

Thank you for purchasing the LKER. This kit includes:

- LKER housing
- Laser, with batteries. **NEVER look into the laser beam.**
- Test blade.
- Quick start instructions.

INTRODUCTION

The LKER, Laser Knife Edge Reader, will make you a better sharpener by immediately showing you the results of your sharpening efforts. Knowing the angle of the edge is the key to getting consistent performance and better life from your knives.

WHY USE THE LKER.

With the LKER you are able to “see” the results of your sharpening process. Like a scale reads weight, or a thermometer reads temperature, the LKER reads the angle at the edge of your knife. You will see the laser beam reflected off of the knife edge and learn to know the characteristics of the edge you are creating. With this information you can adjust your sharpening process as needed to consistently get the results you want.

HOW TO USE THE LKER

- Read the Quick Start instructions and Insert the batteries. **NEVER look into the laser beam.**
- Insert the laser pointer into the holder. Align the laser dot horizontally on the red zero line.
- Hold the LKER between the thumb guard and the outside of the scale.
- Slide the knife inside the LKER and up against both alignment V's located in front of the laser.
- Center the knife edge in the laser beam so it will reflect off both sides of the knife.
- Read the angle off the scale at the outside edge of the laser reflection.

The laser reflection will indicate:

- If you have created a sharp edge.
- The number of degrees of angle on each side of the edge.
- The shape of the sides of the cutting edge.
- The level of polish on the sides of the cutting edge.

From this you can determine:

- If you need to remove more material and if so where.
- If you are creating the angle you want.
- Is the angle positioned correctly on the knife blade.
- Is the shape of the cutting edge consistent.
- Do I want to polish the edge more.

STORAGE

- Remove the batteries from the laser and store in the original case.
- Leave laser in LKER housing. This will protect the laser and holder shaft from damage during storage.

READING AND UNDERSTANDING THE REFLECTION

- The higher the polish on the knife surface, the sharper and smaller the reflection will be. A mirror polish will reflect a dot. A less polished surface will give off a fuzzy scattered reflection.
- The shape of the reflection off the knife edge may be straight or curved, thick or thin, when it appears on the angle scale. This is a result of different sharpening techniques and the thickness of the blade. Regardless of the shape, the reading is taken along the same horizontal plane that the laser is centered on at the red zero line.
- The reading is taken at the sharp outside cutoff of the reflection.
- If there is no sharp cutoff to the outside border of the reflection, then you have not sharpened the knife to a point.
- The width of the edge reflection will vary depending on the knife thickness and the angle of the edge.
- On the angle scale several common angles are color coded:
 - Red = Razor sharp. Straight razor only. Very sharp but very weak.
 - Yellow = Super sharp. Used with high quality and hard steel knives.
 - Green = Kitchen sharp. Used with majority of kitchen knives.
 - Blue = Utility sharp. Used for outdoor and general purpose knives.

Use the included Test Blade to better understand a known edge and its reflection.

The Test Blade has flat sides and 2 bevels forming the working edge. The first bevel from the flat side is known as the Primary Bevel and reads about 8 degrees per side and the final bevel reads about 14 degrees per side.

If you have any questions you can reach Ken Leonard at Info@LaserKnifeEdgeReader.com. If you would like to be called back please provide your phone number. We will get back to you as soon as we have time.

The Laser Knife Edge Reader is only warranted against defects in workmanship and materials for 1 year from date of purchase. Any questions or comments should be submitted through Amazon or email. LIG, LLC.

HOW TO APPLY THE KNIFE EDGE ANGLE READING TO YOUR SHARPENING

To better understand why the edge angle matters, let's go back to the basics of sharp knives, how they work, and the knives themselves. When you understand this, you can change the angle of your cutting edge to get the best performance out of your knife.

When is a knife sharp?

If you look at a sharp knife edge under a microscope you will see 2 critical characteristics.

- The sides of the knife edge meet at a point that is continuous along length of the edge.
- There is a ridge of small teeth at the point, continuous along the length of the edge. (These little teeth were created by the grinding medium you use to sharpen the knife after the sides meet).

Why does a knife cut?

A knife cuts because of 2 actions, pressure and tearing.

- As you push down on the knife you are concentrating pressure along the edge, splitting and breaking fibers of the food, permitting the knife to move through.
- As you move the knife forward and backward you create a tearing action with the small teeth, damaging the fibers of the food, permitting the knife to move through.

Knife metal.

The characteristics of the material the knife is made out of will vary between knives. You will never change them. You will have to work with the characteristics of each knife to get the best performance out of the knife, by adjusting the angle.

Summary

All knife sharpening is a tradeoff between the angle you sharpen the edge at, and the characteristics of the materials the knife is made from. With the LKER you are able to track the changes you make to the angle and the corresponding changes in performance. Here are some general rules that usually apply to any knife.

- You must always sharpen to a point **and** create the small teeth at the edge, for the knife to be sharp.
- A sharper edge is weaker than a broader edge. It will cut easier, but not last as long.
- A broader edge is stronger than a sharper edge. It will last longer, but not cut as easily.
- (15 degrees is sharper than 20 degrees, 20 is broader than 15).
- As the little teeth bend over you must straighten them back in line, before they wear off. (This is the honing process and is different from sharpening).