

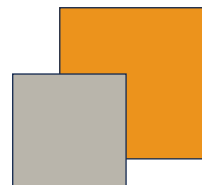
**LEADING IN
PRODUCTION
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Annealing Lehr

AL 25-03



OVERVIEW

An annealing Lehr for container glass is a controlled heating and cooling system that removes internal stresses from newly formed glass containers. Gradual cooling of the glass after forming ensures strength, durability, and resistance to cracking during filling, transport, and use.

KEY FEATURES

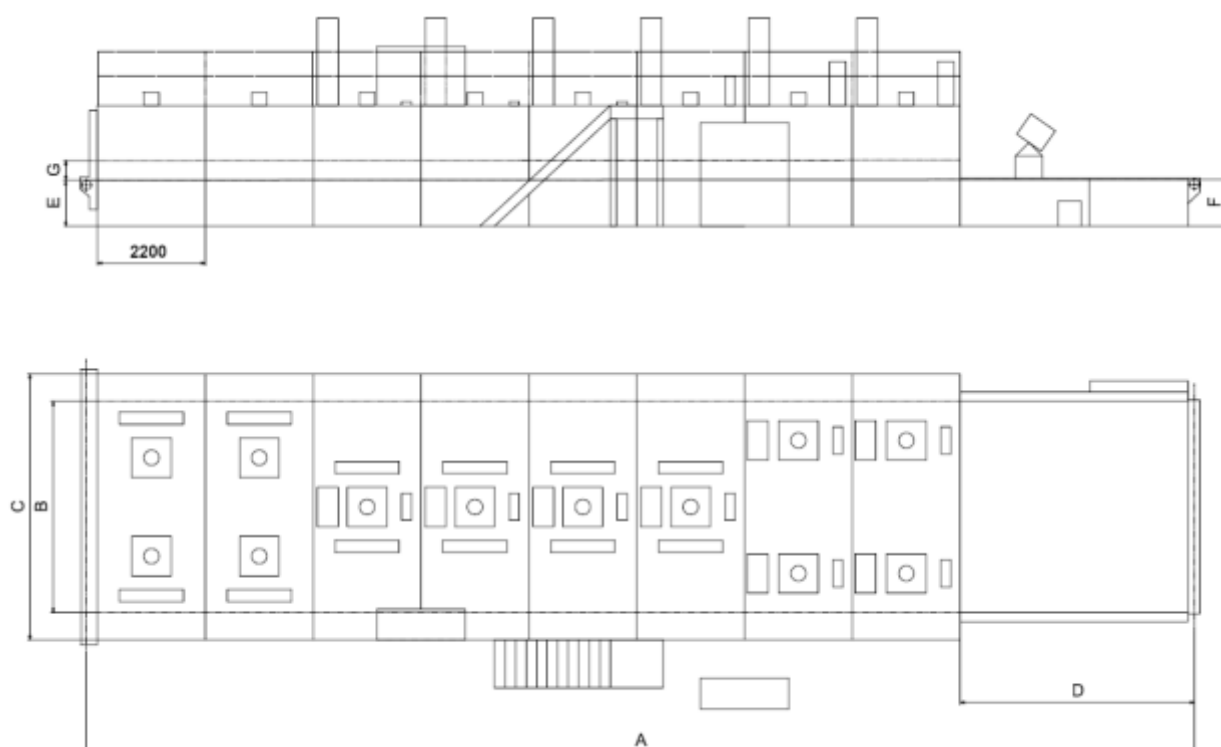
- Multi-zone precision temperature control ensures optimal stress relief across the full belt width – even for varying container shapes and sizes.
- Full digital integration with IS machines (e.g. T&T Turnov ISX) enables real-time sharing of container height, belt speed, line speed, job changes, and faults via IoT. The Lehr self-adjusts automatically during changeovers, reducing manual intervention and downtime.
- Servo-controlled doors eliminate manual cranks. All settings are panel-controlled, with automatic opening/closing during job changes or maintenance – saving time, reducing workload, minimizing heat loss, and lowering energy costs.
- Optimized insulation and airflow reduce thermal losses and ensure uniform annealing profiles for improved product quality and energy efficiency.
- Modular, scalable design with flexible dimensions for seamless integration into greenfield and brownfield projects.

