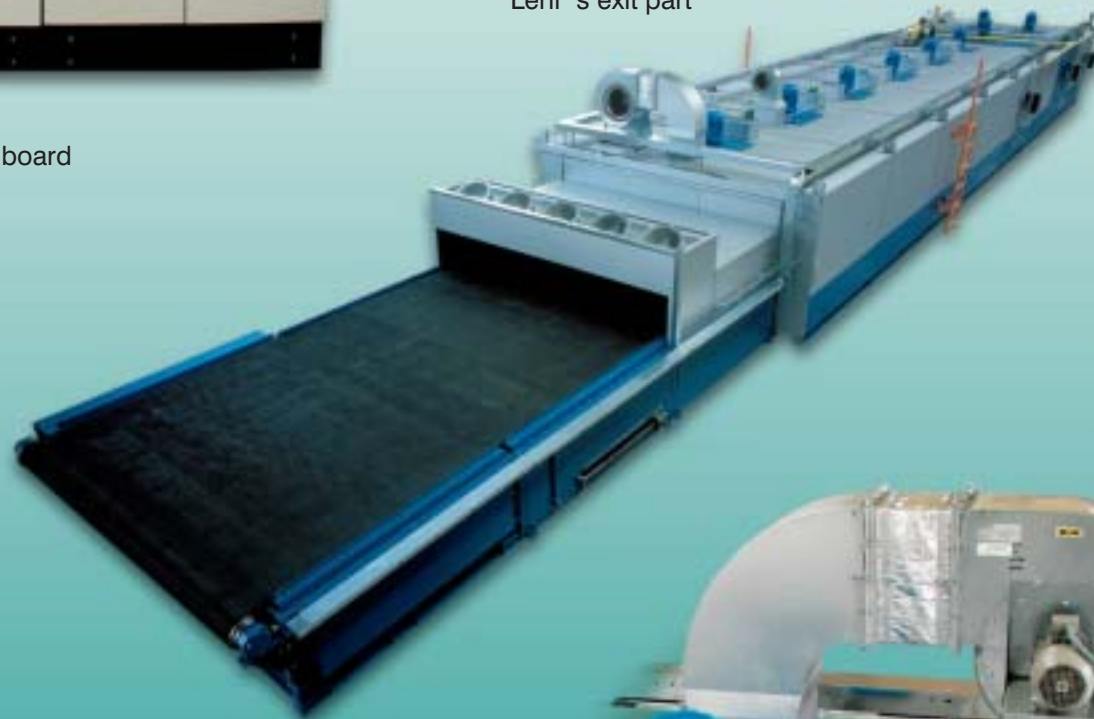




▲
Electrical switchboard



▲
Lehr's exit part



▲
Regulating gas station



▲
Ventilators of forced cooling

Sklářské stroje Znojmo s.r.o



CE

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GLASS ANNEALING LEHR

GLASS ANNEALING LEHR

A glass annealing lehr is a part of the production process for the manufacture of packaging, ovenware, decorative and possibly other kinds of glass. The lehr ensures controlled cooling of glassware that eliminates the inner material tension. The lehr is equipped with a direct gas heating, which is, as well as cooling, proportionally controlled. Electrical heating can be supplied as an alternative.

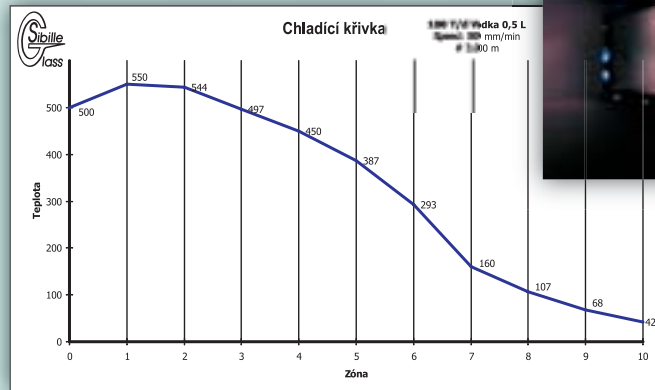
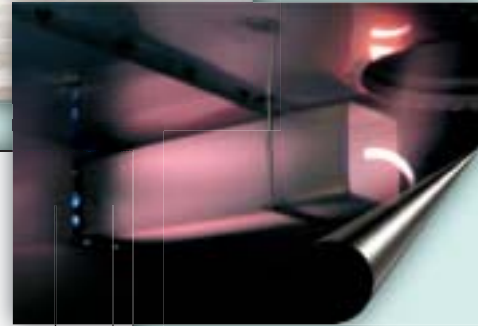
We produce the lehrs in widths 800÷4500 mm

The lehrs are designed in a co-operation with the Belgian Company „Sibille Glass“.



