

PSG (Gas Sulphonitriding) & PWG (Gas Nitrocarburizing) Treatment

Gas sulphonitriding (PSG) and gas nitrocarburizing (PWS) have been added to the lineup of surface modification treatments. The properties of gas nitriding can be used to treat objects with complex shapes that are not suitable for salt bath nitriding such as deep holes, blind holes, and fine holes, providing a high quality surface to which impurities will not adhere.

In addition, PSG and PWG are environmentally-friendly treatment processes.

Features of PSG & PWG Treatment

- PSG and PWG treatment is performed using facilities that can adjust the depth of the compound layer and diffusion layer (nitride layer), creating compound and diffusion layers tailored to the specific application.
- Heat checking resistance of die cast dies during treatment is outstanding, and since treatment is performed at stable, low temperatures, the treatments are effective with regard to changes in dimensions and distortion.

PSG Treatment

- The formation of a sulphonitride layer has a lubricating effect, which improves seizing resistance, galling resistance, and dissolved loss resistance. The effects are apparent during hot and cold working process.
- The hard nitride layer contributes to wear resistance.

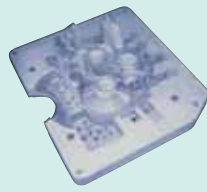
PWG Treatment

- Control of compound layer formation according to the application enhances wear resistance and galling resistance.

Examples of PSG & PWG Treatment Applications

- Die casting molds
- Hot forging dies, extrusion dies
- Plastic dies
- Rubber dies
- Cold work dies
- Cast pins and other components
- Aluminum die cast dies
- Sliding components

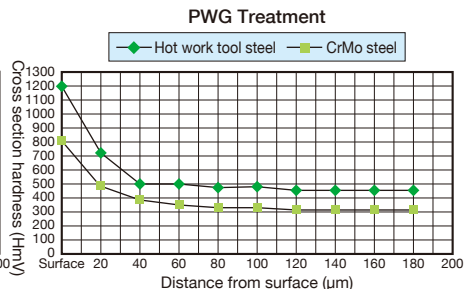
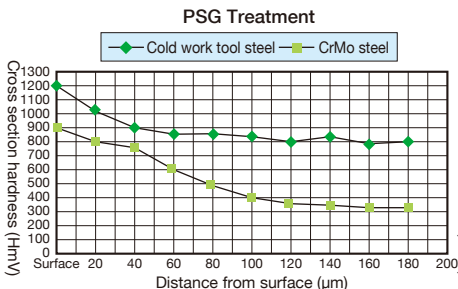
Die casting molds



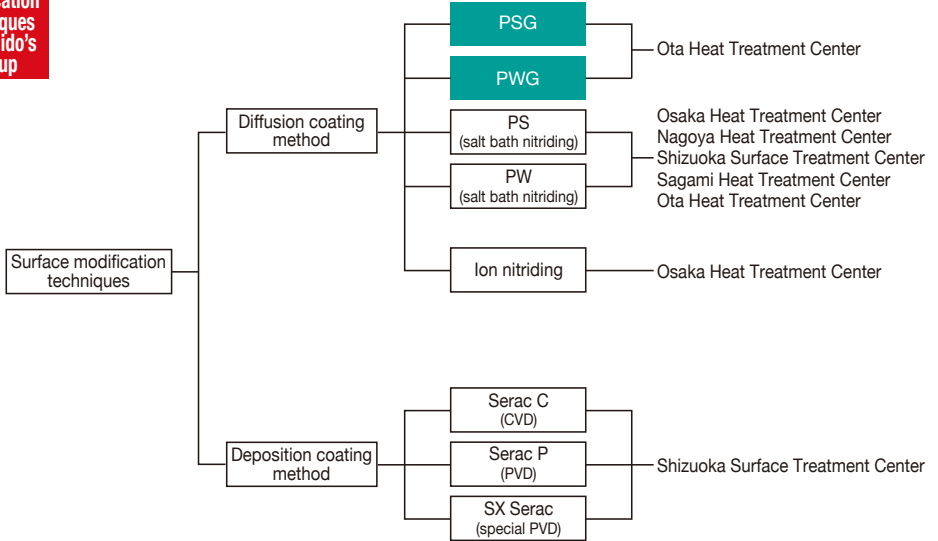
Pins



PSG & PWG Treatment Cross Sectional Distribution



Surface Modification Techniques and Daido's Lineup



Facilities

- Treatable Object Size
- Configuration: $\phi 1,000 \times 1,500$ L
 - Mass: 1.2 t

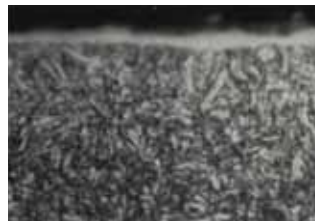


Micro Structure

Micro structure of the surface layer of a PSG treated object (hot work tool steel)



× 400 times



× 1,000 times