



Heat treatment of beryllium bronze must pay attention to some matters

(1) beryllium bronze solid solution treatment

The general solution temperature treatment at 780-820 DEG C, for the elastic component materials, using 760-780 C, is mainly to prevent the coarse grain impact strength. Solid solution treatment furnace temperature uniformity should be strictly controlled within + 5 C. The heat preservation time generally according to 1 hours of /25mm computing, beryllium bronze solution heat treatment in air or oxidizing atmosphere, surface oxide film formation. Although it has little effect on the mechanical properties after ageing strengthening, but will influence its cold machining tool and die service life. In order to avoid oxidative stress in a vacuum furnace or ammonia decomposition, inert gas, reducing atmosphere (such as hydrogen, carbon monoxide) for heating, thereby obtaining the effect of bright heat treatment. In addition, but also pay attention to try to shorten the transfer time (the quenching water), otherwise it will affect the mechanical properties after ageing. Thin materials shall not exceed 3 seconds, the general part of not more than 5 seconds. Quenching medium with water (no heating requirements), of course, the shape of complex parts in order to avoid deformation can also be used for oil.

(2) aging of beryllium bronze

The relevant content of beryllium bronze aging temperature and Be, Be alloy containing less than 2.1% are suitable for aging. For alloy Be is greater than 1.7%, the best aging temperature of 300-330 DEG C, the heat preservation time 1-3 hours (according to the shape and thickness). High conductivity electrode alloy with Be less than 0.5%, because the melting point is increased, the best aging temperature of 450-480 DEG C, the heat preservation time is 1-3 hours. In recent years, it has developed a two-stage and multi-stage aging, first in the high temperature aging, and insulation aging at a low temperature for a long time, the advantage of this is that improve performance but decreasing strain rate. In order to improve the size precision of beryllium bronze after aging, the clamping time, sometimes also can using two separate aging treatment.

(3) the stress of beryllium bronze

Beryllium bronze stress relief annealing temperature of 150-200 DEG C, the heat preservation time is 1-1.5 hours, can be used to eliminate the residual generated by metal cutting, straightening processing, cold forming the stress, stable parts in the shape and the dimension accuracy of long-term use of the.