How to Buy Knives
You may not know exactly what knife you want or need when you go into your favorite store, where you’ll find a lot of choices. So, we’ve put together this basic guide, which we believe provides enough information to help you choose the knife that best fits your personal needs.

There are many different factors to consider when buying a knife, such as blade shape, steel type, serrations or not, handle materials and much, much more. And, of course, how you plan to use the knife.

You’ll find answers to most of your questions in this step-by-step guide, starting with a glossary of knife terminology all the way to an explanation of blade shape.

At Buck Knives, we’ve been making knives since 1902, always with the goal of providing customers with a reliable, efficient knife that not only meets but exceeds their expectations. And we back every knife we sell with a solid, no-hassle Lifetime Guarantee.

Naturally, we hope you’ll choose a Buck knife. But most important, we appreciate your interest in knives, and hope you will find just the knife you want.

CJ Buck
Chuck Buck
Glossary of Knife Terminology

**Alloy Steel** - Steels that have been enhanced with additional elements (chromium, molybdenum, vanadium, nickel) are called alloy steels.

**Carbon** - An element present in all steels. Steel is essentially made of iron and carbon. Increasing the carbon content increases hardness.

**Chromium** - A major element in stainless steels. It improves hardenability, wear resistance and corrosion resistance.

**Coils** - Long steel strips that come in large rolls, which are fed into fine blanking presses as the first step toward blade fabrication.

**Corrosion Resistance** - A blade's ability to resist rusting as the result of exposure to the environment.

**Ductility** - The blade's ability to deform or bend without fracturing. If the amount of deformation is small, the blade is considered brittle.

**Edge Retention** - A measure of the blade's ability to hold an edge by resisting abrasion and wear. The most objective test is the computer-controlled testing machine called CATRA, which gives very accurate and repeatable data for an objective evaluation.

**Fine Blanking** - Buck's advanced blade blanking system. This fine blanking press produces very accurate parts that require little additional machining.

**Hardenability** - The depth to which full hardness can be obtained in the steel.

**Hardness** - A good indicator of steel's ability to hold an edge.

**Heat Treat** - An important step in developing material properties. The use of elevated temperatures to change the molecular structure of metal, gaining new performance characteristics.

**Liner Lock** - One of several locking systems used to anchor a folding blade open when in use. This system provides the convenience of one-hand opening and closing by using a stainless steel or titanium liner to hold the blade open; to unlock, press the liner clear of the blade and swing it closed.

**Lockback** - One of several terms used to describe a folding knife that has a locking system so the blade is safely and solidly locked open when in use. Also called lockblades or simply “lockers.” Descriptive name for a folder that utilizes a mechanism that engages the back of the blade to lock in an open position.

**Manufacturability** - The ease in which steel can be machined, blanked, ground and heat treated.

**Martensitic** - Martensite is a very hard steel structure, formed by rapidly cooling the steel during heat treating. Steels capable of being brought to this very hard structure are called martensitic steels, and it is this type of steel that is best suited for knife blades.

**Molybdenum** - An element added to improve hardenability, tensile strength and corrosion resistance, particularly pitting.

**Nickel** - An alloy addition that improves steel's toughness, hardenability and corrosion resistance. Nickel is a major element in steel used for kitchen cutlery and dive knives.
**Plate** - Flat sheets of steel that are turned into knife blades by laser cutting.

**Properties** - Refers to items as hardenability, ductility, tensile strength and toughness, which are established by the particular chemistry of the alloy steel.

**Rockwell** - A hardness-testing machine that forces a small penetrator into the surface of a blade. The depth of penetration correlates to an A, B, or C scale reading, called the Rockwell scales. The less penetration, the higher the number, the harder the steel. Blade steels are measured on the “C” scale and range from Rc 55 - 60. A diamond will range in the 80’s on the C scale (Rc).

**Sharpness** - This is a measure of the resistance required for an edge to shear through a material. Initial sharpness is the sharpness of the blade “out of the box,” and the sharpness that is the goal when re-sharpening.

**Stainless Steel** - The common term “stainless” is misleading. More accurately, it should be called “stain less” because it’s not “stain free.” In certain environments, any steel with carbon will rust.

