

<b>PRODUCT CODE</b>	<b>RLG ER</b>
<b>FINENESS</b>	<b>750 (18K)</b>
<b>COLOR</b>	<b>DEEP RED</b>



#### Brief description

Master alloy for red gold 18K. The formulation of RLG ER is suitable for universal applications. The most notable feature of this alloy is its high versatility. The colour of the gold produced with this alloy is deep red. RLG ER contains a high amount of grain refiners, that helps to reduce the brittleness of red gold alloy in 18K. The hardness of gold produced with RLG ER can be highly increased with heat treatment.

#### Suitable applications

Plates&Sheets	Solid Chains	Hollow Chains	Soldered Tubes	CNC Works	Open Casting	Closed Casting	Wax Setting
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#### Properties

Commercial composition	Cu93 Ag4 Zn3	Alloy's main elements (%)
Density	14.8	(g/cm <sup>3</sup> )
Melting Range	905-910	Solidus - Liquidus (°C)
Hardness	190-320	Annealed - Hardened (HV)

#### Mould casting

Put first the alloy in the crucible and cover it with pure gold. Heat the metal 50-100°C more than Liquidus temperature, while protecting the melting with a reducing flame or keeping it in protective atmosphere. Heat the mould at 150 - 200°C and, when the melting temperature is reached, stir the metal and pour it in the mould; after casting, open the mould and cool the metal immediately; a slow cooling of red gold can lead to brittleness.

#### Continuous casting

When using a continuous casting machine, it is preferable to pre-melt gold and alloy. Alloyed gold can then be poured in a mould or in water and re-melted in the continuous casting machine, or poured directly in the machine's crucible, heating it until it reaches alloy's liquidus temperature. Always protect the melting using a reducing flame over the molten metal. Machine's speed should be the highest possible, a slow cooling of red gold can lead to brittleness.

#### Mechanical work

For the best mechanical results, reduce the section of the wire or plate of 50% before the first annealing process and 50 - 70% before further annealing. The first reduction steps should be strong enough to ensure the metal inner part compacting. Lower reduction could lead to grain growth of the metal structure, higher reductions could lead to brittleness.

#### Annealing

Heat the metal in protective atmosphere at 670°C for 15-20min (depending on the quantity), then quickly cool it in a solution of 90% water and 10% alcohol or in warm water (~35°C).

#### Hardening

Heat the metal in protective atmosphere at 300°C from 1 up to 3 hours, then let it cool slowly in protective atmosphere until room temperature is reached.

#### Casting

Cylinders' temperature should be 500-700°C, based on casted items' size and models' intricacy. It is preferable to pre-melt the alloy with gold before casting. Casting temperature is 50-100°C higher than the liquidus temperature of the alloy. After casting wait 5-10 min before cooling the metal in warm water (~35°C). In case of wax setting of stones, the flask should be cooled upside-down, letting only the tree button to be dipped in water; this precaution helps to cool down quickly the gold, without giving thermal shock to the stones.

#### Pickling

Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) at 10% concentration and 50-60°C can be used to remove surface oxide. Rinse with attention the metal after pickling.

#### Scraps reuse

Up to 50% scraps can be added to new melting. Removal of sprue button is suggested. Add only clean scraps, de-vesting the tree with hydrofluoric acid 10% concentration and 50°C is highly recommended.