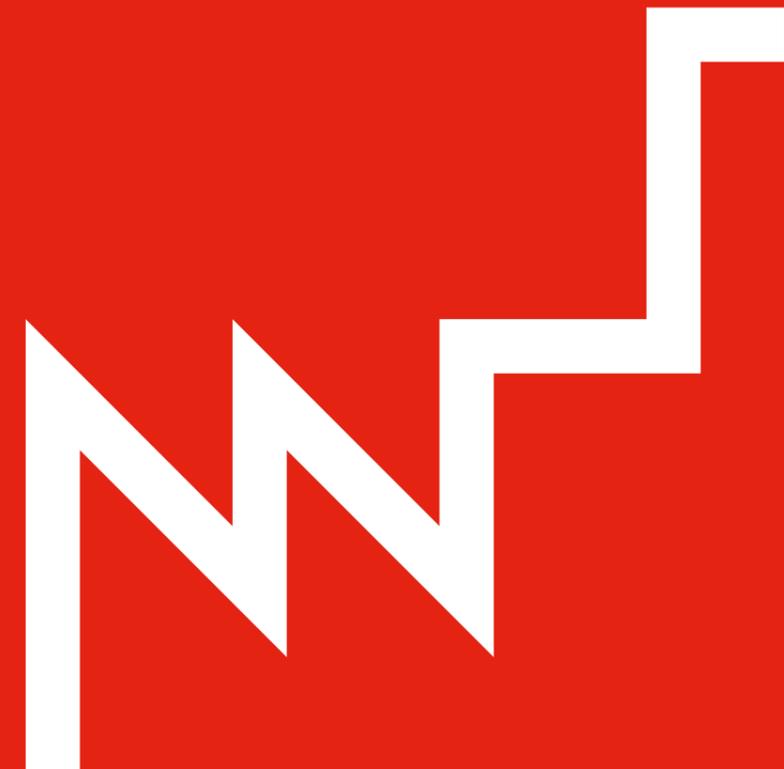


PROGRESS THROUGH
TECHNOLOGY
BATCH PLANTS

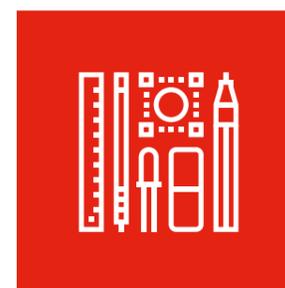
„Progress through technology” means that we combine 30+ years of experience in glass production with the most advanced technology in designing, engineering, fabricating and erecting batch plants and glass furnaces for our clients. We provide complete glass production solutions for manufacturers of tableware and container glass, as well as float glass, sodium silicate and fibre glass.

One of our core values is integrity – our employees are trained to always do the right thing for the clients – even if it means reducing our profit. We also attach huge value to human safety when working in extreme conditions and we’re proud of our safety record. Last but not least, FORGLASS is a socially responsible company, engaged in several charitable activities, the most important of which is Life Plan, a developmental program for teenage children.

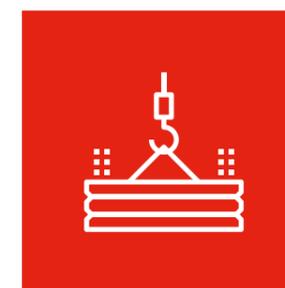




GREENFIELD SITE PROJECTS



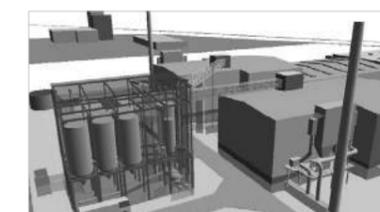
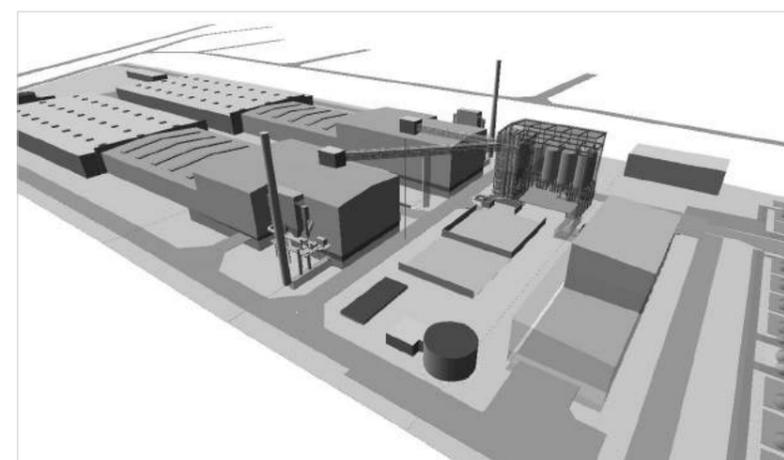
- step 1**
BASIC DESIGN
- 3D model
 - layout
 - flow-diagram



- step 2**
GENERAL CONTRACTOR
- equipment
 - steel construction
 - batch house building
 - control system



- step 3**
COMMISSIONING
- start-up
 - testing
 - commissioning



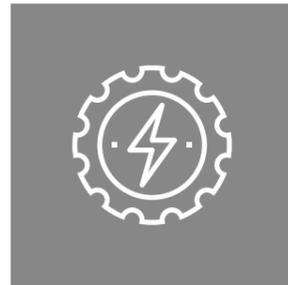
MODERNISATION



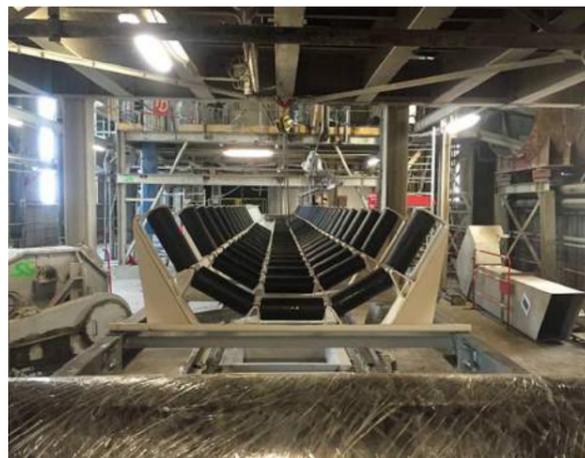
- step 1**
BASIC DESIGN
- 3D model
 - layout
 - flow-diagram



