SIMULATION SOFTWARE FOR CARBURIZING, CARBONITRIDING, NITRIDING, AND NITROCARBURIZING PROCESSES
CREATING/MODIFYING RECIPES

Recipes are created and modified by setting the:
• temperature in heating, holding and cooling stages;
• furnace atmosphere in carburizing/carbonitriding - specifying the carbon and/or nitrogen potentials, soot limit, carbide limit, and surface carbon content; and
• furnace atmosphere in nitriding/nitrocarburizing - specifying the nitriding and/or carburizing potentials and nitrogen dilution.

FEATURES

• Calculation of the expected hardness distribution - carbon and/or nitrogen profiles for the required case depth
• Progression of process curves with zoom options
• Profile curves of the expected carbon and/or nitrogen hardness distribution with zoom options
• Database of recipes with automatic calculation of limits versus soot formation and carbide/nitride precipitation
• Materials database that can be populated with the chemical composition of various steels
• Possibility of accounting for a part’s geometrical characteristics

HT-Tools Pro calculates
• Compound layer thickness and composition
• Diffusion (precipitation) layer
• Total diffusion depth; Effective case depth
• Nucleation
• Hardness profile with tolerances
• Carbon percentages; Surface carbon/nitrogen content
• Alloy factor; Carbide limit; Nitride limit; Soot limit
• Recommended process setpoints including $K_C$ and $K_N$

BENEFITS

• Short recipe optimization time
• Faster sampling-to-production time
• Possibility of in-flight parameter modifications reduces the need for expensive testing
• Recipes can be transferred to any PROThERM controller via the PROThERM 9800 production management software.

The intuitive, easy-to-use HT-Tools Pro helps users quickly get started creating, evaluating and optimizing recipes.