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**Steel**

Steel is essentially a combination of iron and carbon, sometimes with other elements added such as chromium, molybdenum, vanadium, manganese, zirconium, tungsten and more. Steel is used in many different ways, from skyscrapers to food and beverage cans – it’s hard to imagine life without steel.

Steels used for knife blades are called alloy steels, which means they are enhanced by the addition of key elements. Different types of steel are produced by adjusting the chemical composition and adding steel-making stages, such as rolling, finishing and heat treating. Stainless Steels, the steels most commonly used for knife blades, are alloy steels with chemical additions that make them corrosion-resistant.

**Strength** - Steel’s ability to resist applied forces.

**Tempering** - The final step in the heat treat process, with the heat raised to a fairly low temperature to improve toughness.

**Tensile Strength** - Ability to resist breaking. Ultimate Tensile Strength is the maximum load per square inch a blade can sustain before breaking.

**Toughness** - A blade’s ability to absorb energy by impact prior to fracturing.

**Vanadium** - Added to steel to improve hardenability and promote fine grain, an important factor in wear resistance.

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**How Is Steel Made?**

The steel making process begins by melting scrap steel (such as old cars) in a furnace. An important quality of steel is that it is 100% recyclable – it can be used over and over again without downgrading to a lower quality. Alloying elements are added to the melt, and the molten steel is poured into molds called ingots. Once the ingots have solidified, they are processed in a mill to make the usable shapes and sizes. The shapes that Buck Knives uses most frequently are plate and coil. Knife components are cut out of plate stock through the use of the laser and cut out of coil stock through the fine blanking process.
Heat treat is the process by which steel that comes from the mill is prepared to make it suitable for knife blades. Buck Knives begins with annealed martensitic 420 HC stainless steel, and takes it through a carefully-controlled three-step heat-treating process that brings the blades to an ideal hardness for edge retention.

First, the blades are separately laid out on a continuously moving conveyor belt to ensure uniform heating. They move slowly through an atmospherically controlled tunnel furnace, reaching a maximum temperature of 2000 °F, then are air-quenched before reaching the end of the tunnel.

In the second step, blades are lowered into a deep-freeze where they are subjected to 120 °F below zero temperatures.

Finally, they are placed in an oven where the temperature is slowly raised to 350 °F to 900 °F, depending on the steel. This tempering process toughens the steel and brings 420 HC blades to 58 on the Rockwell C scale, the preferred hardness for edge-holding. ATS-34 and BG-42 blades are hardened to an exceptional 60 Rc.

Only after this rigorous process is a Buck blade ready to be edged.
For 35 years, Buck Knives followed an edging protocol that produced blades with excellent edge-holding qualities. In 1999, Buck decided to edge out the competition with the most exciting innovation in edge technology: Edge2000™. Chuck Buck, along with Buck engineers, quality and production supervisors, and experienced blade edgers, experimented with angles and materials before coming up with the exact specifications to create this new, thinner, sharper edge.

This new edge is achieved by changing the included angle (the total of the angles on both sides of the blade) from a range of 35° to 50° to a new range of 26° to 32°. This range allows Buck greater flexibility to match angle of the blade to the function of the knife. Quantitative measuring of angles results in consistent blades. A laser measuring device, called a goniometer, provides the precise angle measurements right on the shop floor needed to verify the edge matches specifications.

Buck Knives decided to stay with hand edging, as the human touch lessens the risk of burning, which can lower the hardness of the steel. Experienced edgers, who have been with Buck for many years, went through extensive training to learn the new system. It took many months for them to perfect the process, but it was worth the effort. Now, every knife made by Buck is sharper out of the box, holds an edge much longer and is easier to re-sharpen when needed.

Every part used in edging was tested and evaluated, including contact wheels, belts and grit size. In the old method, the edge-grind initially was performed on a belt with 100-125 grit; then the blade was buffed on a cotton wheel with green rouge to eat off the wire edge or burr created by the sander. However, the soft wheel and rouge made the edge “roll over,” taking off a little of the keen edge.

