Continuous distribution of serious will destroy the steel and scrap

Common endogenous inclusions are mainly sulfide, silicate, oxide etc.. They are in the steel quantity and composition and the composition of the steel, smelting, casting process and the quality of deoxidation method about. High melting point of endogenous inclusion, prior to the base metal solidification and crystallization unimpeded, shows irregular edges shape; the lower melting point of endogenous inclusion, due to have solidified metal limit configuration is more balls or strip, the dendritic distribution along grain boundaries. Sulfide and good plasticity of silicate components, when the steel ingot forging deformation, extending along the main deformation direction was banded. Picture 6-5 shows MnS elongated shape inclusion in 34CrNi3Mo rotor steel. While the oxide and worse plasticity silicate inclusions, in the forging deformation was broken into small particles, a chain of spherical distribution. Picture 6-6 is along the direction of deformation distribution chain oxide inclusion. The size is small, dispersed endogenous inclusion, much as micro defects, less harmful. While large or dense clouds of inclusion shape structure of macro defects, can have detrimental effects on the forging of use, is easy to cause accident serious failure

Picture 6-6 is deformed broken oxide inclusions in LM without etching 500 x foreign inclusions refers to mixed people in steel slag, slag, oxide film, protection of refractory material and different metal block etc.. Usually the foreign inclusions coarse.

With the development of high parameter, large-scale machinery and equipment, the quality of large forgings made more stringent requirements, this requires the control of trace elements in steel lead, antimony, tin, bismuth, arsenic, in order to improve the level of strengthening and toughening of forgings.

To reduce the steel in general countermeasure is with:

1) vacuum treatment, refining furnace, liquid steel quality control;
2) clean pouring, prevent foreign inclusions with different metal into pollution;
3) the reasonable forging deformation, improve the inclusion distribution.