BRADDOCK METALLURGICAL

NITRIDING

Typical Applications

GEARS ● CRANKSHAFTS ● CAMSHAFTS ● CAM FOLLOWERS ● VALVE PARTS ● SPRINGS
EXTRUSION SCREWS ● EXTRUSION DIES ● DIE CAST TOOLING ● FORGING DIES ● INJECTORS

The nitriding process involves the diffusion of nascent nitrogen into the base metal. The diffusion takes place at a relatively low temperature and produces the high hardness wear resistant layer without quenching. Core properties are not affected provided that the final tempering temperature for the product was higher than the nitriding process temperature. Nitrided case depths are typically shallow. Less than .010". Deeper case depths are possible but require significantly longer cycles because of the slow diffusion of nitrogen into the metal.

In the event that certain areas of a component must be kept soft, this can be accomplished by using a special protective paint or masking. Nitriding is most effective when applied to the range of steels containing nitride-forming elements such as chromium, molybdenum, varadium and aluminum. The process is commonly used on tool steels, mold steels, 4140, and Nitralloy 135. For optimal results, the material should be in a hardened and tempered condition prior to the gas nitriding process. Our Nitride furnaces can handle parts as large as 39" Diameter x 100" Deep.

There are two methods recommended for heat treating:

Method 1 - For minimal distortion

- Quench and temper to specified core hardness
- Rough Machine
- Stress Relieve
- Finish Machine
- Nitride
- Lap or lightly grind if necessary

Method 2- For Maximum Machinability

- Rough Machine
- Quench and temper to specified core hardness
- Finish Machine
- Nitride
- Lap or lightly grind if necessary

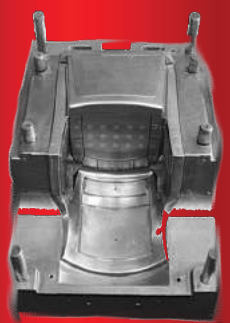
Nitrided surfaces are:

Highly wear resistant

Superior anti-galling properties

Fatigue life is enhanced

In some cases improves corrosion resistance

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