

What is a Rockwell rating and how important is it when you buy a knife?

One of the most common questions we get from culinary enthusiasts concerns the purchase of “good” kitchen knives. The answers of course come in both short and long versions depending on how much time we have with you. Today we’ll look at just one element of the long technical answer that involves a knife’s hardness and its ability to hold an edge.

A knife’s hardness comes from a combination of its steel makeup and the heat treating process used. Good heat treating techniques will allow the manufacturer to increase the hardness of a blade with a great deal of control. Metallurgists use a Rockwell scale that universally defines how hard that steel is; the higher the number the harder the steel and therefore the greater its ability to hold an edge. In fact there are many different Rockwell scales used for different materials. For knife steel, the Rockwell C scale is used. If a knife producer publishes this value, you will most likely see it shown as “HRc XX” where XX is the rating value.

Good quality kitchen knives will range from 56 to 62 on the Rockwell C scale with the higher ratings typically demanding higher prices. Other elements that should be considered when looking for a good knife includes metal composition (see chart below), handle construction, finish, sharpening requirements (special sharpener?) and weight. If you’re interested in more details just drop us a line or better yet, sign-up for a class and explore your questions in person!

Oh, the easy answer? Buy the most expensive knife you can afford from a reliable retailer; it will probably outlive you.

Steel Types

(Note: This list covers all types of steel used in most knife applications; industrial, commercial, home and hunting).

Common Steels Used in Commercial Knives			
Type of Steel	Composition	Comments	Rockwell
420	Stainless	A softer metal that sharpens easily and is very corrosion resistant. Often used in Kitchen knives. Many inexpensive knives are made of 420, but are not usually high quality.	56-58
440A	Stainless	A very versatile metal that may be heat treated to be very, very hard. Not typically used in quality cutlery as it is difficult to get a reliable hardness and flexibility.	55-77
440B	Stainless	Like 440C except with less carbon. It will not produce a quality knife, but many knives are often made of 440B and marketed as 440C, since 440B is cheaper.	57-59
440C	Stainless	The standard, everyday steel for knives. Not as corrosion resistant as the above steels, but provides superior durability and edge holding. Buck knives are often made of this.	58-60
440V	Stainless	Not as hard as 440C, but holds an edge longer. 440V is labeled as such because it has a high Vanadium content.	58



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ATS-34	Low-Carbon	A Japanese steel that is not very corrosion resistant. Holds a good edge that is wear resistant, but is difficult to sharpen. Buck uses this in some of their models.	59-61
ATS-55	Low-Carbon	Like ATS-34 but has Molybdenum replaced with cobalt and copper, which increases edge retention.	60-62
AUS-6M	Low-Carbon	Not a very hard steel, but several hunting knife makers use this.	55-57
AUS-8	Low-Carbon	Harder than AUS-6M so it holds a better edge, and sharpens better than AUS-10; a trade-off on both counts.	57-58
AUS-10	Low-Carbon	There are other AUS steels but AUS-10 is the best for knives. AUS-6 and 8 are like 440A and B respectively. This steel has more vanadium than 440 so should have better edge retention.	58-60
AUS-118	Low-Carbon	Very similar to AUS-10, but just a little harder.	59-60
BG-42	Low-Carbon	Similar to ATS-34 but with a considerable amount of Vanadium added and smaller grains which make for a very hard steel. Harder, however, means more brittle.	61-63
1095	High-Carbon	Very tough steel that holds a great edge. The trade-off is that it rusts very easily. There are other steels in the 10-- series, but 1095 is the only one that will reliably make a decent knife.	56-58
5160	High-Carbon	Common Spring steel that can be tempered to a variety of Rockwell hardnesses. Unless you're buying from a licensed knife smith, or the specs are right there, avoid it.	50-60
52100	High Carbon	This is a ball bearing steel, and behaves like 5160, but with attitude. Superior edge holding capabilities, but will likely only be found in hand forged knives. I'm not sure if any knives are commonly manufactured in this stuff.	60-62
D2	High-Carbon	Rust resistant due to high chromium content but NOT a stainless steel. Can be very difficult to sharpen, but when a good edge is obtained, it will hold almost forever. Diamond sharpener will be required to do an effective job.	57-61
M2	High-Carbon	Incredibly high wear resistance and holds a great edge, but should not be purchased if the blade is very long. The hardness of this steel makes it more likely to shatter.	60-65
154CM	High-Carbon	Similar to 440C in performance, but with superior edge holding capabilities. Relatively new on the market, 154CM is a brand name, not a rating.	59-61
Sandvic 12C27	Stainless	Swedish steel that offers a very nice finish, and some improved durability since it has less impurities in it. You won't find too many knives made with this stuff, but they're out there. They hold a great edge and are easy to sharpen.	57-59

