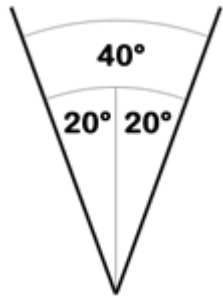


Theory on Sharpening Angles for Knives

We have found that many customers really want to know more about selecting the angle for their knife. In this article we will discuss in more detail why you may want to choose one angle over another.



Before getting into the detail, we'd like to make it clear how we talk about the angles on a knife. Most knives have a bevel on both sides. When we tell someone that they should put a 20 degree angle on a knife, we mean that they should sharpen each side to 20 degrees. This creates a total angle of 40 degrees. So when we're talking about the angle on your knife, we're talking about the angle at which you hold the knife to your stone.

Double Bevel



Single Bevel



There are special cases where the total angle of the knife is not double the angle that you sharpen each side of your knife. Some traditional Asian knives are only beveled on one side. In this example, one side may be sharpened to 20 degrees while the other side is at 0 degrees for a total angle of 20. However, in practice, we have found that the vast majority of Asian knives sold in the United States are not single bevel but rather traditional knives with a bevel on both sides. If you're not sure, it is generally safe to assume that your knife has a bevel on both sides. Asian knives do typically have a slightly lower angle and both sides are sharpened to

roughly 17 degrees.

Choosing an angle to sharpen your knife is essentially a compromise between the sharpness and the durability of an edge. The most important factor when determining the angle comes down to how you will be using your knife. Will you be shaving your face, filleting a fish, cutting vegetables, carving or chopping wood? From these examples, it is easy to see how each case requires a different edge.

Hardness vs. Toughness

Many people enjoy having a very high quality knife and appreciate good steels. Regardless of the steel, certain facts of steel hardness still apply. The hardness of steel is very easy to understand and is measured on a scale called the Rockwell C Scale. The toughness in metallurgy is the material's ability to withstand fracture. A simple example of a material that is very hard but not tough is glass. Given the same knife, making it harder will reduce its toughness. When a knife maker heat treats steel, they must strike a balance between hardness and toughness. Too hard and it could break easily, too soft and it won't hold an edge. The compromise between hardness and toughness in knife making is very similar to the compromise in choosing a sharpening angle.

Under 10 Degree Angles

The lowest angles are reserved for edges that are typically cutting softer materials. In this case, the edges are not subject to abuse so the lower angle can be maintained without damage or edge failure. The lowest angles that we typically see are on straight edge razors. These are sharpened to an angle which is roughly 7 to 8 degrees (although the back of the blade is used as a guide so knowing the angle isn't important and it is not adjustable). A straight razor has a very delicate edge that is very easy to damage. In proper usage, a straight razor would never see the type of use that would damage the edge.

10 to 17 Degrees Angles

A sharpening angle of 10 to 17 degrees is still quite low for most knives. With a total angle of 20 to 34 degrees, this is still a very fine edge. This edge is typically too weak for any knife that might be used in any type of chopping motion. Also consider that harder steels are also more susceptible to impact damage because they are more brittle. If your knife is used for cutting soft items or slicing meats, this lower angle can hold up and provide a very smooth cutting action.

17 to 22 Degree Angles

A 17 to 20 degree angle covers most kitchen knives. Some knives (typically Japanese manufacturers) will sharpen their knives to roughly 17 degrees. Most western knives are roughly 20 degrees. It is our experience that kitchen knives sharpened to 15 to 20 degrees cut very well and are still durable. These angles are still not highly durable as a total angle under 40 degrees will not respond well to rougher treatment in harder materials.

22 to 30 Degree Angles

In this range, the knife edges are considerably more durable. A pocket knife or a hunting knife will inevitably see abuse not seen by knives meant primarily for slicing or chopping softer materials. While the edge may not ultimately cut as well (but you may not notice a difference) it will be considerably more durable.

Over 30 Degrees Angles

Any edged tool or knife that is sharpened past 30 degrees will be very durable. Its cutting ability will be noticeably reduced. This durability has an advantage because more force can be used to make the cut. While the majority of knives won't benefit from this sharpening angle, an edged tool like a machete, cleaver or axe must be durable as the typical cutting action of these tools would damage other edges.

Tips for Selecting the Right Bevel Angle To Sharpen Your Knives

Selecting an angle for your knife edge is an important first step in sharpening. Selecting an angle is probably one of the easiest steps in sharpening, once you know the basics. To make it easy, a 20 degree bevel angle is a good starting point. If properly sharpened, the 20 degree angle will work just fine for most knives. If you're concerned about getting more performance from your knife you can fine tune the bevel angle to meet the specific needs of your knife. Sharpness and durability are the two factors when deciding on a sharpening bevel angle. The lower the angle the sharper it becomes, but it also becomes less durable and more prone to chipping. If you seek a very durable edge, a larger angle is preferred because it can withstand more than the thinner edge of a low bevel angle.

The angle you choose is a matter of personal preference. We've developed this chart as a starting point for your knives and other bladed tools.

Type of Knife or Tool	Recommended Angle
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- | | |
|---|------------------------|
| <ul style="list-style-type: none">• Cleaver• Machete | 30 - 35 Degrees |
|---|------------------------|

- | | |
|---|------------------------|
| <ul style="list-style-type: none">• Hunting Knives• Pocket Knives• Survival Knives• Sport Knives | 25 - 30 Degrees |
|---|------------------------|

- | | |
|--|------------------------|
| <ul style="list-style-type: none">• Chef's Knives• Kitchen Knives• Smaller Knives• Boning Knives• Carving Knives | 18 - 25 Degrees |
|--|------------------------|

- | | |
|--|------------------------|
| <ul style="list-style-type: none">• Fillet Knives• Paring Knives• Razors• X-Acto Knives | 12 - 18 Degrees |
|--|------------------------|

Blade Sharpening Angles : Sheet1

1 This data was compiled from information received directly from the manufacturers, and represent factory edge angles on most of their blades.

2 It is still recommended to mark your bevel with a Sharpie to determine sharpening angle accuracy.

3 Note: These are general guideline angles and do not necessarily represent the angle of every blade the manufacturer makes.

4				
5		Sharpening Angle	Inclusive Angle	Notes
6	Blade Manufacturer	(Non-inclusive)	(Degrees)	
7		(Degrees)		
8				
9	Benchmade	15 - 17	30 - 34	Hand sharpened, varies.
1	Buck	13 - 16	26 - 32	
0				
1	Cold Steel	23 - 25	46 - 50	
1				
1	Columbia River K&T	17 - 22	34 - 42	
2				
1	ESEE	20	40	Hand sharpened, varies.
3				
1	Ka-Bar	20	40	Hand sharpened, varies.
4				
1	Kershaw	20 - 22	40 - 44	
5				
1	Leatherman	16	32	
6				
1	SOG	23 - 25	46 - 50	
7				
1	Spyderco	20	40	Hand sharpened, varies.
8				
1				
9				

20	Generic Sharpening Recommendations	Sharpening Angle (Non-inclusive)
21	Blade Type	(Degrees)
22		
23		
24	Cleaver, Machete	25 - 30
25	Hunting, Survival, Pocket, Sport	22 - 25
26	Kitchen, Carving, Boning, Chef	18 - 22
27	Filet, Paring, Razors	12 - 18