Charging Technology & Glass Level Controlling
ZIPPE has extensive experience in planning, constructing and building batch chargers. These, virtually, belong to the DNA of the company.

65 years ago, Alfred Zippe senior developed the first fully automatic batch charger for the glass industry. Herewith, it all began and we are still building our batch chargers in our company in Wertheim. Our long-time experience and our high manufacturing quality is retrieved in many details of our machines.

01 SEALED DOGGHOUSE

The heat protection shield is executable in a round and straight design and seals the doghouse completely. Therefore, the heat protection shield adapts perfectly to the furnace conditions. The two pushers in front of the vibrating tubes as well as their movements are executed in a way that there is no opening in the outlet area. Thus, in fact a dust free encapsulation of the doghouse is effected. As an uncontrolled inflow of air is eliminated, a significant reduction of NOx emission is the result.

02 VIBRATING TUBES

The batch is transported to the melting furnace through vibrating tubes. Compared with alternative solutions, e.g. screw chargers, this conveying technology has a big advantage: The material is transported through vibrations nearly without contact, which reduces wearing significantly. The results are longer lifetimes and significantly lower operating costs. Furthermore, the front part of the vibrating tubes being situated in the melting furnace is water-cooled in order to avoid any batch caking.

03 LINEAR DRIVE

The two pushers divide the batch conveyed into the melting furnace into small portions. This leads to optimal batch melting due to the larger heat contact surface of the batch. The pushers are driven by a servo gear motor which is infinitely variable. Thereby, stroke length and lifting speed can be individually adjusted to the desired requirements.

TECHNICAL DATA

- Conveying capacity: 50–500 t / 24 h
- Machine width: 1,940 mm
- Doghouse depth: min. 600 mm
- Adjustable swivel angle: ± 4°
- Stroke: up to 280 mm
- Connection control cabinet: 32 A
- Water connections: 2 x 1 ½”
- Total water consumption: 10–15 l / min per water cycle
- Pusher width: 140–340 mm

GOOD VIBRATIONS. CURRENTLY PROBABLY THE MOST MODERN, ADVANCED AND EFFICIENT CHARGER ON THE MARKET.

The VIBROTUBE® Charger was especially developed for feeding container glass furnaces. This modern, patented batch charger ensures a completely closed doghouse and also shows considerably lower wearing compared to alternative systems. Due to the closed doghouse and the optimized charging pattern valuable melting energy is saved.

The VIBROTUBE® stresses impressively our experiences for decades in the field of batch charging.

Low NOx emission
Low energy consumption

Patented by European Patent no. EP2894131
ZIPPE batch chargers type EVP rank among the most uncomplicated and most reliable batch chargers on the market. For example, they can be applied for all container glass doghouse types.

Due to a very big outlet opening the amount of cullet can add up to 100% without leading to blockades. EVP batch chargers are situated in front of the melting furnace. By this all areas are well accessible. For maintenance work (e.g. exchange of pusher) the batch charger can easily be pulled away from the furnace. This reduces production downtimes and maintenance costs tremendously.

**THE ECD, A CLASS OF ITS OWN**

This batch charger makes it possible to charge batch onto the melting surface while avoiding a fall and thus also avoiding dust generation.

The pusher pivots from side to side allowing good directional control of the material flow and an even addition of batch onto the melting surface. The design of the batch charger allows the doghouse to be sealed. Thus, energy is saved.

**DESIGN**

The batch charger consist of a feeding hopper with heat protection shield, water-cooled pusher, swivel device and supporting part.

**FUNCTION**

From an intermediate hopper batch flows into the doghouse which is pushed into the glass melting furnace by means of a pusher which is driven by a frequency control gear motor.

**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Type</th>
<th>Approx. charging capacity t / 24 h</th>
<th>Connected load kW</th>
<th>Size of gate mm</th>
<th>Approx. cooling water consumption l/min</th>
<th>Approx. weight kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECD 20</td>
<td>40–80</td>
<td>1.1</td>
<td>80 / 100 x 250</td>
<td>20–30*</td>
<td>880</td>
</tr>
<tr>
<td>ECD 30</td>
<td>40–160</td>
<td>1.1</td>
<td>80 / 100 x 350</td>
<td>20–30*</td>
<td>950</td>
</tr>
<tr>
<td>ECD 40</td>
<td>120–240</td>
<td>1.1</td>
<td>80 / 100 x 450</td>
<td>30–40*</td>
<td>1,020</td>
</tr>
<tr>
<td>ECD 50</td>
<td>200–340</td>
<td>1.1</td>
<td>80 / 100 x 550</td>
<td>30–40*</td>
<td>1,070</td>
</tr>
<tr>
<td>ECD 60</td>
<td>280–500</td>
<td>1.1</td>
<td>80 / 100 x 650</td>
<td>30–40*</td>
<td>1,120</td>
</tr>
</tbody>
</table>

* depending on input temperature
The charger moves both from left to right and from front to back during the charging process. The charging rate is adjusted optimally by a glass level control unit to meet the furnace conditions.

