FREQUENTLY ASKED QUESTIONS (FAQ)

BOHLER-UDDEHOLM KNIFE STEELS

Where are your steels manufactured, where is there stock and how do I buy them?

Our knife steels are melted and rolled in Europe. Sheets are stocked in Seattle, WA. We sell full and half sheets only from Seattle. We have distributors that will sell individual knife "bars" or pieces in 12" or 36" lengths.

I never heard of Bohler or Uddeholm for knife steels. What is your history and commitment?

Bohler in Austria and Uddeholm in Sweden have supplied knife steels to Europe, Asia, the Americas, and Africa for generations. High carbon and tool steel development began hundreds of years ago. Stainless was introduced within the last 100 years. Our commitment is to offer and stock the best tool and stainless steels, both conventionally and power metallurgically produced.

What is your best stainless blade steel?

That depends on the application. Bohler M390 has the highest performance available and is priced to match. Uddeholm ELMAX is competitive with other powder stainless with excellent overall results. Uddeholm VANAX has the performance of ELMAX, combined with the corrosion resistance of 300 series stainless. Bohler N690 has great edge holding and sharpness in an economical conventional steel. N680 has good salt water corrosion resistance.

Why is Bohler M390 so good in knives?

Two reasons, first our third generation powder metal technology produces finer grain and more uniform carbides for higher toughness and the second is the chemistry of M390: 1.90% Carbon and 4% Vanadium for added abrasive wear resistance, 20% Chrome for increased corrosion resistance and added tungsten and molybdenum to increase performance and grain refinement. Working hardness from 60-62 Rc.

As a custom knifemaker should I use M390 in every knife?

Yes, if edge holding is your top priority and you want every knife to be at least 60 Rc hard. If toughness in a stainless is your number one priority then use Uddeholm ELMAX tempered to 58-59 Rc. If corrosion resistance is most important, Uddeholm VANAX is the choice.

How well do your stainless steels finish, can I mirror polish?

Our steels are fine grained and very "clean" with few inclusions that mar the final finish. M390 and ELMAX will take a mirror polish, but you are advised to do the final polishing, above 800-1200 grit, with diamond foil or paper. N690 and N680 are not for a full mirror finish, there is a slight "haze" in the steel.

What stainless can I easily sharpen in the field?

Of course that depends on your experience, but N690 and N680 are both conventional steels that respond to traditional sharpening techniques. M390 and ELMAX as high carbon and vanadium steels require more advanced sharpening tools and skills.

Do you offer D2 and other tool steels?

Yes, we have Bohler K110, our name for D2. Stock in thicknesses from 3/32" to 3/16". The surface is hot rolled, but with minimal scale. The steel is very fine grained.

What are your best tool steels?

Our best tool steel for edge retention and toughness is Bohler K390, a powder metallurgical steel. Bohler K294 or A11 has excellent edge retention and Uddeholm Vanadis 4 Extra has great toughness.

What is 61 Rc or 57-59 Rc?

Rc is short for the Rockwell "C" level of hardness, a mechanical measurement of the surface hardness of the steel. An Rc number of 30-40 is typical for alloy steels. Tool steels range from 45 to 65 and higher. Knives range from 53 in mass produced cutlery to 57-59 for tactical knives and over 61 Rc for ultimate edge retention. You will also see this referred to as HRC, which translates to "Hardness Rockwell C".

Why do you offer heat treat information for different hardness levels?

The lower hardness level, typically below 60 Rc is for best toughness with good edge retention. Above 60 Rc is intended for maximum edge retention rather than max toughness.

Are your steels hard to heat treat?

Our steels follow industry standard heat treatment guidelines and can be processed in ways in which the knife industry is familiar.

Are there commercial heat treaters who will accept small orders?

Yes, both on the West Coast and in the East. Check with your local knifemakers as to what companies work with knives in your area, especially with M390, ELMAX and VANAX. These steels are not difficult, but must be heat treated accurately per the specifications.

Can I heat treat your steels in my home shop?

First, you must adhere to standard safety practices. For best results you need a furnace accurate with 30 degrees F, a way to wrap the blades in foil during heating, a forced air or plate quench system, liquid nitrogen deep freeze equipment, an accurate oven for low temperature tempers and finally a Rockwell tester to measure at each stage of heat treatment.

Why is a fast quench so important and how do I know if the steel is quenched correctly?

Quench is the rapid cooling after the steel has been heated to 1900-2150F depending on the grade. The quench transforms the steel to martensite. If done too slowly the steel will be too soft and can contain structures that will reduce the performance of the knife. Test the steel with a Rockwell tester just after it cools to room temperature. It should be 1-3 points higher than you want in your finished blade.

Should I grind my knives soft or after heat treatment?

We suggest rough grinding before heat treatment, especially with the higher Vanadium steels. Rough grind with 50 grit, heat treat and finish with 120, 220, 320 and up as desired.

Is there a contact person for information on your knife blade steels?

Yes, John.Steedman@bucorp.com . Be sure to include the period between the first and last names.