



**STW17**

## TECHNICAL DATA SHEET

<b>Fineness</b>	<b>750 ‰</b>	<b>Density</b>	<b>14.67</b>
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### Physical Data

<b>Colour</b>	<b>White</b>	<b>Colour Coordinates</b>	<b>L*= 84.27 a*= 2.72 b*= 14.02</b>
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<b>Melting Range</b>	<b>Solidus: 880 °C Liquidus: 910 °C</b>	<b>Casting Temperature</b>	<b>Min: 960°C Max: 1060°C</b>
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### Mechanical Data

<b>Hardness</b>	<b>As Cast 185 HV</b>	<b>Hardened 230 HV</b>
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## INVESTMENT CASTING

### CASTING INSTRUCTIONS

Metaltech suggests to make a premelting of the master alloy and fine gold to homogenize the alloy in the best way, before casting. In any case, if a premelting is not done, put first the master alloy in the crucible, and then the fine gold on top, reach a temperature between 960 and 1060°C (according with the mass and the shape of the casted pieces) then pour the metal in the flask. Also the flask temperature must be set considering the mass and the shape of the pieces which have to be casted. In any case, it must be stabilized at a temperature between 450 and 700°C. After casting, quench the flask after a time between 10 and 20', always according with the kind of pieces you are producing and, moreover, with the mass of the entire tree. So, trees with higher masses request longer quenching times. In case of castings with stones in place, increase the quenching time considering the stones resistance features.



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## CLEANING AND PICKLING

Clean the tree from investment residuals with a water jet and, to completely remove them, put the tree in a 5 - 10% solution of hydrofluoric acid at 40 -60°C. The use of an ultrasonic tank will increase the removal power of the acid. After cleaning, make a pickling using a 10 - 15% solution of sulphuric acid at 40 - 60°C. An often renewal of the acid solution is suggested to keep its features stable.

## SCRAPS REUSE

The scraps of the obtained alloy can be reused in a percentage not higher than 50%. The quantity of scraps to reuse depends on the level of impurities contamination of them during the production cycles and on the grade of protection of the bath during casting (which reduces oxides creation and related alloy contamination). To increase the scraps reuse capability, is also very important to remove as meticulously as possible the investment residuals from sprues.

## HEAT TREATMENTS

### SOLUTION ANNEALING

It can be done to make the material release the possible tensions accumulated during the tree casting and cooling, and make it more resistant to bending or other processes which require high mechanical resistance. To make the solution annealing, put the pieces in oven with protected atmosphere (if available) at a temperature of 675°C for 30' and then quench immediately. We specify that this treatment is needed only in case of brittleness problems due to particular casting conditions.

### AGE HARDENING

This treatment can be done to increase the hardness of the alloy, when this characteristic is needed. To make this treatment, heat the pieces in an oven at 275°C for a time between 60 and 180'; different times will give different hardness values; please contact Metaltech to get the precise different hardness' at every different duration of heating treatment. In any case, the maximum hardness value is reachable using a time of 180', cooling the pieces very slowly inside the oven, when an oven with protected atmosphere is used. In case of excessive oxidation, the treatment can be done in a molten salts or oil bath. contamination).

## FURTHER INFORMATION

For any further information or request, please contact our local agent.