Each Cold-Top charger is customized and multiply tested and proven.

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THE EXPERTS FOR SPECIAL TASKS

BATCH CHARGER TYPE E

The standard batch charger features a particularly sophisticated and robust design combined with easy maintenance. Parts in contact with the glass are water-cooled but, if particularly required, can be supplied in heat-resisting special steel without water-cooling. In case of furnaces with wide dogholes, for example in flat glass furnaces, several chargers can be used in parallel to each other across the entire width of the doghouse.

SCREW CONVEYOR CHARGER

Screw conveyor chargers are suitable for charging all types of furnaces; a doghouse is no longer necessary. Several batch chargers are arranged parallel or opposite to each other in the case of large furnaces or high furnace outputs.

A particular advantage is that the furnace is completely sealed on the side used by the charger; this is a pre-requisite for furnaces where oxygen is used in the heating process. But it is also an advantage in conventionally heated furnaces due to energy conservation, dust avoidance and a constant hearth pressure.

POT FURNACE CHARGER

The traditional manual charging of a pot furnace had been mechanized already several years ago by the proven pot furnace charger. The batch charger can be easily moved by hand and has been well designed for its task. The charging chute has a pneumatic drive. The advantages of the pot furnace charger are a significant reduction in dust generation and poisoning hazards, no spillage of the molten glass, a consistent level in the pot furnace and a reduction in physical work for the furnace crew.

TECHNICAL DATA

- Capacity: 20–200 t/h
- Chute width: customized

TECHNICAL DATA

- Capacity: 20–200 t/h
- Type SF 150: 1 t/h
- Type SF 200: 2 t/h
- Type SF 250: 3 t/h
- Type SF 300: 4.5 t/h

Further data on request.

MECHANICAL GLASS LEVEL CONTROLLER BZ 23

TRUST IS GOOD – CONTROL IS BETTER.
OUR GLASS LEVEL CONTROLLER BZ 23

The glass level controller is available in two versions: As BZ 23 S/H with water-cooled electrode for being installed directly at the furnace for scanning through the side wall or as BZ 23 S/V with ceramic electrode for being installed at the feeder for scanning through the feeder.

GLASS LEVEL CONTROLLER COMPONENTS

- scanning mechanism with the platinum electrode
- electronic evaluation unit for measuring the glass level and the set values calculation
- optional line recorder
- optional system for cutting the glass string pulled by the electrode tip

TECHNICAL DATA

- Measuring range: ± 10 mm of calibrated glass level height
- Measuring accuracy: ± 0.01 mm
- Output signal: non voltage contact by a two position controller
- Analogue signal: 0–10 V, 4–20 mA

Further data on request.

ADVANTAGES OF A MECHANICAL GLASS LEVEL CONTROL

1. Fully digital processing of measured values.
2. Parameterization of the controller in dialogue via control unit or web interface.
3. Text display of controller status.
4. Integrated proportional regulator usable for feeding control. Optional bus connection to higher-level control possible.
5. The operation and display part as well as the line recorder can be installed in a control cabinet located in the furnace control room (independently from the controller).
6. Reliable mechanical equipment, low maintenance.
HIGH LEVELS OF AVAILABILITY AND STANDBY READINESS

Faults must be eliminated in the daily production process. When faults occur however, our service specialists ensure speedy, targeted problem analysis and then immediately take the actions necessary. Customers can use the ZIPPE 24-hour hotline and our teleservice. This way we are able to guarantee availability and standby service at all times - across the globe.

CONTINUOUS QUALITY IS MANDATORY

We want to offer you, our customers, the best possible quality in all aspects of our business relationship. And to also make this clear in our outward image, we have in use a modern quality management system complying to DIN EN ISO 9001 this is TÜV CERT certified.

IN-HOUSE PRODUCTION

The production area is over 4,000 m² in size and every day sees the manufacture of batch chargers, scraping conveyors, crushers and other key system components. Most of the 55 production employees have been at ZIPPE for the highest levels of quality and reliability. This is also where our service engineers and supervisors learn their skills for deployment across the globe.
IN THE HEART OF GERMANY

Just 50 minutes from the airport Frankfurt am Main away Wertheim is located in a unique place on the banks of two rivers, surrounded by a beautiful landscape with rich vineyards.

The historic old town is full of history with elaborately decorated half-timbered houses, winding alleyways and small, charming spots. And above all, the Wertheim Castle reigns from the top with pride.

An environment with a long glass tradition in which we feel at home and we as well as our company are strongly connected with.

We are looking forward to your visit.