Our advantages & quality:

- We have more than 35 years experience in glass heat treatment and machinery for the glass industry
- Each lehr is designed according to particular customer's requirements
- Individual zones of the lehr work independently to each other
- Precise regulation of working temperatures
- High adaptability to production requirements
- Proportional control
- High quality of mineral insulation
- Low heat energy consumption
- Suitably designed modular and rigid structure at the same time
- Reliable and safe operation
- Minimal maintenance demands
- Easily replaceable top quality burners
- Quick and easy installation of the lehr
- Long and effective working life
- Free processing of annealing curves for users of our lehrs



Principal characteristic of some kind of Lehrs

Lehr type		360/40/9S/G	300/40/7S/G	240/40/9S/G	240/40/7S/G	180/40/7S/G
Total lehr length	m	27,3	22,8	27,3	22,8	22,8
Annealing tunnel length	m	20,25	15,75	20,25	15,75	15,75
Annealing tunnel light height	m	0,4	0,4	0,4	0,4	0,4
Belt width	m	3,6	3	2,4	2,4	1,8
Adjusted heating power	kW	558	393	462	346	346
Installed heating power	kW	840	570	600	420	420
Installed electrical power	kW	37,6	20,1	25	20,7	20,2



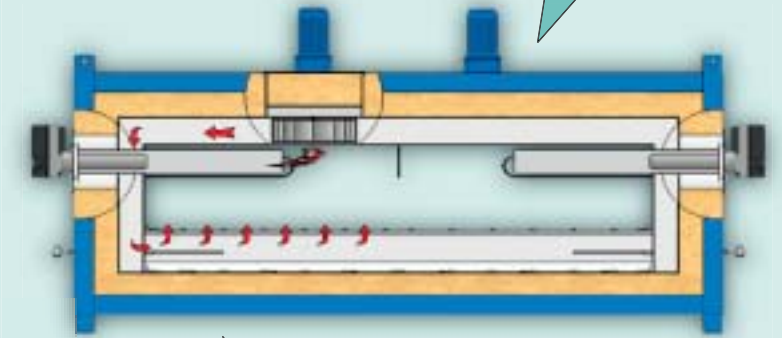
The electric installation includes the electrical panel, cableways and other devices mounted on the frame of the lehr. With each lehr, we usually provide a metal conveyor belt having a minimum thermal stability of 650°C.



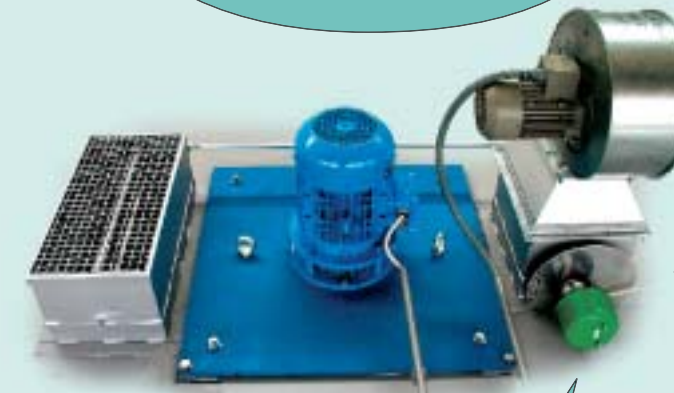
Input door regulates the input height. On the door frame there is the adjustable input roller with a cover, which prevents cold air from outside of the Lehr entering the tunnel.

Detailed description

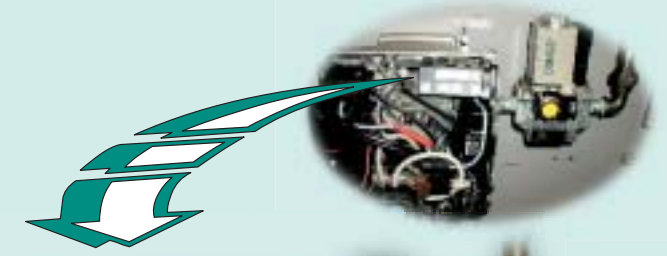
The heat treatment tunnel is divided into individual sections. Each section provides one heat-stabilising zone and the heat treatment tunnel is composed of necessary number of these zones, each being 2,25 m long.



Each zone is furnished with the isolated air recirculation system. Recirculated air coming in through the conveyor belt is sucked by a recirculation fan located in the roof of the section. A cross thermal gradient of $\pm 2,5^\circ\text{C}$ was achieved by using high-powered recirculation.



Flaps of the suction and exhaust ducts regulate cooling in individual zones. Surrounding cold air is sucked into the duct and then mixed with the recirculating air as it passes through the recirculating fan. Hot air overflow leaves through the exhaust duct. The cooling process is controlled by a microprocessor regulator by a feedback from a thermocouple in each zone.



The exit part of the lehr consists of traction tables, door with adjustable height, covers and final cooling system. Traction tables follow the heat treatment tunnel. There are usually three of them. The first has a removable covering, the next one is provided by a conveyor belt stretching and a part of the last one is a belt drive unit consisting of a gearbox and electric motor. A frequency inverter controls the speed of the conveyor belt. The final cooling system uses fans to take surrounding air, blow it over the products aftercools them as they leave the heat treatment tunnel.



Heating of the zones is provided by automatic gas burners or electric heating elements. The burner construction ensures low-noise level at ignition as well as when burners are in operation. The power of the burners can be adjusted within a wide range. The burners are installed in the sidewalls of each zone and bound into the combustion pipe which feed burnt gas into suction of the recirculating fan. Heating is controlled by a microprocessor regulator through a feedback from the thermocouple in each zone.

CE Annealing lehrs have been approved and certified by the Machinery Testing Institute.