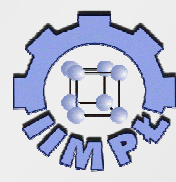




SimVaC Plus[®] 3.0



New, enhanced SimVac Plus[®] 3.0 simulation software for process design and forecasting of vacuum carburizing results using FineCarb[®] technology and gas quenching (HPGQ)

Enhanced functions of SimCarb[®] module – vacuum carburizing simulation (LPC)

- Improved, more precise simulation algorithm
- Extended temperature range up to 1100°C/2012°F
- Capable of comparing up to 8 profiles on the chart
- Simulation report generation in PDF format

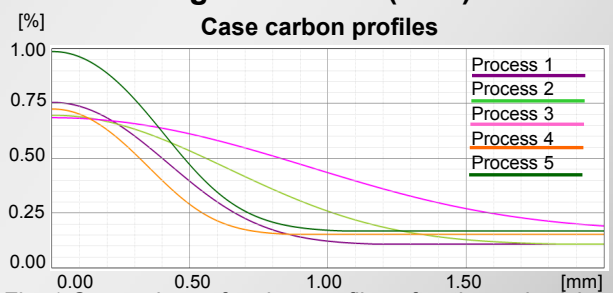


Fig. 1 Comparison of carbon profiles after the carburizing processes

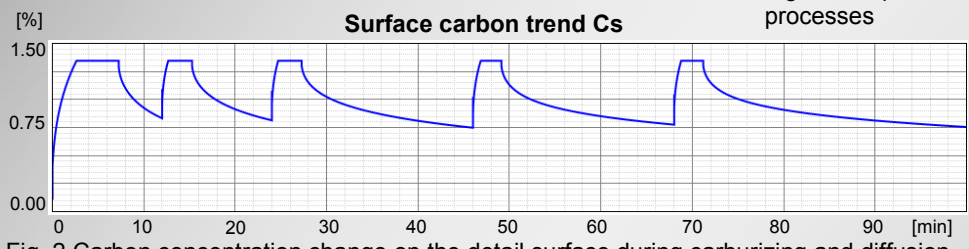


Fig. 2 Carbon concentration change on the detail surface during carburizing and diffusion

Additional case hardness profile simulation module – SimHard[®]

- Allows for case hardness distribution simulation upon the basis of carbon profile after high pressure gas hardening
- Creates process and result simulations
 - Forecasts hardness profiles on the basis of preset process parameters
 - Forecasts based on required hardness
- Includes shape, geometry and size of details and steel grade
- Allows for charge composition, including a variety of parts
- Includes data base of typical detail's shapes for carburizing

