

Toughnite/ Gas Soft Nitriding Process

Toughnite is a Gas Soft Nitriding Process developed by Dowa Mining Company Ltd., Japan as a substitute for salt bath based Nitriding systems

Toughnite process creates a white surface layer and a deeper nitrogen diffusion layer.

The surface layer (or compound layer) consists of S-Fe₂₋₃ (C,N) carbo nitrides and has thickness and hardness that vary depending on the type of steel under treatment.

This compound layer provides superior resistance to wear, corrosion and seizure. Moreover brittle structure (Fe₂ N) will not form.

Below the white layer is a nitrogen diffusion layer consisting of nitrides and solid solved nitrogen that improves stress distribution and fatigue strength.

Lower treatment temperature for reduced distortion

The Toughnite process requires a temperature of only about 570°C well below the 730°C. A1 transformation temperature and therefore generates minimal distortion and dimensional change. When stress relieving treatment precedes the toughnite process, extremely high precision can be obtained.

Clean Processing Environment

The gaseous phase toughnite process eliminates the toxic cyanide and cyanate required by the salt bath treatment. Gaseous phase processing also means that the treated surfaces remain clean and bright, ending dirty post process washing and polishing.

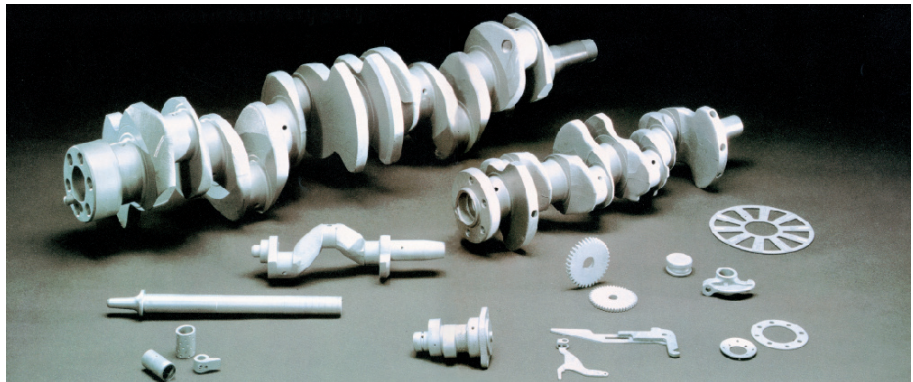
Pit type, Batch Integral Quench or Continuous furnaces can be used for this process.

Types of parts that can be treated

Cam shaft, Rocker Arm, Piston Rings, Gears, Fine Blanked Parts.

Type of Steels

Carbon steel, Alloy steel, Tool steel, Cast Iron and sintered Iron Parts.



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