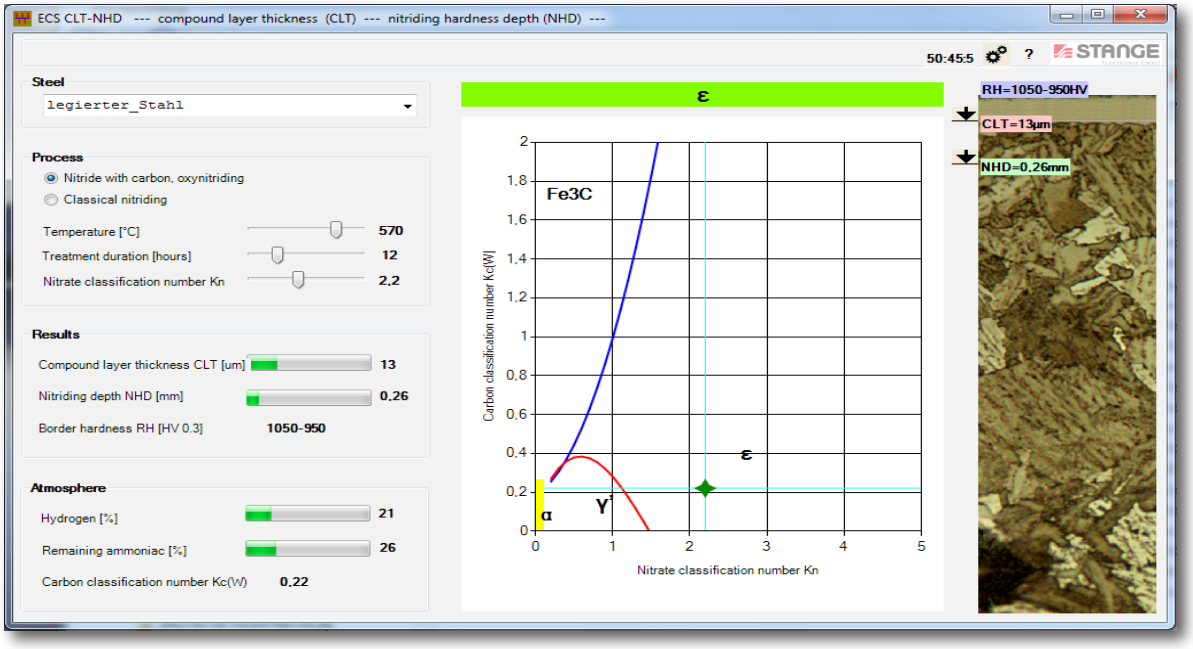
Compound Layer Module ECS CLT-NHD

Calculation of compound layer thickness, nitriding hardness depth and surface hardness



Compound Layer Module Offline ECS CLT-NHD

A novel method for calculating the expected compound layer thickness CLT, nitriding hardness depth NHD and case hardness RH in dependence of treatment temperature, processing time and nitriding potential Kn for different nitriding processes.

The calculation is based on numerous test results with different furnaces and different batches. These test results are stored in the integrated steel data base with a maximum of 31 (at present) of the most used steel grades.

The calculation algorithm is now significantly accelerated caused by the new practical calculation basis in contrast to previous calculation programs.
This enables the immediate and automatic recalculation of each change in value and the display of the results without delay.

The major advantage for the user is to evaluate the effects immediately and thereby get a feeling for the nitriding process when changing parameters.

The calculation results are outputted for CLT and NHD as trend and value, in case of case hardness the expected range is displayed.

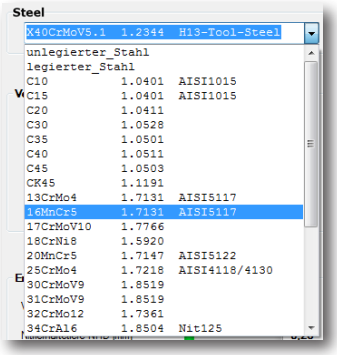
Atmosphere values like hydrogen content, remaining ammoniac and carburizing potential Kc(W) or the degree of dissociation are calculated and displayed depending on selected process.

The actual working point is displayed in the modified Lehrer and/or Kunze diagram depending from selected process in order to be able to consider the phase (ε, γ', α, Fe_3C).

The expected layer structure is displayed as easy interpretable sectional representation.

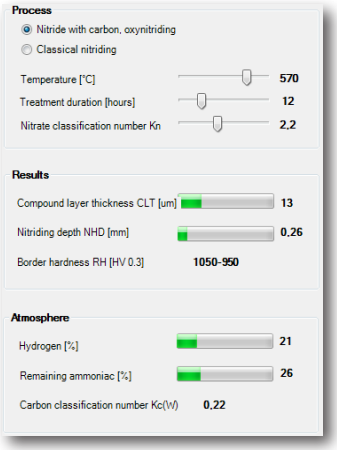
Functions

1) Steel grade selection
   - Steel data base with the most used steel grades



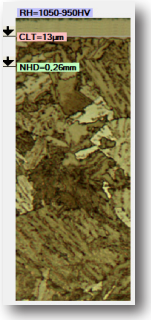
2) Setting actual values
   - Processes classical nitriding / nitrocarburizing, oxynitriding
   - Temperature
   - Processing time
   - Nitriding potential

3) Calculation result display
   - Compound layer
   - Hardness depth
   - Case hardness



4. Atmosphere values
   - Hydrogen
   - Remaining ammoniac
   - Degree of dissociation (classical)
   - Carburizing potential (NC / Oxi)

5) Sectional representation
   - Schematic representation of structure, compound layer and calculated values



6) Lehrer / Kunze diagram
   - With working point representation