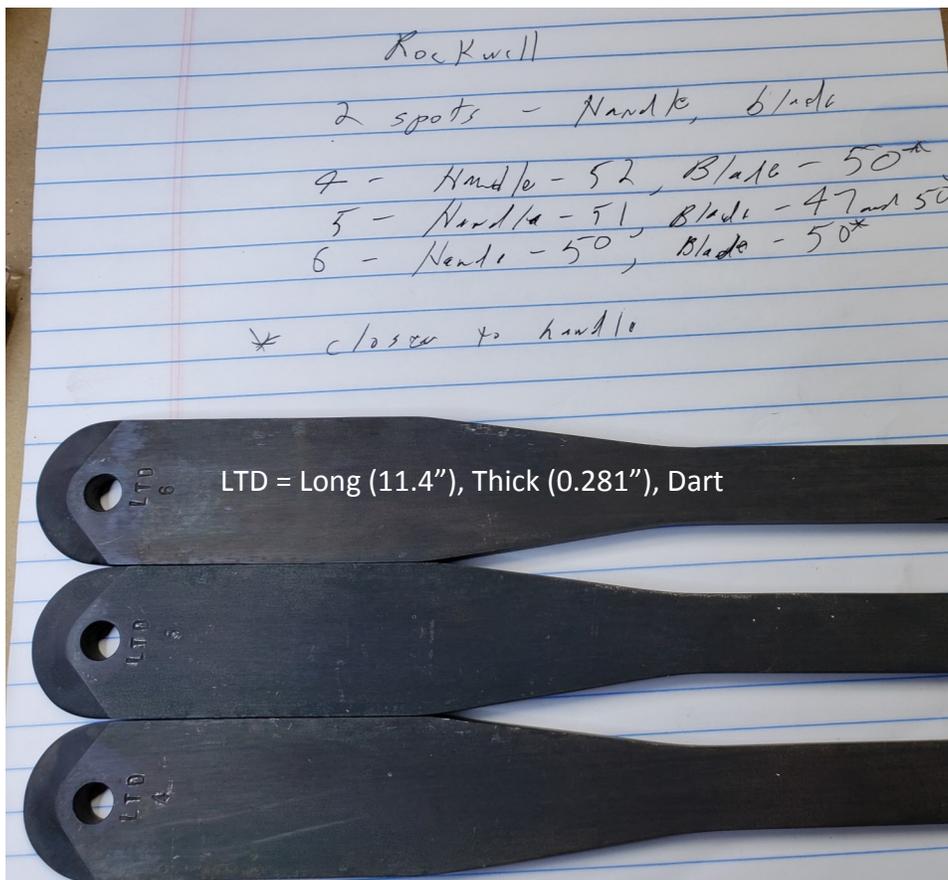
After it arrived, I realized that the platform I purchased to support it was too unstable. If you didn't know, this thing is a monster! So I purchased a solid table from McMaster-Carr (a source of many of my tools and supplies). I placed it into my humidity controlled room in the basement—not the shop.

I first compared earlier test results using the rebound tester. Results varied by 0.5 to 1.5 Rockwell C units. After setup, I used three calibration blocks; HRC 46.3, 63.2 and 55.4. All blocks measured within less than ± 0.5 Rockwell C units. Now, I periodically use them for accuracy verification. This was the case when I tested three of my newest Darts—Long, Thick Darts (LTDs).

After heat-treating, I recorded the results, shown below as I went. Before the final heat-treat at 750° F, I tested hardness of one of the Darts after removing from the 330° F oven and plunging into the cold water used during the quench process to cool the oil for the next Dart. I was curious as to what it would read. It read as expected: HRC 61 ± 0.5

I really love this hardness tester! Very gratifying!

The following page shows the values and test points.



As you can see below, I hit my stated hardness targets of HRC 50 ± 1, with the exceptions of LTD 4 handle and LTD 5 blade. I believe the HRC 47 was an inaccuracy caused by a minor bend that was only noticeable when sliding a piece of paper under the other side of that Dart. Also I recorded values within ± 0.5 units. Looking at the Rockwell increments of the gauge, there is no reason to attempt to be more accurate.

You may also notice that the decarb/scale protection in the form of a thin layer of graphite (Not that again!) has no effect on the hardness readings. No decarb here!. As I have previously stated in other papers, I can't even measure the thickness of the graphite using a micrometer.