- step 2**
GENERAL CONTRACTOR
- equipment
 - steel construction
 - batch house building
 - no civil works



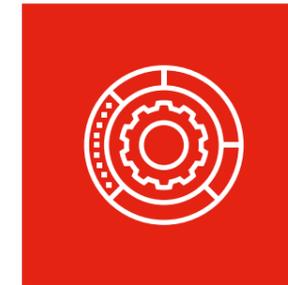
- step 3**
COMMISSIONING
- start-up
 - testing
 - commissioning



MAINTENANCE AND REPAIRS SERVICE



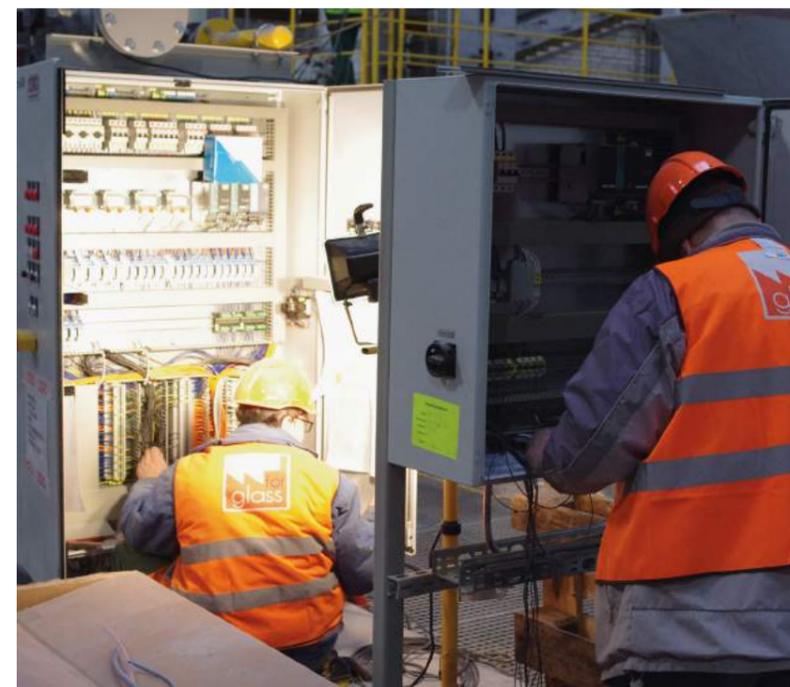
- FULL RESPONSIBILITY FOR MAINTENANCE - 24/7**



- STORAGE OF SPARE PARTS/ COMPONENTS**



- COST REDUCTION**





ADDED OLD-SCHOOL VALUE



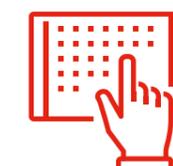
Components
produced by
FORGLASS



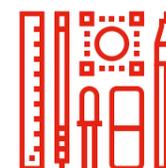
Installation
by own team



Service
by FORGLASS staff
permanently placed
at Client's site



Control systems
based on Siemens



Designing
entirely in-house
(Poland)



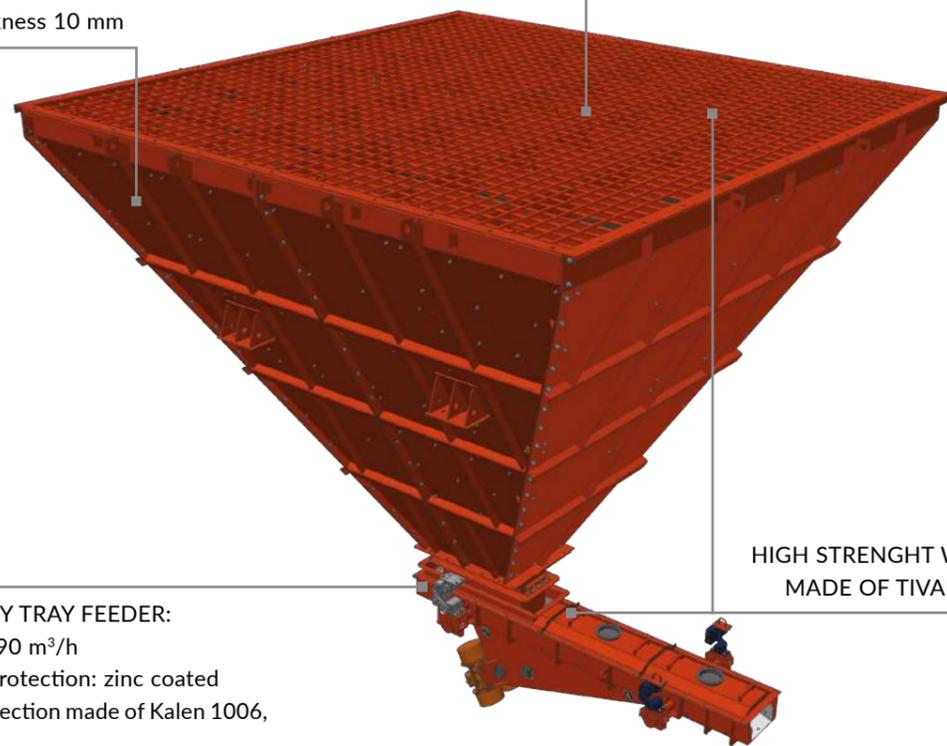
Fabrication
of components
entirely in-house
(Poland)

SAND UNLOADING HOPPER WITH VIBRATING FEEDER

STANDARD UNLOADING HOPPER:

- capacity – 28 m³
- the opening width about 4,5 m x 4,5 m x 3,5 m (height)
- coarse grill 120x120 mm
- wall thickness 10 mm

