

NITREX

NITREG® CONTROLLED NITRIDING

TAILORED TO YOUR NEEDS

If you wish to achieve perfect gas nitriding results that meet difficult and challenging specifications, and if you require consistency from load to load, NITREG® is the most likely solution for your needs.

NITREG® fully automated process control technology applies individually customized processes to different parts, applications and materials for ideal results.

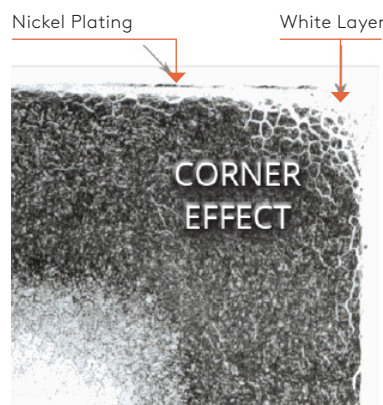
It represents a unique approach, based on the nitriding potential as the principal controlling parameter. The nitriding potential, denoted by K_n , is a thermodynamical parameter directly linked to the surface concentration of nitrogen in steel. Nitrogen concentration is responsible for the properties of the nitrided surface.



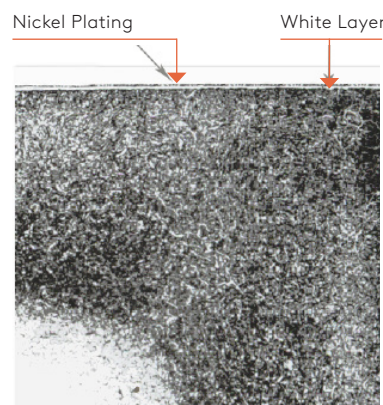
THE 'CORNER EFFECT' PROBLEM

A common problem in traditional nitriding is the "corner effect", an over-saturation of nitrogen in the white layer and in the diffusion layer which leads to spalling. NITREG® prevents this effect by appropriately reducing the nitriding potential (K_n) during treatment. The concentration of nitrogen in the corner will be lowered sufficiently to prevent over-saturation.

CONVENTIONAL NITRIDING PROCESS



NITREG® NITRIDING PROCESS



NITREG® technology

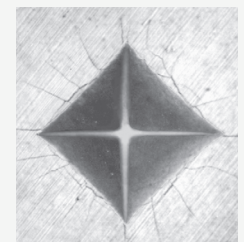
MEANS ECONOMICAL PROCESSING FOR THE PROVIDER OF NITRIDING SERVICES AND EXTENDED SERVICE LIFE OF PARTS & TOOLING, DUE TO THEIR SUPERIOR PROPERTIES.

CONTROL OF NITRIDING

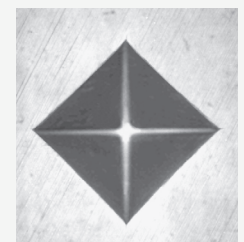
Superior case toughness of the nitrided layer is achieved by precise control of K_n (nitriding potential). This is shown by two 30 kg Vickers hardness indentations produced on a part nitrided without K_n control and on a NITREG® treated part. The part nitrided without K_n control is brittle as shown by the network of cracks. The NITREG® treated component is ductile with high white layer toughness, as evidenced by the absence of cracks.

Vickers indentations (load of 30 kg) on a 4340 steel, nitrided to the same specification

CONVENTIONAL NITRIDING PROCESS



NITREG® NITRIDING PROCESS



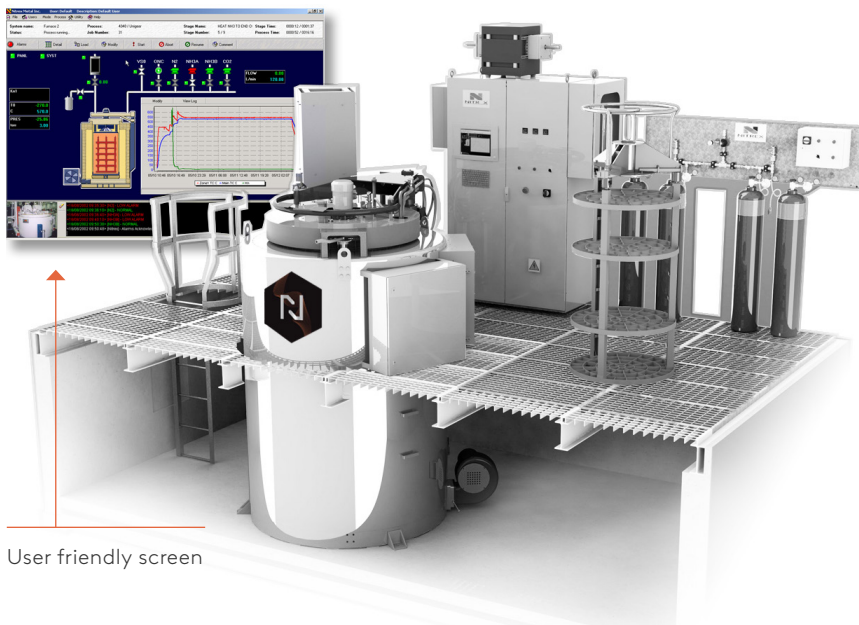
NITREX

NITREG® CONTROLLED NITRIDING

NITREG® TECHNOLOGY

NITREG® is the trade name of our modern gas nitriding technology. It involves state-of-the-art equipment and a user friendly software program, allowing full automation of all functions, process stages, and safety procedures with closed-loop processing parameters.

EXAMPLE OF A NITREG® TURNKEY SYSTEM



User friendly screen

NITREG® technology
IS A PROVEN ECONOMICAL
AND TECHNICALLY VIABLE
ALTERNATIVE TO SALT-BATH
AND ION (PLASMA) NITRIDING
FOR MOST NITRIDING
APPLICATIONS.

WORRY-FREE OPERATION

NITREX delivers and installs computerized and fully automated, turnkey nitriding systems, developed and thoroughly tested worldwide over the past 30 years. As described earlier, control of nitriding potential (K_n) is the key parameter.

Our systems are capable of maintaining the preset values of K_n , as desired for each processing stage, by continuous self correction, taking into account such factors as load size and/or surface condition, which may differ from charge to charge. From start to finish, the process requires no manual adjustments.

Eco-friendly technology



COMPLETE PACKAGE

The NITREX controlled nitriding system complete with NITREG® technology is a comprehensive approach to solving all your nitriding problems. It includes:

- A furnace
- A control system
- Software
- An effluent gas neutralizer (optional)
- Know-how
- Support

NITREG® ADVANTAGE

- Control of the thickness of the compound (white) layer and its properties
- Elimination of closed nitride networks within the diffusion zone
- Control of case depth
- Control of surface hardness
- No distortion, minimal and predictable growth
- Fool-proof operation
- Low operating costs
- Supervision reduced to a minimum
- No cleaning requirements after processing

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