

EDM WIRE TERMINOLOGY

Hardness: Also called the temper of the wire is the measure of its ductility. The ability of the wire to elongate (stretch / compress).

Hardness and Tensile Strength are not the same thing. Soft wire can elongate from 15 – 25% and is used for taper cutting above 7 degrees.

Conductivity: is a means of measuring the wires capability to carry electrical current. The higher the conductivity the more power the wire can handle and the faster the cut.

Vaporization Point: A low vaporization temperature assist in cutting as follows: the faster a wire vaporizes (Sublimates) the faster heat is transferred to the workpiece increasing the cutting speed. Also, the heat is removed from the wire maximizing its working strength. It reduces “dirt” and recast as the wire is vaporized and not melted to the workpiece. The pockets formed on the wire aid in flushing as do the rapidly than collapsing gas bubbles (Vapor Pressure)



What Is Tensile Strength.

Tensile strength is a means of determining the maximum load-bearing capacity of a given material analyzed on its ability to resist stretching and breaking. This property is expressed as PSI (Pressure per Square Inch) or N/mm² (Newtons per Millimeter Squared) also known as MP_a (MegaPascal). It is calculated by taking the maximum load in pounds per square inch divided by the cross-sectional area of the wire, which will provide the PSI rating.

It is important not to confuse Tensile Strength with Fracture Resistance or Wire Hardness. They are very different, and each has its own importance in the EDM process. This is the point of most confusion and miss information regarding wire. Uninformed / misinformed salespeople and service personnel will either use the wrong terminology or do not have a full understanding of EDM wire and its characteristics.

Wire Type	Tensile Strength (MP _a / PSI)		Common Name
Copper	234 – 420 MP _a	34,000 – 60,000 PSI	
Brass	900 – 1100 MP _a	130,000 – 160,000 PSI	Hard
Brass	490 – 520 MP _a	71,000 – 75,500 PSI	Soft / Half-Hard
Brass	390 – 400 MP _a	56,500 – 58,000 PSI	Super Soft / Soft
Steel Core	2000 MP _a	290,000 PSI	
Bronco Cut X	520 MP _a	75,500 PSI	X Cut Wires
Molybdenum	1900 MP _a	280,000 PSI	Moly
Most Gamma, Double / Dual Coat and Specialty wires are in the 900 MP _a Range			

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