

PRODUCT CODE	SY 18H 3N
FINENESS	585 (14K)
COLOR	RICH YELLOW



Brief description

Master alloy for 14 and 18K yellow gold universal applications. Gold produced with SY 18H 3N has a rich yellow colour, in 18K the resulting alloy complies with 3N gold standard. This alloy contains grain refiners that helps to reduce the orange-skin defect. The hardness of gold produced with SY 18H 3N can be increased with proper heat treatment.

Suitable applications

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

Silver Quantity	47%	Amount of silver <u>contained</u> in the alloy (%)
Density	13.4	(g/cm ³)
Melting Range	830-840	Solidus - Liquidus (°C)
Hardness	180-275	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 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.

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 as high as possible.

Mechanical work

For the best mechanical results, reduce the section of the wire or plate at least of 50% before proceeding with the annealing process. The first reduction steps should be strong enough to ensure the metal inner part compacting

Annealing

Heat the metal in protective atmosphere at 660°C for 10-30min (depending on the quantity), then quickly cool it in a solution of 90% water and 10% alcohol or in warm water (≈40°C).

Hardening

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

Casting

Flasks' temperature should be between 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 100-150°C higher than the liquidus temperature. After casting wait 5-20 min before cooling the metal in warm water (≈40°C). In case of casting with stones, wait 30-45 min.

Pickling

Sulfuric acid (H₂SO₄) 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 the melting. Always pay attention to the cleanliness of the scraps, de-greasing and pickling before adding them to new metal is suggested.

PRODUCT CODE	SY 18H 3N
FINENESS	750 (18K)
COLOR	RICH YELLOW



Brief description

Master alloy for 14 and 18K yellow gold universal applications. Gold produced with SY 18H 3N has a rich yellow colour, in 18K the resulting alloy complies with 3N gold standard. This alloy contains grain refiners that helps to reduce the orange-skin defect. The hardness of gold produced with SY 18H 3N can be increased with proper heat treatment.

Suitable applications

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

Silver Quantity	47%	Amount of silver <u>contained</u> in the alloy (%)
Density	15.3	(g/cm ³)
Melting Range	875-885	Solidus - Liquidus (°C)
Hardness	150-255	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 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.

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 as high as possible.

Mechanical work

For the best mechanical results, reduce the section of the wire or plate at least of 50% before proceeding with the annealing process. The first reduction steps should be strong enough to ensure the metal inner part compacting

Annealing

Heat the metal in protective atmosphere at 650°C for 10-30min (depending on the quantity), then quickly cool it in a solution of 90% water and 10% alcohol or in warm water (≈40°C).

Hardening

Heat the metal in protective atmosphere at 275°C for 1-3 hours, then let it cool slowly in protective atmosphere until room temperature is reached.

Casting

Flasks' temperature should be between 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 100-150°C higher than the liquidus temperature. After casting wait 5-20 min before cooling the metal in warm water (≈40°C). In case of casting with stones, wait 30-45 min.

Pickling

Sulfuric acid (H₂SO₄) 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 the melting. Always pay attention to the cleanliness of the scraps, de-greasing and pickling before adding them to new metal is suggested.