

Elgiloy® Wire

Elgiloy® wire is a premium, specially-fabricated wire in four tempers. Each Elgiloy® wire type has separate characteristics. Wire forms made from Elgiloy® can be heat-treated, depending on the desired application. It's toughness and flexibility are easily discernible with use. Elgiloy® wire is superior, as furnished, for forming, and in performance time during treatment. All tempers have the unique capability of beginning as a "softer" easily handled wire. Because Elgiloy® wire can be used as is or heat-treated, it provides flexibility and control in force applications.

Elgiloy® Development

RMO® was selected to develop Elgiloy® for orthodontics because of its leadership in developing new materials for the profession. This "wonder metal", developed by the Elgin National Company as the "Heart That Never Breaks" in modern precision time pieces, is not a stainless steel. It is a patented cobalt-base alloy compounded of eight materials (cobalt 40%; chromium 20%; nickel 15%; molybdenum 7%; manganese 2%; beryllium .04%; carbon .15%; and iron 15.81%).

Elgiloy® Offers Orthodontists Particular Advantages

- Superior physical properties
- Longer functioning as a resilient spring wire without distortion or fatigue
- Easy soldering without annealing
- Easy heat-treating to increase physical properties
- Simple electrolyte polishing

Maximum properties are not necessarily best for all orthodontic purposes. Full spring qualities are excellent for small diameter arch wires and coil springs, but larger wires of full spring temper are impossible to handle. It follows that the best qualities for a particular alloy form vary according to the work to be done to the material and the final usage. Recognizing this, RMO® developed a series of different types of Elgiloy® wires—each fabricated for specific applications and each identified by a color marking on the end.

With a wide range of carefully engineered wire types, orthodontists can take full advantage of Elgiloy®'s superiority and versatility, whatever their techniques.

Elgiloy® Wire Properties

- **Set resistance** – Retains power longer than stainless steel
- **Fatigue resistance** – More cycles than stainless steel without breakage
- **Greater spring efficiency** – Up to 20% more power than spring steel without an increase in dimensions
- **Corrosion resistance** – Outperforms chrome stainless steel by 17%
- **Non-magnetic** – Non-magnetic through all temperature ranges

How to Use Elgiloy®

- **Blue** – Blue Elgiloy® is initially the softest of the tempers. It can be welded with low heat, and soldered without embrittling. Blue Elgiloy® is recommended when the wire to be used is over .020" (0.508mm) or when the wire requires considerable bending, welding or soldering. Excellent for edgewise arches, lingual arches, retainers and removables.
- **Yellow** – Yellow Elgiloy® is initially ductile and slightly harder than Blue Elgiloy®. Using caution, you can spot-weld and solder to large Yellow Elgiloy wires, .021" x .025"; .030"; .036" (0.533mm x 0.635mm; 0.762mm; 0.914mm), without embrittling them. Some practitioners use Yellow as furnished, but it can be heat-treated if greater resiliency or spring performance is required. After heat-treating, Yellow Elgiloy® can be adjusted slightly, but should not sharply. It is excellent for flat wire techniques. Yellow Elgiloy® is recommended where greater spring qualities are needed than those provided by Blue Elgiloy®.
- **Green** – Green Elgiloy® is initially semi-resilient and will temper comparable to high spring tempered steel wires. It can be shaped easily with the fingers and can be plier-manipulated before heat-treating.
- **Red** – Red Elgiloy® is initially "hard" with exceptionally high spring qualities. It is not recommended for heat-treating. Use where adjustments will not be required after heat-treating.