

The New Generation Damascus Steel Barrels



The new step in the art of barrel forging

Some technical solutions seem to disappear and suddenly return again.

Like an eternal pendulum.

”The technical evolution does not progress forward along a straight line. Neither does it move round and round in a circle.

It is coiling forward in a spiral.”

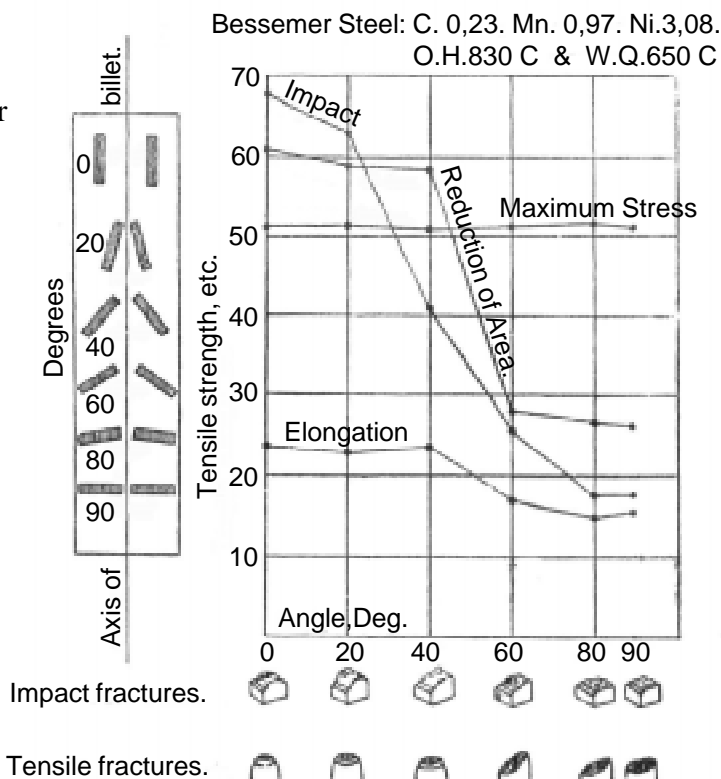
(A. Neuman)

The mechanical properties of a steel bar are not uniform.

The toughness is much better in the longitudinal direction than in the transverse directions.

The forging masters of the 1700:s have reminded us about one essential rule: **”Turn the forging grain to carry the highest stresses.”**

(Diagram, Edwin Gregory 1932)



Influence of slag lines in steel, showing their effect in relation to the direction of stress (Brearley).

Product information

Steelgrades 926,x and 968,x

The art of barrel making has developed through three steps.

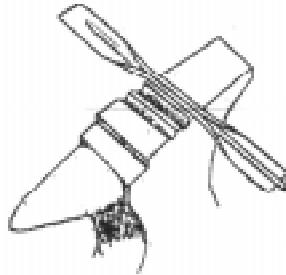
Now is the time for step number four - torsion twisting.

Damascene barrels are here again.

Step 1 (1500-1700)

Longitudinal forge welding of a flat soft iron bar

forge welding



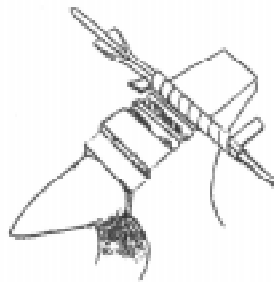
Quality level

A longitudinal forge weld and elongated impurities caused cracks along the barrel and bursting.

Step 2 (1700-1900)

Spiral forge welding of tilted iron-steel damascus

spiral welding



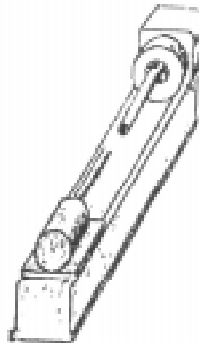
Transverse strength

Forge welding and tilting of iron and steel gave a balanced carbon content and hardenability. The spiral welding turned the forging grain to the transverse direction to resist the gas pressure. The damascene pattern was a quality proof.

Step 3 (1900-2000)

Drilling of barrels from cast and rolled alloy steel.

drilling



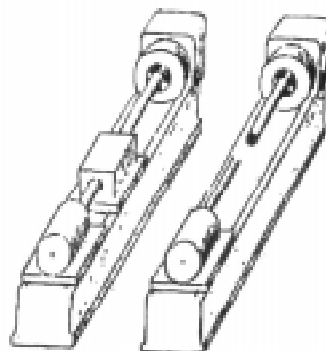
Liquid metallurgy

Alloying in molten steel made special barrel steels possible. The best properties are found in the rolling direction along the barrel.

Step 4 (2000-)

Drilling of torsion twist bars. Casting replaced by rapid solidification

twisting and drilling



Rapid Solidification and Transverse Strength

The torsion twist turns the rolling grain to the transverse direction where needed.

Rapid solidification increases the toughness as impurities becomes extremely small.