COARSE GRILL:
opening 120 x 120 mm,
vibrating drive



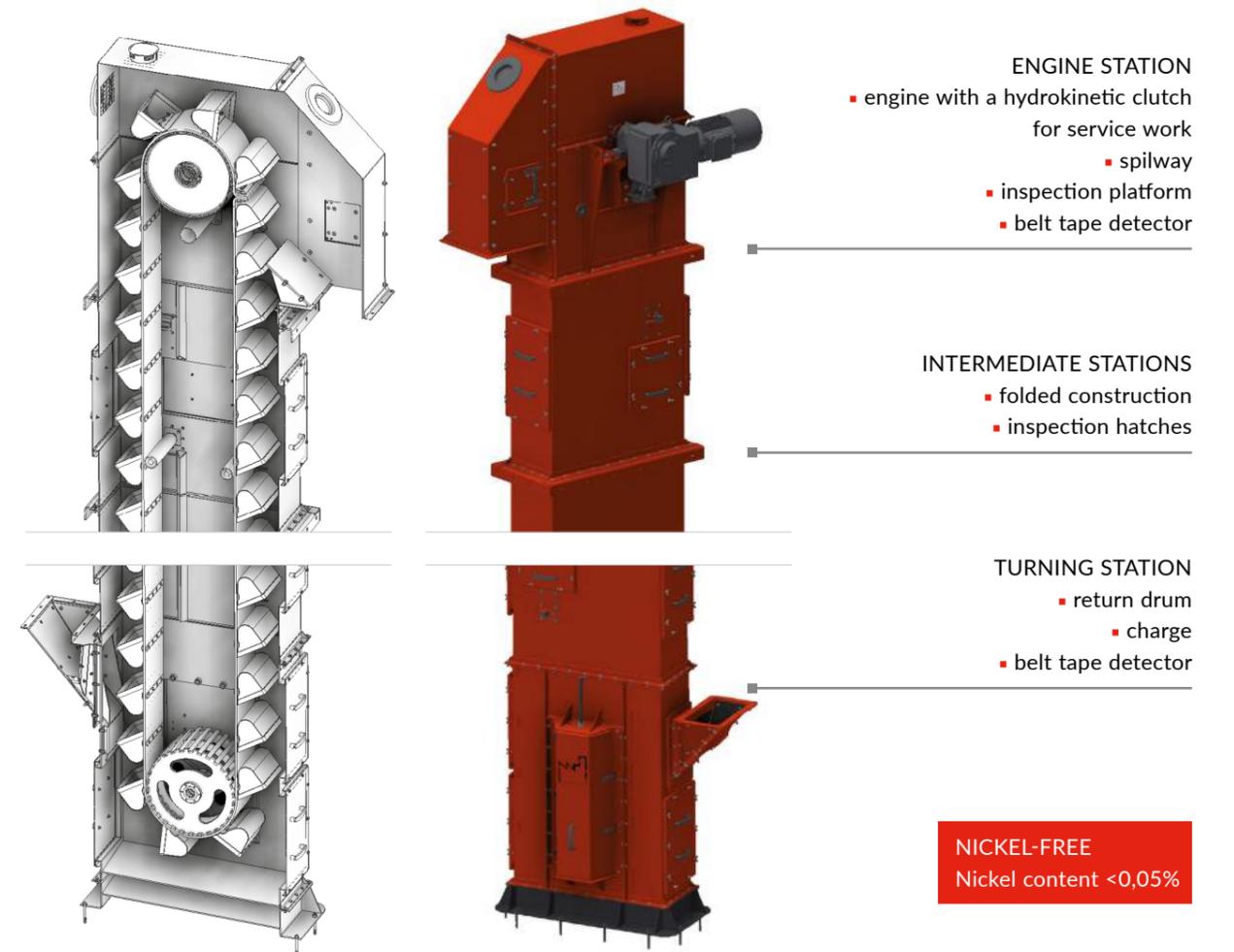
HIGH STRENGTH WEAR LINING
MADE OF TIVAR / RCH 1000

VIBRATORY TRAY FEEDER:

- capacity 90 m³/h
- surface protection: zinc coated
- wear protection made of Kalen 1006, 10 mm
- includes 2 unbalance motor
- anti-vibration mountings – Rosta
- includes support construction and chute to bucket elevator



BUCKET ELEVATOR



- ENGINE STATION
- engine with a hydrokinetic clutch for service work
 - spillway
 - inspection platform
 - belt tape detector

