

## Lippard NCO component material and barrel steel:

Combat NCO's are made of S7 tool steel.

Crucible S7 is a shock resisting tool steel with excellent toughness and high strength, along with low to medium wear resistance. It has been widely used for many years to make chisels and punches which undergo shock loading, and has found increasing use for small plastic molds. S7 is easy to machine in the annealed condition and can be readily heat treated. It is deep hardening and in many cases (except for large sections) it can be air quenched, exhibiting minimal distortion on hardening. Due to its relatively high attainable hardness (HRC 58/60) it offers high compressive strength (resistance to deformation) while retaining good toughness. Crucible S7 is a versatile tool steel for both cold and warm shock applications.

### Barrel material:

Do not be confused with 416 stainless and 416R ordinance rifle barrel steel. The difference is night and day. Most stainless barrels are made of 416 stainless that machines well but otherwise doesn't wear or have the strength for Lippard pistol barrels.

Here you can read the differences:

### Background

*Grade 416* has the highest machinability of any stainless steel, at about 85% of that of a free-machining carbon steel. As for most other free-machining stainless steels the improvement in machinability is achieved by addition of sulphur which forms manganese sulphide inclusions; this sulphur addition also lowers the corrosion resistance, weldability and formability to below that of its non-free machining equivalent Grade 410.

Grade 416 is sometimes used in the unhardened or hardened and highly tempered condition because of its **low cost** and ready machinability.

Martensitic stainless steels are optimized for high hardness, and other properties are to some degree compromised. Fabrication must be by methods that allow for poor weldability and usually also allow for a final harden and temper heat treatment. Corrosion resistance is lower than the common austenitic grades, and their useful operating temperature range is limited by their loss of ductility at sub-zero temperatures and loss of strength by over-tempering at elevated temperatures.

### Lippard Preferred Material 416R

*Crucible 416R* is a pre-hardened chromium stainless steel which is suitable for use in precision match-grade rifle barrels. It can be supplied in various hardness ranges according to your specific requirements ( HRC 24/28, 28/32, or 32/36). Crucible 416R was specifically designed by Crucible engineers in collaboration with barrel makers and rifle manufacturers to provide consistency, high quality and the following characteristics:

Good machinability for gun drilling and reaming, plus excellent polishability for uniform lapping, necessary for bore accuracy.

A homogeneous microstructure which responds to heat treat providing a uniform hardness along the length of the bar, necessary for accurate button rifling to precise groove dimensions.

An optimum combination of high tensile strength along with adequate toughness to withstand the typical chamber pressures encountered during firing.

Good corrosion resistance to inhibit rusting and which also helps to minimize fouling. Crucible 416R provides a durable finish which does not pit when properly maintained.

Precision straightened and stress relieved bars, either mill length or multi length, ready to be cut to length and gun drilled.

100% ultrasonic testing for reliable barrels.

Crucible 416R stainless steel is manufactured using very stringent controls from initial melting, through hot rolling, heat treating, cold finishing and final bar inspection. Barrels made from Crucible 416R are used at all levels of competition and in all conditions dry, damp or salty. Although all martensitic stainless steels have reduced ductility at very low temperatures, Crucible 416R can be safely used down to minus 40°F (-40°C).

Note: Information supplied online by simple Google search of material

\*\*\*\*\*

**The issue is just this:** When you build a gun from scratch you have a chance to write the book on the end result. You look at all the steel available and select a material suitable for the task demanded of that steel or the products made from it. Today the finest steel on earth for interchangeability, shock, operating temperature of cold and heat is S7 tool steel for our pistol and 416R for the barrels in them. No other pistol on this earth has ever been made to our tolerances or uses better steel than on our guns. No pistol barrel has ever been made in the history of gunmaking that will withstand the pressures of a Lippard Combat NCO barrel.

The reason our pistol is called a 1911 A2® is simply because of patented differences. No money or material can build a better gun. No other gun has shot so far or as accurately in history. Buy a Combat NCO or, Upgrade yours with our patented parts. It's the right thing to do.

Karl Lippard, firearm designer