Knife Steels

Steel Type	Characteristics	Approximate Rockwell Hardness
17-7 PH	Good corrosion resistance, excellent for water sports applications. This alloy is a chromium-nickel-aluminum precipitation hardening stainless steel with good edge retention. Great corrosion resistance generally means a high chromium content, and this means knives made with this steel will be a little harder to sharpen than blades with a lower chromium content.	54-56
154 CM	Originally designed for jet engine fan blades, it is the precursor to the Japanese made ATS-34. In recent years, this steel has made a resurgence in the knife industry, offering good blade toughness, edge holding capability and corrosion resistance. Fairly easy to resharpen.	58-62
420	A hard, strong blade steel. This stainless steel is commonly used in knife blades, and offers good corrosion resistance at a low cost. Decent edge holding capabilities and fairly easy to resharpen, this steel is a good balance of the most desirable traits for knife steel.	49-53
420 HC	A high carbon version of 420 steel, this steel combines the excellent wear resistance of high carbon alloys with the corrosion resistance of chromium stainless steels. The high carbon content makes this steel harder to resharpen, but the tradeoff is better edge holding properties.	58
440 A	A high carbon stainless steel, used in many production knives. A good balance of edge retention, easy resharpening and corrosion resistance.	55-57
440 C	A high chromium stainless steel which exhibits an excellent balance of hardness and corrosion resistance. This steel takes a nice edge, and is fairly easy to sharpen even for a novice.	58-60
1095	This is a plain carbon steel, which means it has low resistance to corrosion, and low to medium edge retention. The benefit of this steel is it's easy to sharpen, will take an extremely sharp edge and is generally available at a low cost.	56-58
5150	A medium carbon, low alloy steel that hardens well. This steel is ideally suited to blades with a very thick cross-section such as tomahawks and axes. Extremely tough and impact resistant, this steel is most often used on blades which are hafted and/or thrown.	55-60
8Cr13MoV	A medium-grade stainless steel, similar in many properties to the AUS 8 series. Good edge holding properties, and easy to sharpen. Decent corrosion resistance.	58-60

Aogami Super Blue	Aogami Super Blue steel is produced by Hitachi Metals for tools and knives. Super Blue is the highest grade blue steel and contains up to 1-1/2% carbon for wear resistance and chrome to elevate hardness and improve edge holding and corrosion resistance. Classified as exotic steel by cutlery standards, it has a loyal following with custom kitchen knifemakers looking for superior cutting performance. Aogami Super Blue is a high-performance, high-carbon steel and is not stainless. It requires proper and diligent maintenance to keep it corrosion-free. Often laminated between softer steels for use in knives.	60-61
ATS-34	A very high carbon, chromium stainless steel with additional amounts of molybdenum. This steel has good edge holding properties and high corrosion resistance, but is more difficult to resharpen than lower chromium steels.	60-61
AUS 6A	A medium to high carbon stainless steel, this steel holds a good edge and is particularly well suited for heavy, long blades that are subjected to a lot of stress while chopping and hacking. It has good edge retention, and is fairly easy to resharpen with decent corrosion resistance.	55-57
AUS 8	A Japanese stainless steel, with superb toughness and good edge holding capabilities. This steel is fairly easy to sharpen and generally low cost with great corrosion resistance.	57-58
AUS 8A	A high carbon, low chromium stainless steel - a good compromise between toughness and strength, edge holding and resistance to corrosion.	57-59
BG-42	A high quality, bearing grade alloy with significantly increased amounts of carbon and molybdenum content plus vanadium for improved edge retention and strength. Easy to sharpen, with decent corrosion resistance.	61-62
Carbon V	This low alloy, cutlery grade steel is superior to most other steels due to its chemistry. Decent corrosion resistance with superior edge retention make this a premium steel for knife blades. This steel is exceptionally tough, and therefore harder to sharpen than most stainless steels.	59
CPM S30V	This American made and engineered steel was created especially for the knife industry. It is a powder made steel with uniform structure and great corrosion resistance. Excellent edge retention and first rate toughness make this steel one of the best all-around knife steels, striking a balance between corrosion resistance, edge retention and sharpenability.	58-60
D2	This air hardened tool steel is sometimes called a "semi-stainless" steel, because it contains 12% chromium. It offers decent corrosion resistance with exceptional edge retention. It is harder to sharpen than most, but can be finished to a high-polish shine.	59-60