- INTERMEDIATE STATIONS
- folded construction
 - inspection hatches

- TURNING STATION
- return drum
 - charge
 - belt tape detector

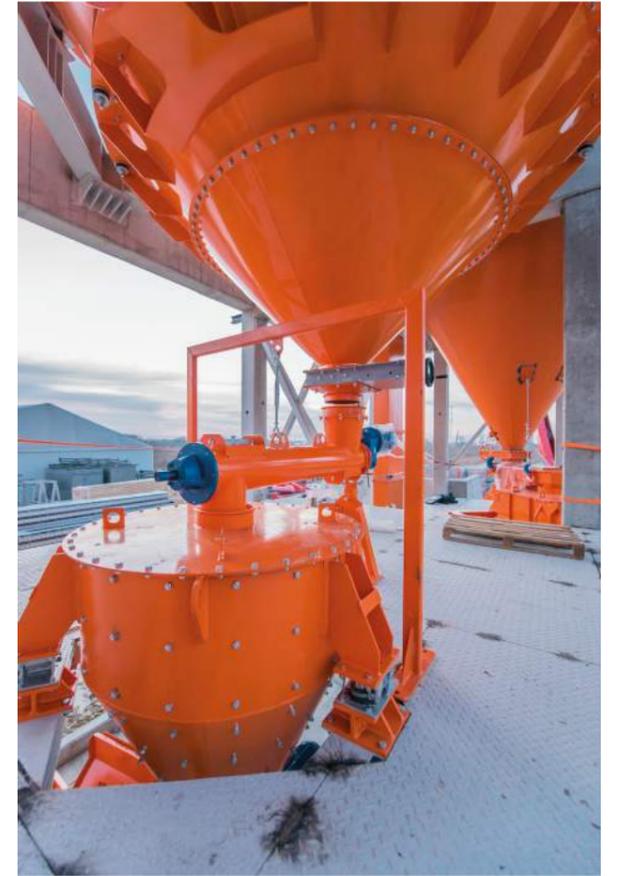
NICKEL-FREE
Nickel content <0,05%



SILOS WITH STEEL PLATE CONSTRUCTION

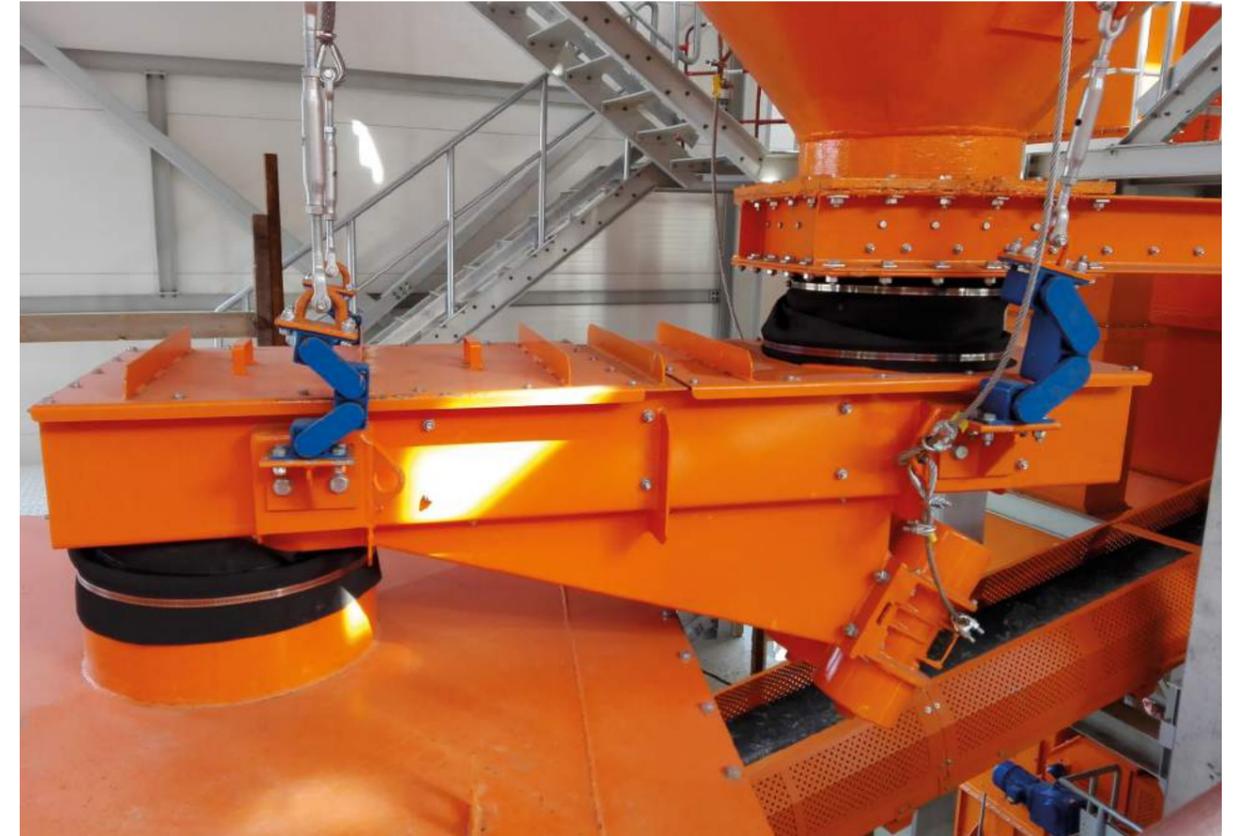
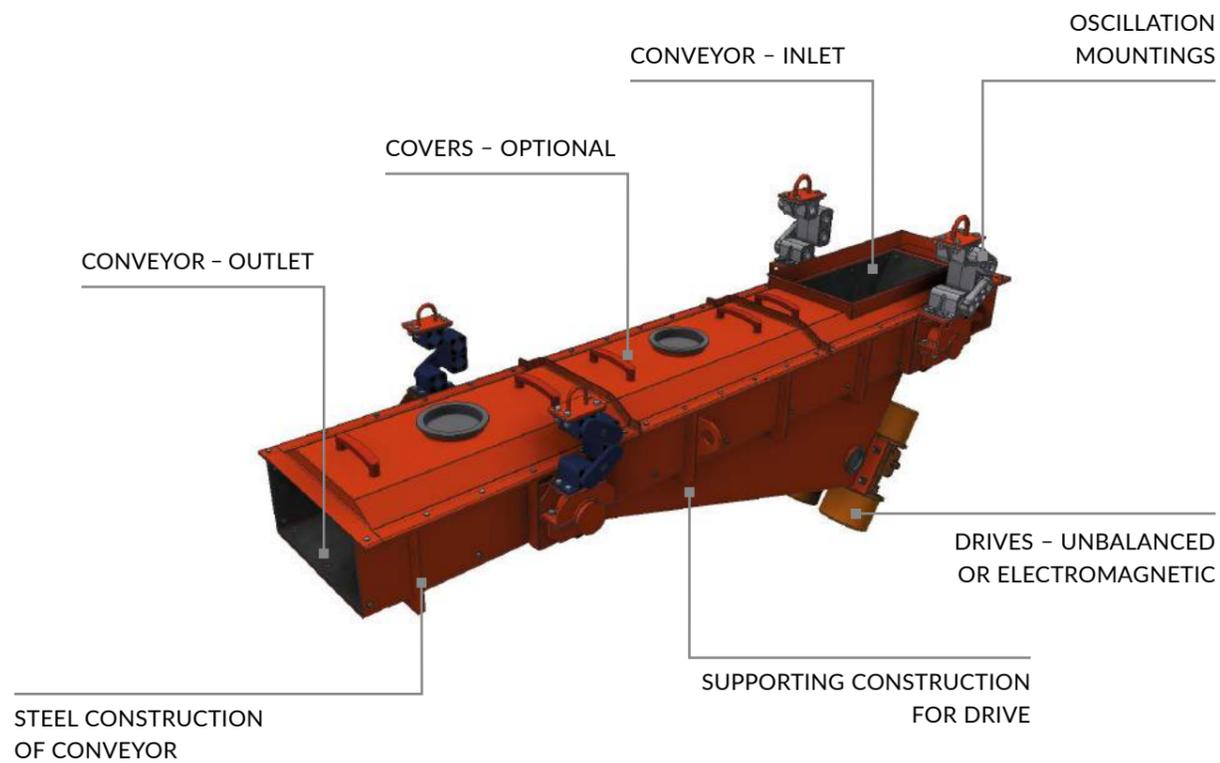


SCREW-TYPE CONVEYOR FEEDERS



VIBRATING FEEDERS

- Used for transport of bulk material and bin extraction
- Equipped with unbalanced or electromagnetic drive
- Optional: closed construction, according to requirements
- Oscillating mounts



