

# HOCK TOOLS

## ABOUT STEEL

The three qualities that most effect the selection of a steel for a hand-tool application are edge-holding, sharpenability, and corrosion-resistance. For metallurgical reasons, you can only have two of the three. We at HOCKTOOLS feel that in woodworking, corrosion-resistance is the least important of the three, and prefer an edge that is easily sharpened and long lasting.

A steel's carbon content determines its ability to harden with heat treatment. That hardness determines a tool's ability to hold a sharp cutting edge under abrasive pressure (wear). Generally, the harder the metal the better its edge holding, but it will be more brittle. Tempering reduces that brittleness, although it also reduces the tool's hardness and wear resistance. So a balance must be struck to decide how hard a blade should be. Our blades are hardened to Rc62 for long edge life. This is harder than most available replacement blades yet not as hard or brittle as most Japanese blades.

"Tool Steel" refers to a class of steels that are metallurgically very "clean" and fall within strict limits for alloy proportions. Vanadium, tungsten, and molybdenum are often added to tool steels to make the steel resist annealing (softening) when used in "high-speed" (high heat) applications. Chromium is added in very large quantities for corrosion resistance ("stainless"). High-speed steels are essential in metal-working tools (drills, milling cutters, etc.) and "stainless" steels can be cost effective by resisting rust during the manufacture, shipping, and storage of the tool itself. Correctly heat-treated, tools made from high-speed, stainless, and "chrome-vanadium" steels may hold an edge well in woodworking applications, but, due to the large, hard carbide particles that form during hardening, they are difficult to sharpen and cannot be honed as sharply as a blade of plain high-carbon steel. Our choice of High-Carbon Tool-Steel (.95% Carbon) offers the finest, sharpest edge possible. Its chromium and vanadium additions amount to only 1/2% each allowing quick, clean honing with traditional techniques. High-carbon steel holds and takes an edge better than anything else. We guarantee it.

## About A2 Tool Steel

We've been watching with great interest as the tool steel know as AISI A2 has been gaining popularity and a reputation among woodworkers for its superior edge holding properties. After considerable research and evaluation, I decided to add A2 Replacement Blades to our catalog of world-renowned HOCK High-Carbon Steel Blades. We're offering the nine most popular replacement sizes in AISI A2 that has been cryogenically treated for maximum edge retention.

A2 differs from our usual High Carbon Steel with the addition of significant amounts of chromium and molybdenum. While "stainless" amounts of chromium (12% or more) make tool steel "gummy" and hard to sharpen, the modest amount of chromium in A2 (5%) improves its toughness and abrasion resistance, but imparts only a slight measure of corrosion resistance (like High Carbon Steel, it *will* rust and appropriate preventative care must be taken.)

A2 is one of the steels that respond well to Cryogenic Treatment. This extreme cold treatment (-320F) increases the steel's toughness without any decrease in hardness. You get increased wear resistance without any increase in brittleness so a Cryogenically treated blade will hold its edge longer. You can keep working instead of sharpening. We've differentiated these blades to avoid mixing them with our other blades by cutting the top corners with a 45-degree chamfer instead of our usual rounded corners. And they're marked "A2 Cryo".