

# GLASS-SCREENING

AUTOMATION IN GLASS DEVELOPMENT FOR LAB 4.0



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The worldwide unique screening apparatus developed at Fraunhofer ISC consists of a weighing unit for 10 components and an electrically heated furnace (up to 1700 °C) and 5 independently working furnaces (up to 1750 °C).

A robot autonomously performs the process steps involved in producing a glass melt from raw materials to final glass blocks.

## The four main steps are:

- Mixing and weighing of up to 14 glass components
- Batch homogenization via robot mixing procedure
- Heating and melting with 5 furnaces up to 1750 °C
- A specially designed cooling system allows individual sample cooling programs

All data (e.g. weighing results) are collected and reported during the entire process. The high level of automation facilitates up to 20 glass samples per day to be produced.

Based on all data, the process line will be optimized through a feedback loop, generated by a digital twin, which is connected to the digital workflow and localized on a central material data server.