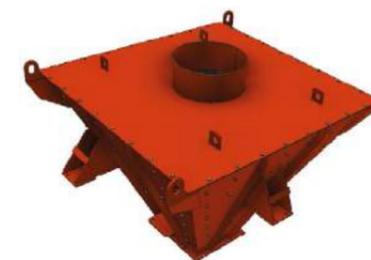


TYPES OF SCALES

”WEIGHING IN” SCALES
”WEIGHING OUT” SCALES

SHAPE

FLAT-WALLED SCALES



CYLINDRICAL (CONICAL) SCALES



CALIBRATION

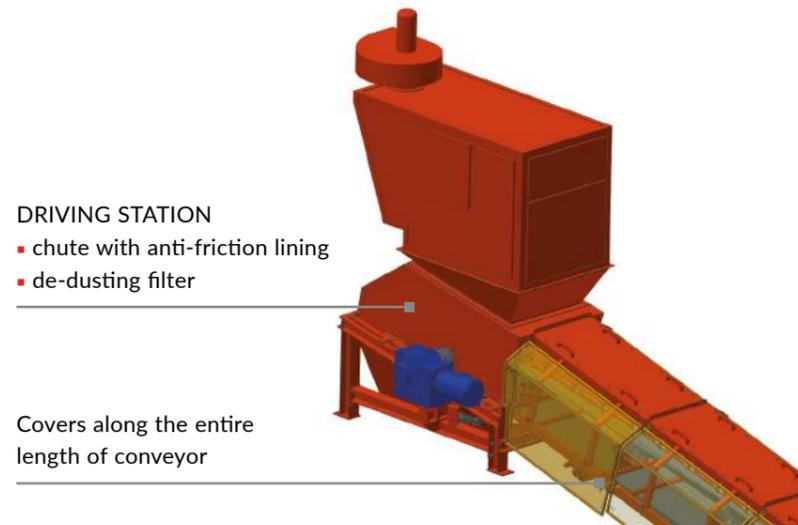
WITHOUT AUTOMATIC
CALIBRATION



CYLINDRICAL (CONICAL) WEIGHTS