TECHNICAL SPECS

Description	Value / Unit
Supplier-Dimensions	all metric
Tonnes/day	depending on the project
Lehr firing	Gas, / Electrically / Hydrogen
Electrical connection	400 Volts, 50 Hz, 3-Phase
Max ware temp at entry point	depending on the project
Max. temperature in heated zones	600 °C
Max. temperature in cooling zones	450 °C
Staggered stacking	Yes
Lehr prepared for mounting cold-end sprays	Yes
Overall Length	depending on the project
Tunnel length	depending on the project
Dim. A Length, Roll to Roll in m	depending on the project
Dim. B Belt width in m	depending on the project
Dim. C Lehr width in m	depending on the project
Dim. D Min Apron Length in m	depending on the project
Dim. E Belt height, at entry point/charging end in m	depending on the project
Dim. F Belt height, at exit point/discharge end in m	depending on the project
Dim. G Tunnel height in m	depending on the project

Belt Material	Steel 0H18N9 (AISI 304)
Belt Specification	depending on the project
Inner Hoods for zones 1-x, depending on the project	Stainless steel 1.4301
Outer hoods for zones 1-x, depending on the project	Carbon steel
Skid frames	Stainless steel 1.4301
Insulation thickness	300 mm
Rollout Table top	Stainless steel 1.4301
Skirts around the Rollout table	Carbon steel powder coated paint
Recirculation Direct Drive Fan Motors	depending on the project
Coldend Fan Bridge	Carbon steel, powder coated paint
Coldend Fan Bridge Ventilators	depending on the project
Glands and Handrails on top of Lehr	depending on the project
Main Drive Motor	1 pc Siemens/Innomotics
Main Gear	1 pc Siemens / Innomotics
HMI	Siemens IPC 477E 15
Control Cabinet with all Hardware and IoT	1 Set
PLC	CPU 1514SP
Ethernet Switch	SCALANCE XC208
Panel Power Meter	Current Transformer
General distribution	Direct distribution to breakers
Control Cabinet	VX SE free-standing enclosure syst.
Air condition	TOPTHERM BLUE E
Servo Motors and gear boxes (Front, & Rear doors)	1FK2204-5AF00-2MB0
Actuators	TA2-5C-150285-3 211-123-2
Bearings	1 Set SKF
Annealing Lehr Software	TIA Portal
Thermocouples Stainless steel	Dual Type K Type
All controls and cables	Max. 20 Meter length
Lehr capacity	+10% for incr. throughput
Maintain setpoint while empty	600 °C
Product strain (measured with a Spectral Analyser)	1 DISC
Max. external temperature at Lehr exit	200 °C
Max. external temperature at Lehr discharge roller	75 °C
Bottle temperature at point of Cold End Coating max.	120 °C
Energy eff. in kWh/ton of glass annealed at 450°C entry	depends on the products specified
Stairs for maintenance accessibility	Yes
PLC with HMI panel & closed loop control	Yes
IEC compliant, CE, or UL	Yes
Ambient temperature around control cabinet	40 °C
HMI interface located within control panel PLC	Yes
Variable Frequency Inverter for Lehr Belt Drive	Yes
Belt speed control and indication	Yes
Three Inverters for blast cooling fan rack with key pads	Yes
Transformer for control voltage	6EP3437-8SB00-0AY0
Flashing Strobe light and Horn on top of control panel	Yes
All alarms displayed on HMI	Yes
Motor control switch per zone	3RC7140-1KE10 ILM HF
External communication: PLC/HMI with ind. Switch	Yes TCP/IP
Automatic stainless steel insulated door, front and rear	Yes
Re-circulating fans, directly motor driven, all zones	Yes
Stainless steel interiors: Fans, floors, ducts, all zones	Yes
Fan motion sensing alarms	Yes
Lubrication of roof fans	Pre-lubricated / encapsulated
Cooling Fan rack with individual adjusting	Yes

Frequency inverter to control the Lehr Belt Speed	Yes
Continuous Belt Tensioning	Yes
Grease lubrication line at the side of the Lehr	Yes
Safety Skirts, all around packing table and floor	Yes
Lehr top with railing, Kick flaps, and self-closing gate	Yes
All manuals in English language, or depends on request	Yes
2 Sets of Manuals in Hard copies/ 1 Set digital on USB stick	Yes
Engineering drawings, Layouts, E-Plan schematics	Yes
Training	Yes



PRODUCT PRICE INDICATION

Prices start at 300.000, - €, depends on Lehr size and configuration

CONTACT US

T&T, Turnov s.r.o.
 R&D, Project Management, Consulting
 Přepěšská 1302, CZ-51101 Turnov, Czech Republic
 Tel.: +420 484 803 001, Fax: +420 484 803 015
 Homepage: www.tandt.cz
 E-Mail: info@tandt.cz