Damascus	This steel is made from dissimilar steels folded or fused together with heat. It is often acid etched, which brings out the different steels in a striped pattern. Excellent toughness and edge holding capabilities make it a great blade, but the cost of production is high. Damascus is most often used in special applications like decorative blades.	Layers vary from 53-62
Elmax	Elmax is a third generation powdered stainless steel. The grain size on this steel is very small, allowing it to take an extremely fine edge. Elmax is much tougher than S30V and has better edge retention as well.	60-62
M2	This high-speed, tool grade steel is used primarily in cutting tools in industrial applications. This is metal used to cut metal. With excellent strength, enduring toughness and tremendous wear resistance, this is some of the toughest steel used to make knife blades. The tradeoff for all this toughness is that this steel is hard to sharpen, and it is highly susceptible to corrosion. All blades made from this steel will have a corrosion resistant coating applied, to give good corrosion resistance with such a tough steel.	62
N690	An Austrian made stainless steel, it is comparable to 440C in performance. It offers good edge holding qualities with excellent corrosion resistance, and fairly easy sharpening.	58-60
S30V	This steel contains carbon along with high amounts of chromium, molybdenum and vanadium. This steel is double tempered for hardness and edge retention. It has excellent corrosion resistance, but is slightly more difficult to sharpen.	59-61
S35VN	Produced by the same company that manufactures S30V, S35VN is a high performance stainless steel that offers a considerable increase in toughness over S30V. It is also more resistant to chipping, corrosion, and wear. All around performance of the steel is enhanced over S30V, and S35VN will still take an extremely sharp edge.	59-61
Sandvik 12C27	This stainless steel is made in Sweden. It is generally known as a premium steel for knife blades, offering a good balance of corrosion resistance, sharpenability and edge retention.	57-59
San Mai III	San Mai means "three layers". It is a term used when talking about traditional Japanese swords and daggers. The laminated construction is important because it allows the blade maker to combine different grades of steel in a single blade. A high carbon center layer provides the strength and edge holding qualities, while the outer layers are lower carbon steels, providing flexibility.	Center layer= 59 Outer layers= 57
X-15 T.N	Developed for the aircraft industry for jet ball bearings, and used in the medical industry for scalpels, this steel resists rust in the worst of conditions while maintaining ample edge retention. Offering an easy to maintain edge and excellent corrosion resistance, this steel is ideal in knives used for watersports.	56-58

Handle Materials

Material	Characteristics
Bone	A classic material, usually shin bone from cattle, but often more exotic animals (where noted). Unfinished bone is porous and offers good grip. It weathers well and enhances the beauty of the knife. Often used for traditional pocket knives. Can be "jigged" in numerous patterns to enhance the look and increase the tactile grip on the knife.
Carbon Fiber	This material is a woven composite of graphite fibers fused together with an epoxy resin. Providing ultra light weight and extreme tensile strength, it most often has a visible weave-like pattern. The weave pattern can be varied, as can the color of the epoxy used.
Delrin	This lightweight and durable polymer was engineered for excellent long-term wear characteristics. It can be molded to form, and is used in many industries.
G-10	G-10 is an epoxy filled woven "E" glass composite, reinforced with glass fibers for strength. Originally designed for circuit boards, it offers the knife industry a handle which is impervious to most elements like oils, water and acids. It can be made in many colors, and finished in a variety of ways, offering different amounts of texture matched to different end uses.
Kraton	This black thermoplastic elastomer offers superb flexibility and memory elasticity even under harsh conditions. Most often molded onto a harder sub-structure, Kraton offers excellent grip and comfort.
Micarta	Technically described as "fabric reinforced phenolic laminate", micarta is created by pouring a resin into a flat pan, then laying down a strip of linen or paper fabric, which gets saturated with the resin. This process is repeated until the desired thickness is achieved. It can be made in lots of colors, is lightweight and can be finished in many ways including polishing to a high luster.
Noryl GTX	A modern, engineered plastic offering extreme durability. It is impervious to harsh environments and chemicals and is very strong. It offers no flexibility, but can be molded to any shape and in any color.
Phenolic	This hard, ebony-colored compound is almost impervious to heat cold and shock, making it practically indestructible.
Stag	Stag handles are made from horn or antler, from various sources. Sometimes a species is specifically mentioned, such as Sambar Stag. Stag offers significant grip and is pleasing to the eye when a natural look is desired. Often used in traditional pocket knives and hunting knives.
Titanium	Titanium is used as part or all of a knife handle when weight and strength are a concern. As light as aluminum but tougher than steel. A premium handle material.
Valox	A reinforced resin with exceptional stiffness, Valox offers strength and dimensional stability. It has outstanding chemical and flame resistance, and is molded to form.
Zytel	Zytel is a material made up of fiberglass and nylon. The two are combined and heated to near 600°F and then injection molded to the desired form. Strong and lightweight, it offers excellent surface grip.