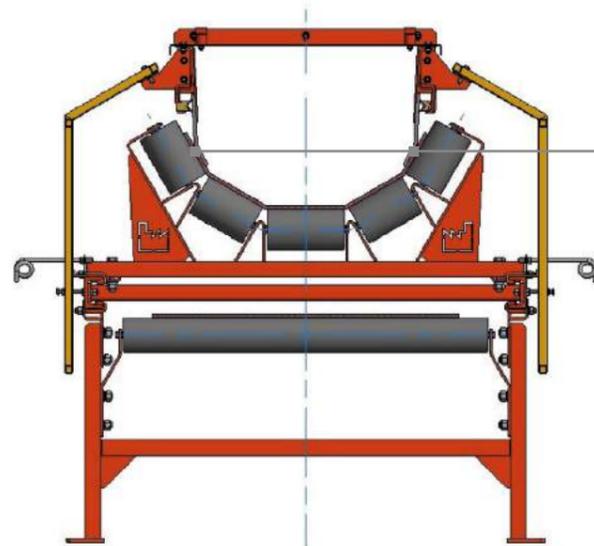
REVERSIBLE BELT CONVEYOR FOR BATCH



Covers along the entire length of conveyor



Integrated gravity tensioning



Sealed guides for bulk material

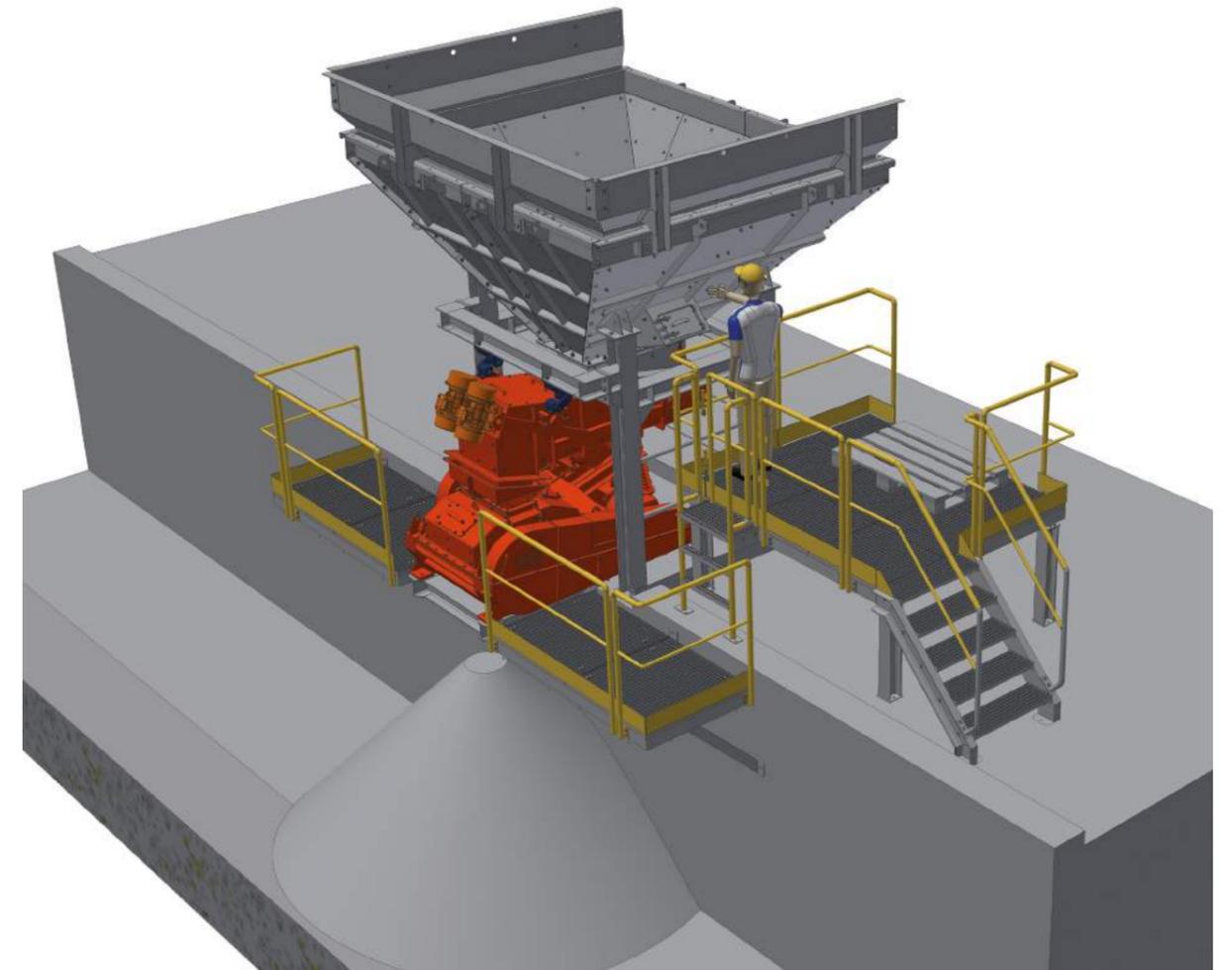
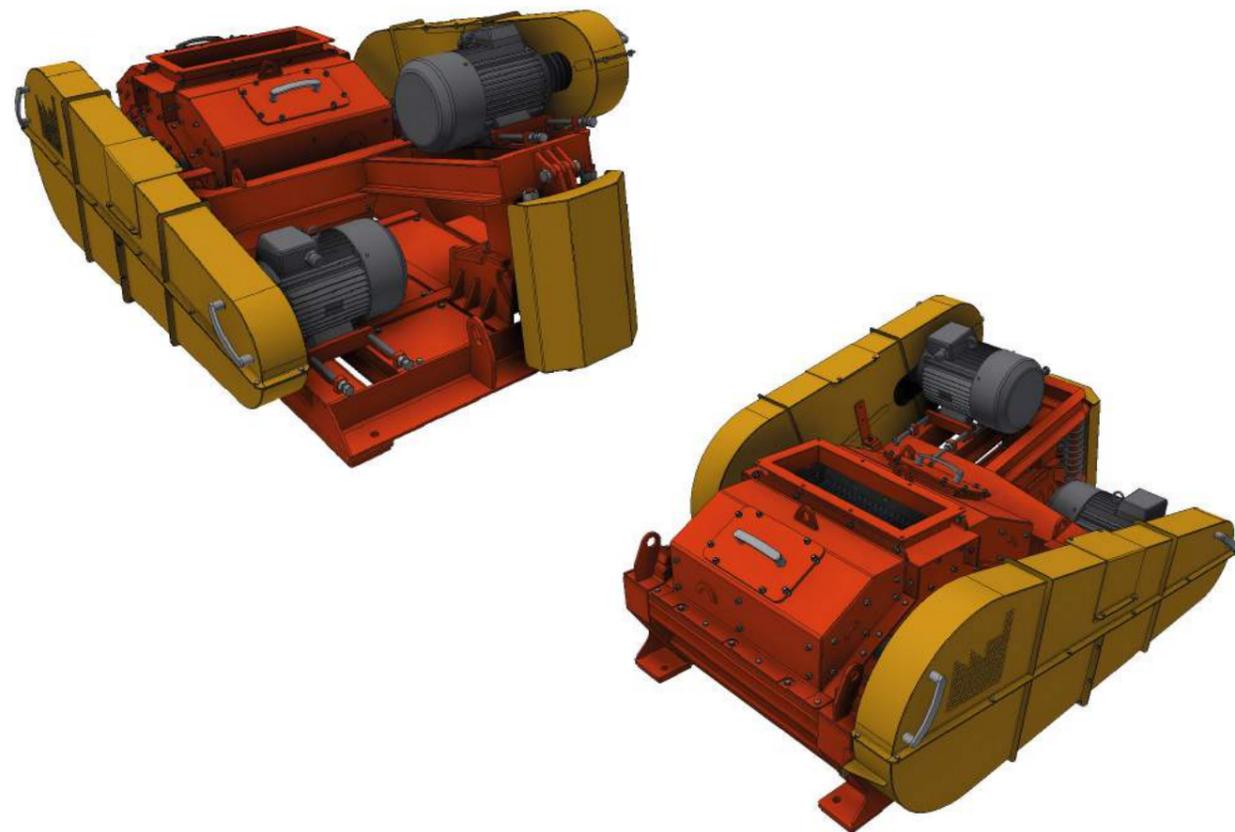