Edge2000 technology uses laminated leather stropping wheels, eliminating roll over and resulting in razor-sharp blades. C.A.T.R.A. (an acronym for the internationally respected British cutlery association) testing is a computerized international standard test for edge retention. Edge2000 blades have been compared against our older Buck blades and evaluated using the CATRA tests, which proved the superiority of our new edging process.

All Buck blades made since early 1999 were edged with the new Edge2000 process, so when you pick up your old favorite, it is really a new knife! Buck Knives is committed to staying on the cutting edge of knife development and innovation.

Serrated or Non-Serrated?

Serrations, which might be considered a “semi-saw,” provide a more aggressive cutting action, especially useful when cutting wet line, cord or cable. These blades have gained popularity, with the choice largely based on use of the knife. The serrations also retain their ability to cut long after a standard blade would be too dull.

Non-serrated blades will have a greater initial sharpness. For a clean, precision cut, a non-serrated blade is usually the first choice. Many blades are now offered partially serrated, providing the benefits of both cutting actions.
Scientific tests in the laboratory and real-life practical tests in the field have proved that Buck knives made with Ionfusion™ technology hold an edge at least five times longer than standard blades.

The key to this superior performance is the advanced, Ionfusion™ technology. This process fuses Zirconium Nitride (ZrN) to Buck’s standard 420HC stainless steel blade using a method patented by Molecular Metallurgy, Inc. (MMI) and Buck Knives. The resulting surface is so hard it surpasses 80 Rockwell C, the top of the scale.

Buck’s 420HC blades are shipped to MMI’s fusion processing laboratory where they undergo a 12-step robotic cleaning process to remove contamination and dissolve the native layer of oxidation. Such cleanliness is essential to the successful Ionfusion process.

After cleaning, the uncoated blades are precisely spaced on a specially engineered planetary fixture to ensure even distribution of the ions. The fixture is then placed into MMI’s Physical Vapor Deposition vacuum chamber where the Zirconium Nitride is molecularly fused to the steel blades. The resulting super-surface is so hard, it is actually three to four times harder than the steel itself!

Back at Buck, craftsmen edge the blades on one side only. This patented edging process allows the ion-fused surface to remain all the way to the leading edge on one side of the blade, where it serves as a “backbone” to keep the edge sharp.

This exciting Ionfusion™ technology, is also being used by:
- Brutus Golf, for longer and truer hitting golf clubs
- Gun manufacturers including Weatherby, Colt and John Rigby Gun Company

Ionfusion™ is a Trademark of Molecular Metallurgy, Inc.

*(formerly BuckCote™)*
What to Look for in a Knife

Apart from specific function, much of your decision-making will be based on personal preference. It may be as simple as the look of the knife. But before you make a decision, be sure you handle the knife. The tactile sensation is important. Does it fit your hand? Is it comfortable?

Also, test the knife for its opening and closing action – it should be easy and smooth. Do all of the parts fit smoothly, solidly, seamlessly? When a folding knife is open, the blade should not have a loose, wobbly feel. And you should find out if the knife is backed by a guarantee. Buck’s no-hassle Lifetime Guarantee has stood the test of time.

Always keep in mind how you intend to use the knife because you want to make sure the knife you select has the ability to meet your need.

Steel properties vary, so their performance varies. The goal is to match the steel to the task. To compare extremes, BG-42 steel provides the very best in edge retention and strength, but is more susceptible to rust and needs proper care, while 17-7 PH steel resists even salt water corrosion but cannot match the edge retention of harder steels.

Utility knives need to be rugged and strong enough to hold up under heavy use. Fishing knife blades need a thinner edge, more flex and more corrosion-resistance. They need handles that will not slip when wet.

Hunting knives need to be easy to carry, not too heavy but tough enough not to fail mid job. There would be nothing worse than being half way through field dressing game and have your knife fail on you.

Some blades (such as a drop-point) have a thicker tip, which is great for resisting abuse but not as effective for easy penetration.

Full hollow vs. semi hollow vs. flat ground blades. Full hollow will produce the thinnest and sharpest edge but also the most vulnerable to abuse.
You may go into the store wanting a knife for a specific function. Fine, but it’s important to check out all of the factors that are important – blade styles, lengths, blade thickness and more. Here are basic kinds of knives and the advantages that each offers you.

