



PLASMA NITRIDING OF CRANK SHAFTS

Because of the significant advantages, leading manufacturers of high performance engines and racing teams, up to the worldwide highest class in car racing, have decided to plasma nitride their crank shafts.



ADVANTAGES OF PLASMA NITRIDING CRANK SHAFTS

- Minimal distortion due to low temperature treatment.
- No crack formation in consequence of tension optimized characteristics of the plasma nitrided crank shafts.
- Very good emergency running properties due to lubrication oil stored in porous zone of the white layer.
- Increased fatigue strength cause by raised compressive stress after plasma nitriding.
- Threads and bore holes are not nitrided due to reduced gas pressure or mechanical masking.
- Absolute reproducibility of heat treatment.




DISADVANTAGES OF CONVENTIONAL TREATMENTS

The difficulty, especially the heat treatment of crank shafts for high performance engines with conventional treatment such as salt bath nitriding, gas nitriding and inductive hardening is well known and constitutes, depending on the technique, the following disadvantages:

- Thermal caused distortion and process-related inaccuracy of dimensions.
- Masking of threads and lubrication holes combined with relatively high efforts.
- Crack formation.
- Bad or no emergency running properties.
- Differences in tension in the peripheral zone.
- Low fatigue strength.
- Ecological impacts.
- Lack of reproducibility.


Trouble-Free Plasma Nitriding

High pressure



→Bore hole is nitrided

Low pressure



→Bore hole is not nitrided

By the gas pressure you may control trouble-free the nitriding of through and blind holes in the plasma system.

ADVANCED NITRIDING SOLUTIONS