CRUSHER – ATLAS 20

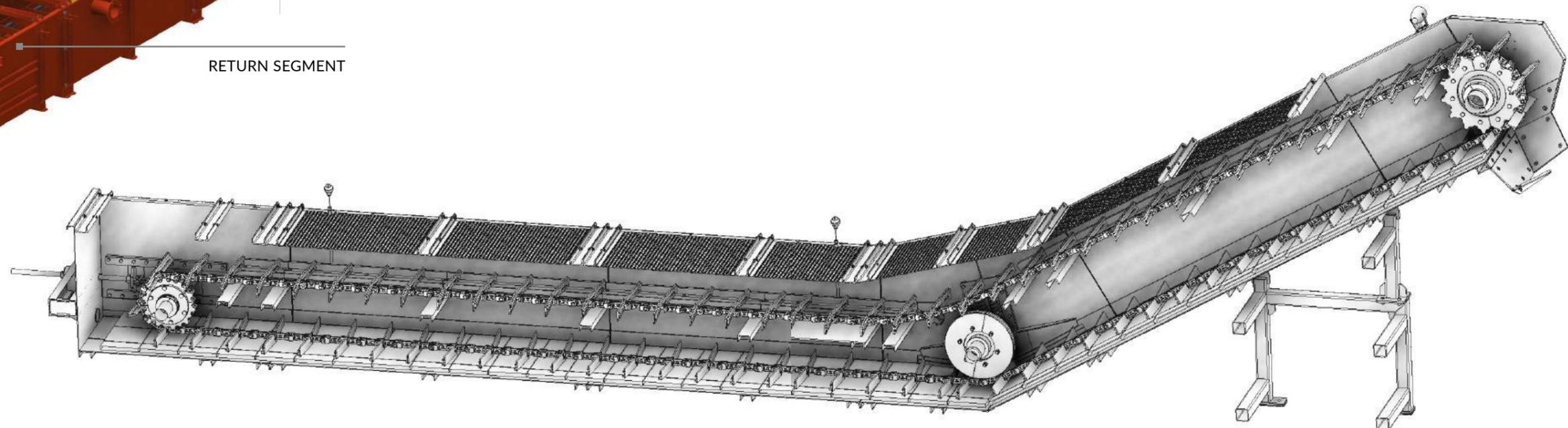
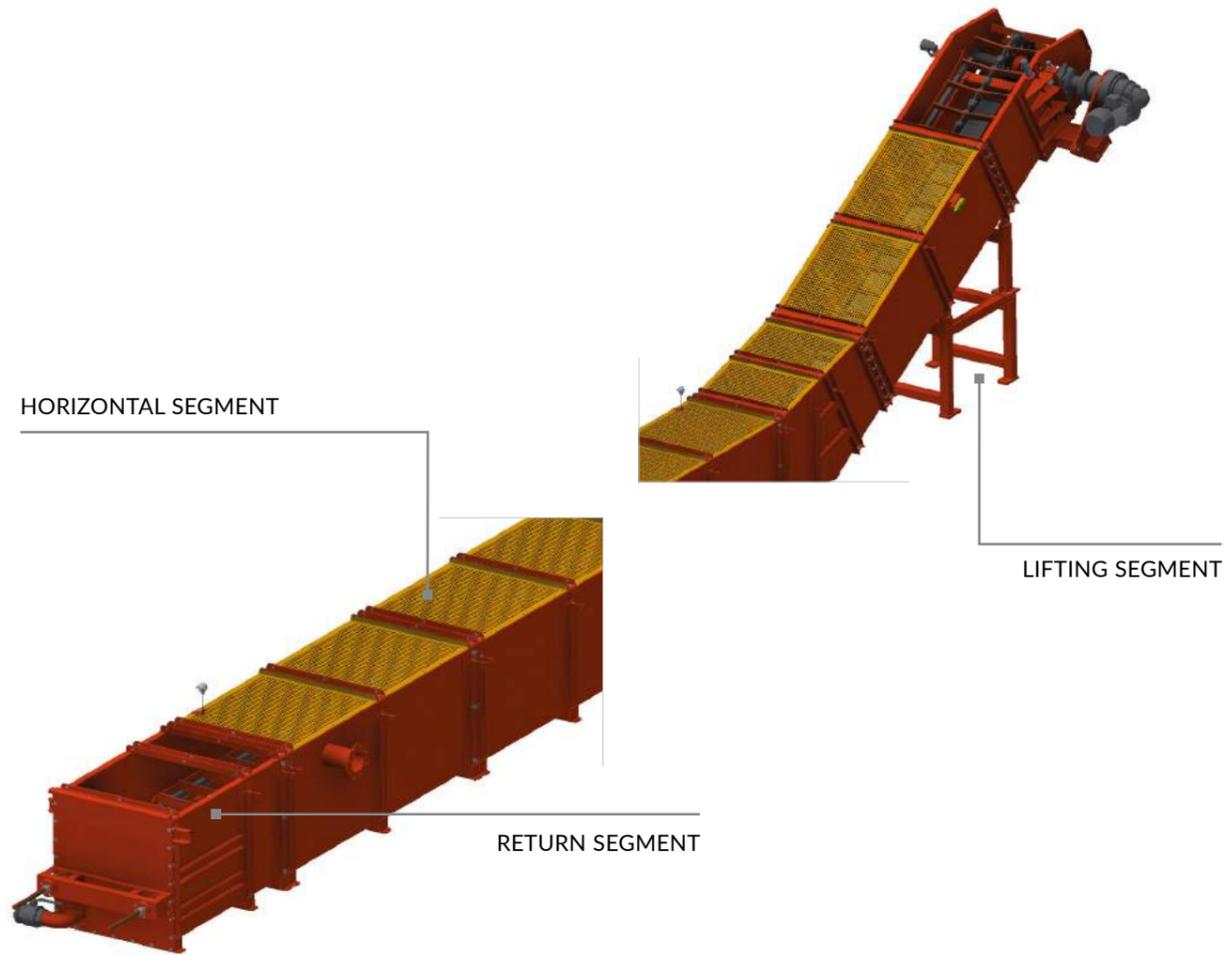
Double-roll crusher (KDW type) by Forglass crushes glass to expected fraction. Depending on the material being crushed, three configurations of the rolls are available: 2 smooth rollers, 1 smooth roller + 1 toothed roller, or 2 toothed rollers. The method of intergranular crushing significantly limits the formation of dust during crushing. The rollers are driven by two separate electric motors with belt transmissions. Using two independent drives allows for setting different speeds of the rollers. One of them is mounted on moveable frame connected with

a set of springs. When the non-grinding material enters the crusher's interior, the moving frame swings away and the material can leave the crushing chamber without damaging the rollers (because the gap between the rollers is wider for a brief time). The crusher is equipped with roller motion sensors. When one roller stops moving, the power is turned off automatically to keep the rollers and drives in good condition. This system protects rollers and drives against larger, non-grinding materials, which are too large to fit through the gap between rollers.

The crusher is protected against possible collision of two rollers. The crushing rollers are equipped with replaceable linings. The core is also equipped with linings and its divided construction allows for changing the linings on rollers without the necessity of demounting the rollers from the crusher. For this reason, when linings on the rollers are replaced, the gap between the rollers and the tension of the springs is maintained. This means that the time required for maintenance of the crusher is shorter.



DRAINAGE FLOAT GLASS SYSTEM SCRAPER CONVEYOR

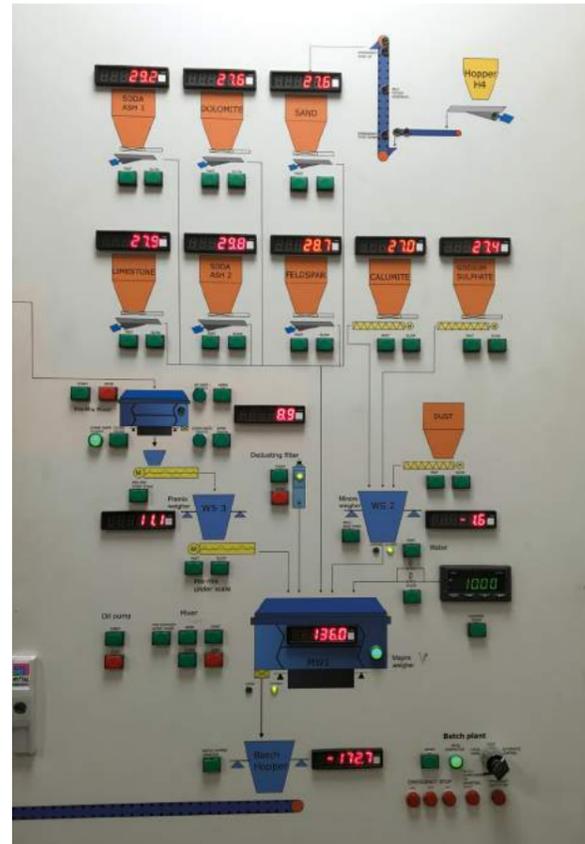


CONTROL SYSTEM



Our team of experienced and skilled automation engineers guarantees tested and custom-tailored solutions to our Clients in the areas of:

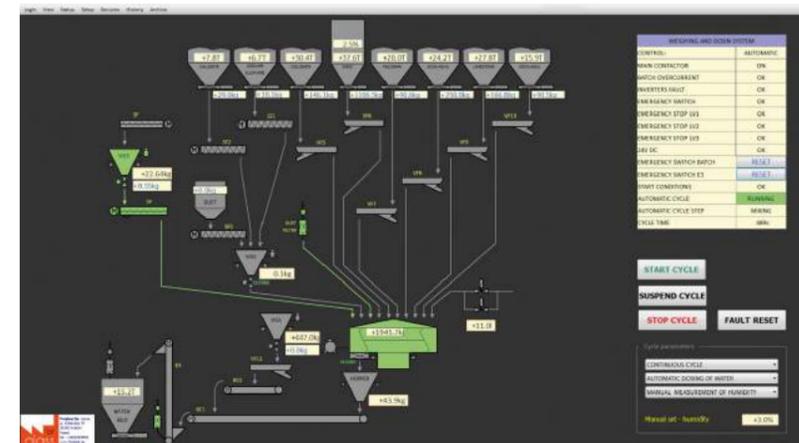
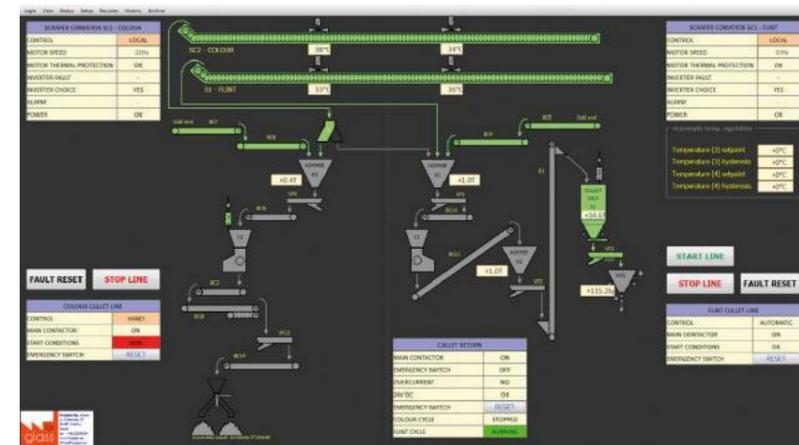
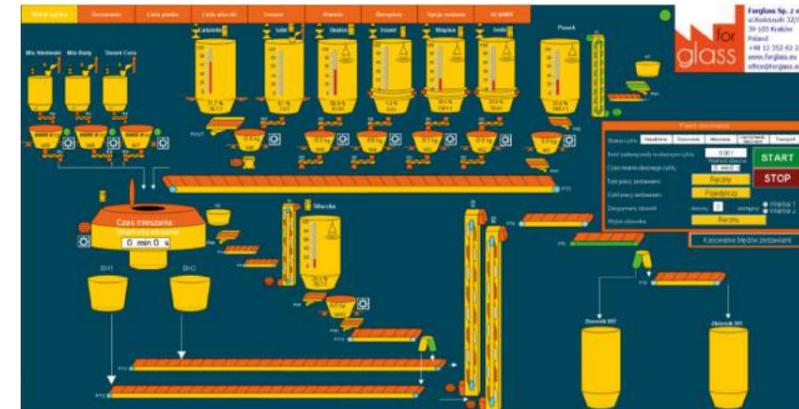
- weighing and transporting batch control
- loading raw materials into silos control
- cullet return control
- HMI and SCADA applications



Reliability of our installations is guaranteed through the use of components from well-known and trusted suppliers (Siemens, Schneider Electric, Eaton and others), as well as integration of safety systems, according to required norms.

We offer:

- design of the new control system
- modification of existing control systems
- control system software management, according to accepted guidelines
- integration of control system with SCADA
- supervision of electrical installation
- commissioning, training
- diagnostics and service of control system



SCADA systems are in other words superior control systems related to data acquisition. SCADA is a control system that uses computers, network communication and graphical user interfaces to increase work efficiency, to introduce a workplace management at the highest level. The system uses peripheral devices (PLC controllers) and HMI panels to interact with both the user and the machine. User interfaces enable process monitoring and issuing process commands, such as setting set points or changing controller settings.

BATCH PLANTS

OPS - Overload Protection System

Innovative solution for scraper conveyors in glass industry

Dedicated OPS for scraper conveyors to save components against damage during operation. The system is measuring continuously, monitoring scraper conveyor capacity and reacting independently, according to programmed 3 levels:

LEVEL 1 - NORMAL OPERATION MODE

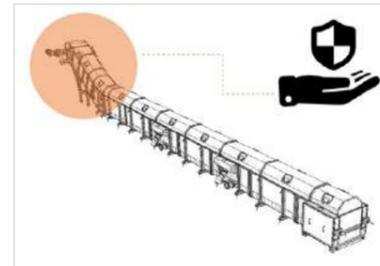
LEVEL 2 - ALARM - in case of danger situation (without stopping device)

LEVEL 3 - SHUTOFF - turning off the device to protect against damage

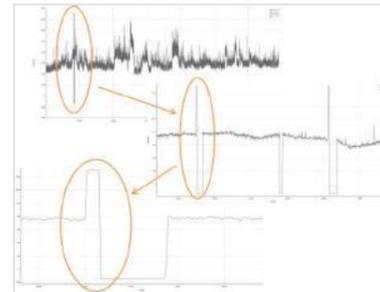
The advantages of installing an overload sensor in a scraper conveyor are:

- Maintenance-free protection of conveyor
- Easy start after failure removal
- Immediate response to overloads
- Archiving of conveyor operation loads
- Remote instruction handling possible
- Reduction of conveyor operating costs

SCRAPER CONVEYOR POSEIDON
SPECIAL COMPENSATION STATION



LOAD MONITORING



OPERATOR PANEL



WE ARE HERE FOR YOUR PEACE OF MIND