**Fixed-Blade** - A fixed blade knife will be more awkward to carry on your belt because it doesn’t fold to a compact length, but it will never surprise you in use because it’s a solid piece of steel anchored to the handle. For those who want a blade they really trust for tough jobs such as skinning and tough camping tasks, guide them to a fixed-blade. A good fixed blade knife can have a rat-tail construction where the tang (an extension of the blade itself) disappears into the handle and runs the entire length of the handle. With slab handle construction the blade is visible all the way through with two “slabs” on either side of the blade for a comfortable grip. Slab construction is more expensive and heavier but is far stronger.

**One-Hand Openers** - Many knife users are looking for the convenience of a knife that opens and closes with one hand. If their planned use of the knife calls for having only one free hand, this choice is automatic. But, in most cases, it’s a matter of preference. If that’s what they want, you can help them find the one-hander that is the best size, feels best and has the blade configuration they want.

**Lockback** - This is a folding knife that locks into position. Locking folders allow some of the confidence of a fixed blade while letting you “bury” the blade for safety while carrying it. A folder will never be as secure as a fixed blade knife in use but the carrying advantages make them a wise choice.

**Pocket Knives** - Good, old-fashioned pocket knives are still high on the list of favorites. The blades don’t lock open, but that’s not critical for their utilitarian use. And most pocket knives offer two or three blades, so they provide what the customer is looking for, whether it’s cutting twine, opening a letter, stripping wire or whittling.
Buck is always seeking ways to improve the quality, durability, look and performance of their knives. This has resulted in a worldwide search for the best materials for both blades and handles. The list below reflects Buck’s commitment to using the optimum combination of traditional and innovative materials.

**BLADE STEELS**

**420HC Steel**
This is a high carbon (HC) version of 420 martensitic stainless steels. These steels are hardenable, straight-chromium steels, which combine the excellent wear resistance of high carbon alloys with the corrosion resistance of chromium stainless steels. That means 420HC – Buck’s standard knife material – offers good corrosion resistance and excellent strength, hardness and wear resistance.

**17-7 PH Steel**
This alloy is used for high-strength applications that require good saltwater corrosion resistance and better edge retention than austenitic (type of stainless used in kitchen and dive knives) stainless steel. 17-7 PH is defined as a chromium-nickel precipitation hardening stainless steel, a process that develops hardness at relatively low temperatures, allowing hardening with very little distortion. This steel is excellent for water sports applications.

**ATS-34 Steel**
A very high carbon, chromium martensitic stainless steel, with additional amounts of carbon and molybdenum that add significant edge-holding properties and corrosion resistance. Available on some models of Lightnings™, Odysseys™ and Strider™ tactical folder. We are attaining hardnesses of 60 – 61Rc.

**BG-42 Steel**
Simply the best – a high-performance, bearing grade martensitic stainless steel with significantly increased amounts of carbon and molybdenum content plus vanadium for improved edge retention and strength. This steel is being hardened to 61-62Rc.

**HANDLE MATERIALS**

Buck Knives selects from a wide variety of natural and man-made materials to provide right handle for appearance and performance.

**Wood**
- Beautifully grained natural woods and laminated dyed birchwood are chosen for more traditional knives (such as the 110 Folding Hunter). Some distinctive woods that Buck chooses are Cocobola - distinguished by its rich coloring and Obechee with it’s unusually dark grained look. These woods are treated with an environmentally sound resin to protect their natural beauty. The resin impregnation provides water resistance to the birchwoods while allowing them to retain much of their natural woodgrain.

**Phenolic**
- This hard, ebony-colored compound is almost impervious to heat, cold and shock making it practically indestructible. This type of handle is best suited to a fixed blade knife that needs to withstand some vigorous use.

**Kraton®**
- Ideal for fish fillet knives, Kraton is a thermoplastic rubber. Fully resilient when dry for maximum comfort, Kraton develops a tacky feel when wet so you have a sure grip even when hands get slippery.

**Aluminum**
- High-tech 6061 T-6, Aircraft-grade aluminum solid sheet stock can be used to create a lightweight and durable handle. The aluminum can be anodized in a solid color or with patterns and pictures. Buck Knives discovered a process that allows original artwork to be anodized on the handles of the Lightning series.

