

TNO Glass Group



Company Info

TNO Glass Group

The Netherlands

Eindhoven

Consultant for

Producers, equipment
and material suppliers
Industrial Sector
Glass

Specialist for: Advanced Process Control in glass

↓ Company profile:

TNO is a global technology and knowledge-providing organisation of around 5000 experts. With worldwide recognition for its innovative approach and fundamental glass knowledge, **TNO Glass Group** supports the glass industry with optimization and innovation of their industrial

- Glass melting
- Glass forming
- Glass coating

processes by providing the latest technologies, tools and process knowledge.

Besides the glass dedicated Process Simulation and Control Software for off-line process optimization and on-line High Performance Control Systems, TNO is preferred partner for addressing topics related to e.g. glass quality, energy and emission reduction, process and experimental research, furnace and combustion technology, industrial measurements, product testing (CE Marking) and for providing international training courses.

TNO cooperates with Siemens in several process industries.

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↓ Unique control technology:

The Leonardo technology is unique as all supervisory control and process monitoring systems are based on TNO's well-known 3D furnace simulation software GTM-X. The Rigorous Model based Predictive Control takes away the drawbacks of the conventional MPC technology, as now fundamental process knowledge on glass chemistry and furnace dynamics is applied on-line for real-time process optimization and operator support (soft-sensing). Basic advantages of Leonardo Control technology are:

- No testing at the production line
- No operational window limitations
- No loss of corporate process knowledge

The Leonardo software toolbox contains the GTM-X and INCA packages, enabling the user to design, engineer and install their own on-line systems. The industrial multivariable controller INCA (IPCOS) has been integrated into the Siemens PLC and DCS systems since late 90-ties.