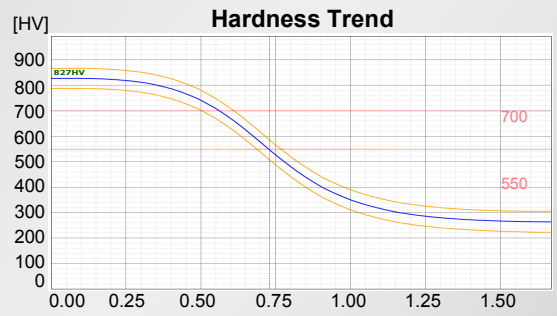


Fig. 3 Hardness profile after the carburizing and hardening process

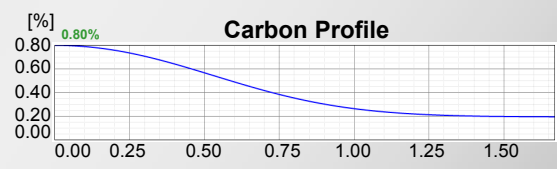


Fig. 4 Carbon profiles after the carburizing process

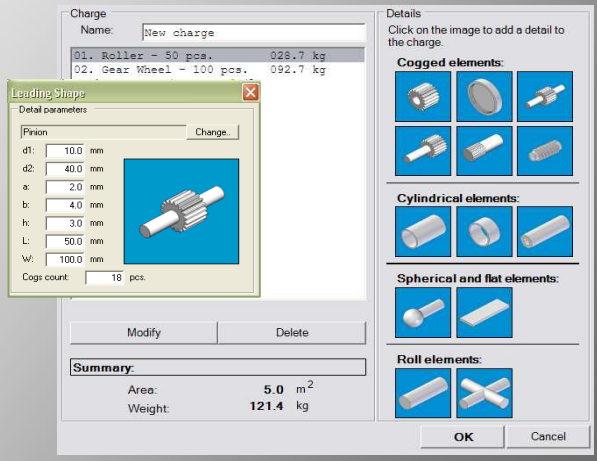


Fig. 5 Charge configuration and modification window with the detail example

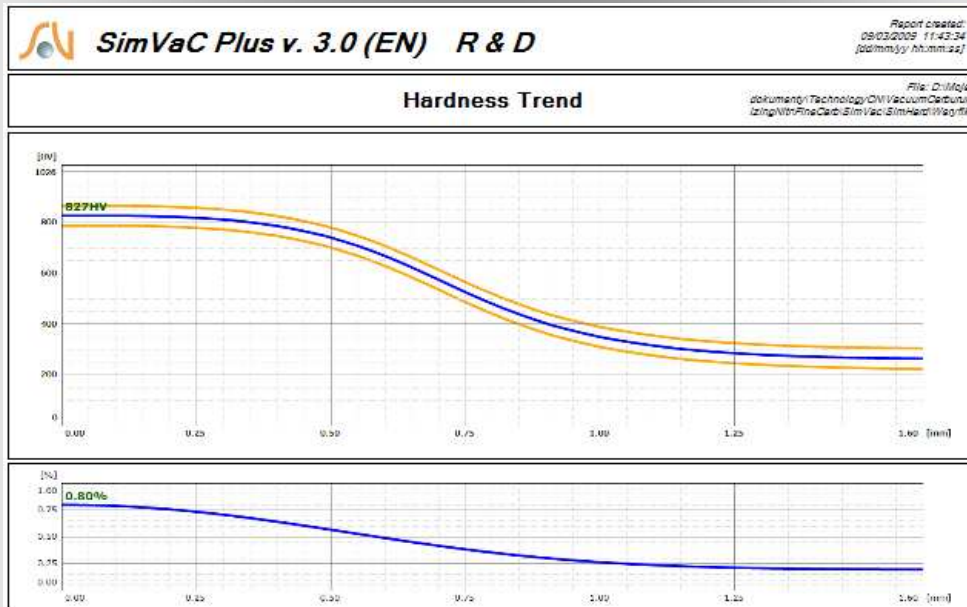
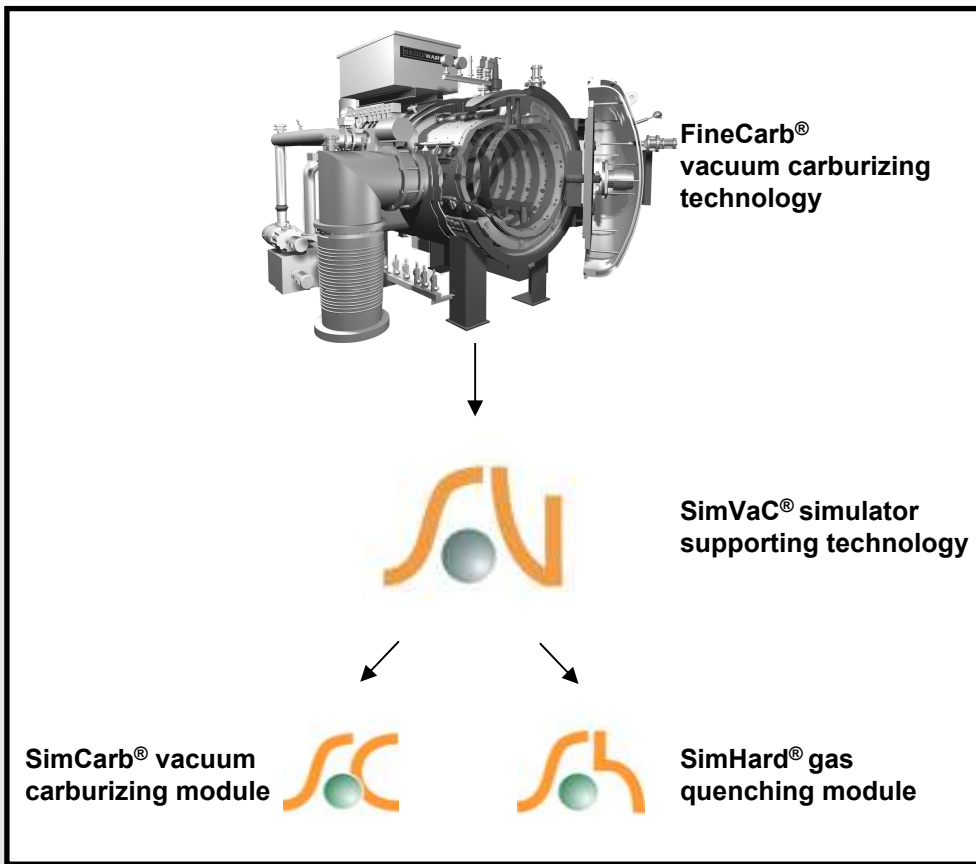


Fig. 6 Simulation report