**Animal Materials**
- Chosen for a natural look, authentic horn and bone adds extra distinction to any handle. Horn can be inlayed or hand-carved (Buck’s black buffalo horn has been carved to replicate the natural grooves of Impala horn).

**Plastics**
- Buck uses various engineering-quality thermoplastics including a molded plastic with a hard, textured surface and a rubber-like plastic with a textured finish. New in 2000, a two-shot molding method combines a hard, glass-reinforced nylon base with soft Dynaflex® to create a two-tone, sure-grip comfortable handle.

**Carbon Fiber**
- Developed in the aerospace industry for missile nose cones. This carbon fiber composite uses a woven graphite fiber that has a high strength to weight ratio, which means it is tough, impact resistant and lightweight. Kevlar, which can be dyed various colors, can be added for a unique look. Available on certain Lightning and Odyssey models.

**G-10**
- An almost indestructible resin laminate that is resistant to heat, cold, chemicals, impact and other abuse. That’s why Buck uses G-10 for the handles on the super-tough Strider™ tactical folder.
Sharpening Tips

Every knife needs sharpening from time to time – even a knife famous for holding an edge. Although there are many different types of sharpeners to choose from, Chuck Buck says that using a Washita or medium diamond stone is his method of choice. This process allows you to apply the proper angle to the blade and produces the microscopic serrations that result in an ideal cutting edge.

There are three simple steps for sharpening your blade on a stone to create the proper edge.

1. **Establish the correct angle and keep it.**
   The ideal angle is 13° to 16°, as shown in the diagram. By maintaining the proper angle throughout the sharpening process, you will achieve a better edge. With a little practice, it's easy!

2. **Use an even, circular stroke and slight pressure.**
   A circular motion, while keeping the blade in contact with the stone, produces a consistent edge and helps you to maintain the correct angle. Chuck recommends that you make at least a dozen full rotations in a **counter-clockwise** direction first. Count the number!

3. **Turn blade over and repeat the process.**
   Flip the blade, as shown, and make the same number of smooth, circular motions in a **clockwise** direction, keeping the blade on the stone. Repeat this paired action until you have reached the desired degree of sharpness.

Remember – a sharp knife not only performs better, it's actually safer because it cuts easily without forced or awkward motions.

Please note: Before any sharpening begins, we recommend you have Buck Honing Oil on hand, to keep fine grains of steel from embedding themselves in the stone and lessening the cutting action. Ordinary lubricating oil will clog the pores.
Basic Blade Shapes

Clip
The length and angle of the concave curve on the non-cutting portion of the point determines whether a clip blade is just a “clip” (short, pronounced curve), a “California” clip (longer, gentler curve) or a so-called “Turkish” clip (very elongated).

Modified Clip
A recent design development that has proved popular on high-tech, one-hand knives. Exact shapes vary.

Drop-Point
This blade has a gentle, sloping convex curve to the point, less abrupt than the spear blade, and without the concave curve of the clip blade.

Serrated
By adding serrations, we give your Buck blade greater cutting power. Available on several models.

Gutting & Skinning
Buck spent time finalizing the shape and angles for great performance. These are available on Zipper and CrossLock models. Makes it a cinch to field dress game.

Sheepsfoot
Got its name from the shape of the point resembling the hoof of a sheep. With its distinctive flat, straight-line cutting edge and rounded point, it’s well suited to clean cuts of such things as rope, tubing or insulated wire, especially on a flat cutting surface.

Spey
As the name indicates, this blade was originally developed to castrate animals. Rather blunt point avoids poking through a surface by accident and overall blade configuration make the spey function well for skinning and sweeping knife strokes.

Pen or Spear
This is a smaller version of the larger “spear point” blade. Spear points are more popular in Europe, while in America the clip blade is the preferred option. Pen blades are usually on pocket knives as a handy, all purpose blade. It was originally developed to trim quill pens, and that name has stuck through the years.

Coping
A narrow blade with a sharp, angular point, almost like a miniature sheepsfoot blade, designed to be used for cutting in tight spots or curved patterns, much as you would with a coping saw – only without the teeth.