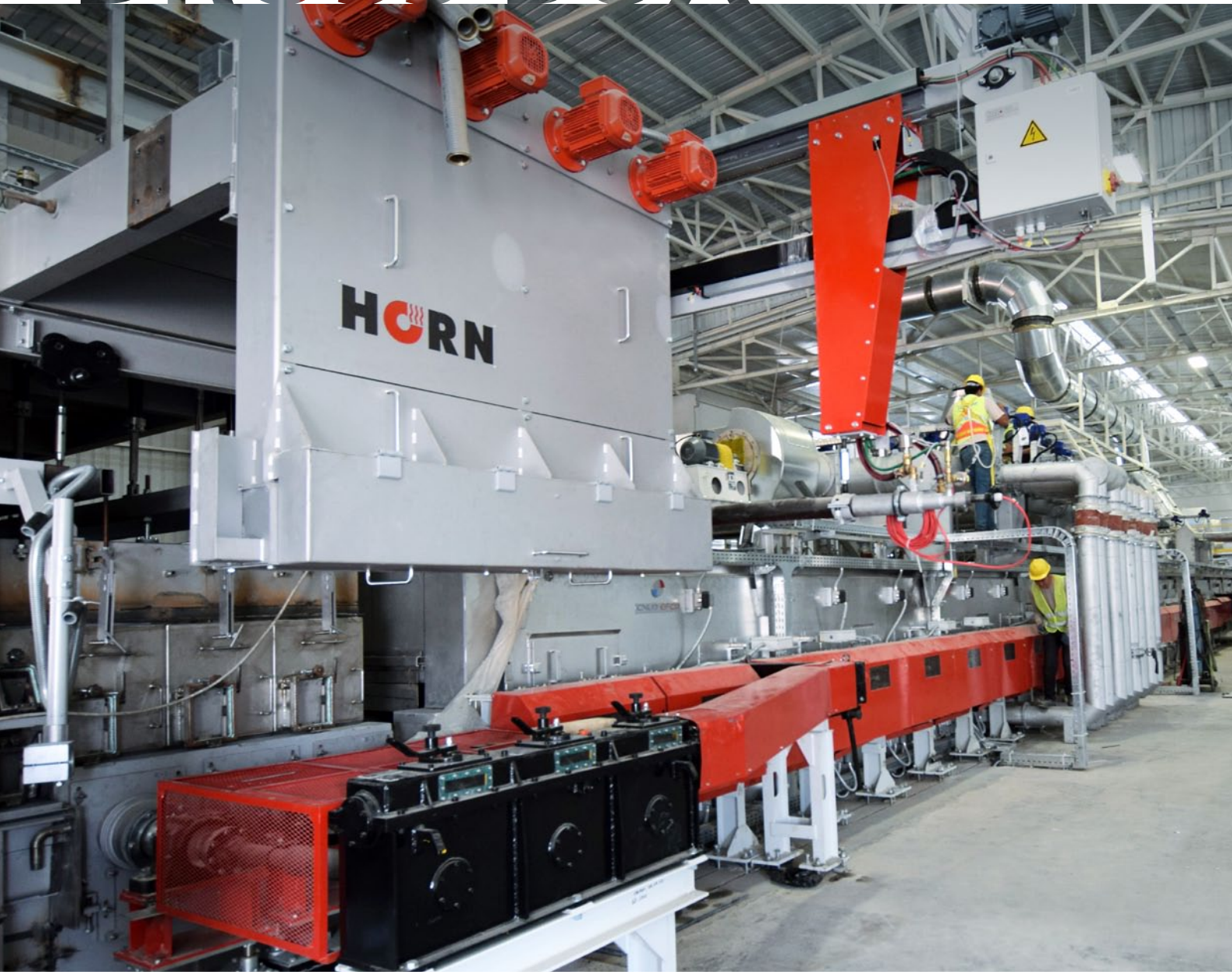


DROSS BOX



innovation
ENGINEERED IN GERMANY

HORN
GLASS INDUSTRIES

DROSS BOX TYPE HDB-R/L 4300

The dross box is the most important instrument for smooth transfer of the glass ribbon from the tin bath into the cooling channel. For this purpose the dross box has to fulfil numerous important functions simultaneously:

- It is the tool which ensures constant production conditions in the tin bath by minimum oxygen entry
- It maintains the optimal protective atmosphere consisting of nitrogen which prevents the influx of ambient air from the cooling channel
- It lifts the glass ribbon out of the tin bath by means of the lift-out rollers for optimum transport into the cooling channel

The dross box consists of two big components, the dross box casing and the dross box hood.

Dross box casing

The dross box casing is welded gas-tight with the tin bath casing. Rollers between the dross box casing and the supporting steel structure facilitate heat expansion during tempering. The side walls of the casing are insulated for optimum temperature resistance.

Dross box hood & curtains

The dross box hood is welded gas-tight with the tin bath roof. The hood suspension is installed at the same supporting steel structure as the roof. This ensures that heat expansion of the roof is possible.

Inside the dross box there are four curtains which are adjustable in height via motors. The curtains serve to reduce oxygen entry into the tin bath as far as possible. For this purpose the curtains are moved towards the glass ribbon as closely as possible. The curtain movement can be watched through the inspection glass in the side sealings. In case of power failure or failure of the control, operation is also possible via hand wheels.

Between each two curtains there is a chamber that is limited downwards by the glass ribbon. Also beneath each lift-out roller in the dross box casing there is a chamber that is limited upwards by the glass ribbon. Here the chambers are separated from each other by separator plates.

Graphite strips installed in cast iron rails above the separator plates press against the rolls from underneath for optimal separation of the chambers. In addition, these graphite strips clean the lift-out rollers. The constant contact pressure of the graphite strips is ensured by counterweights under the dross box.

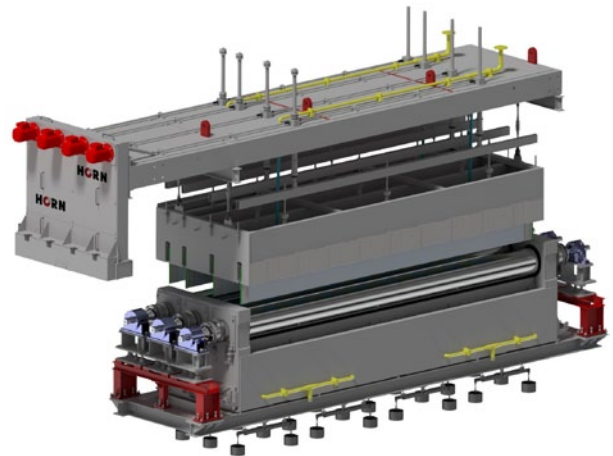
Lift-out rollers

The glass ribbon is lifted from the liquid tin in the tin bath by means of the lift-out rollers and transported into the cooling channel through the dross box. The lift-out rollers can be driven by the roller drive of the annealing lehr. Another option is driving each roller individually via its own motor.

The lift-out rollers are adjustable in height, so the rollers can adapt optimally to the required glass quality. The lift-out curve depends on such factors as glass temperature, glass thickness. Therefore the adaptability of the lift-out rollers is essential.

Nitrogen supply

Nitrogen is supplied into the dross box via the hood and the casing in order to force out the oxygen, which penetrates through technically required openings, from the dross box.



Benefits

- Simple and compact structure
- Safe and proven design
- Dross box side walls are insulated
- Motorised curtains can be operated individually
- Easy adjustment of lift-out curve
- Change of lift-out rollers possible during production
- Easy and ergonomic handling
- Quick and easy installation
- High safety standard – safe handling and safe operation for the user
- Supplied mechanically and electrically preassembled and fully tested