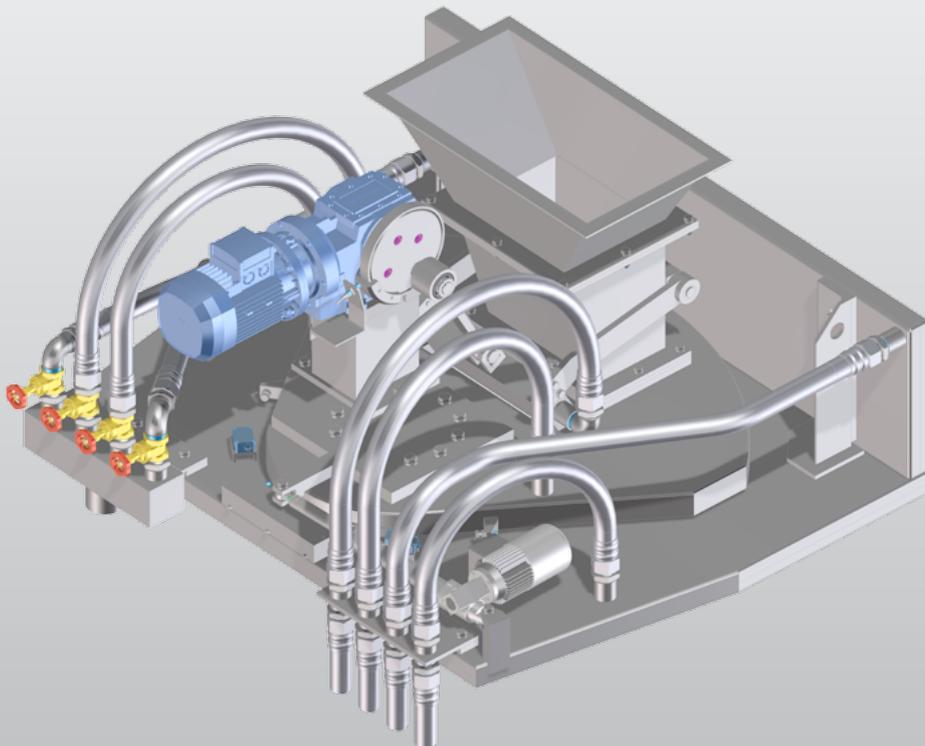




SOLUTIONS FOR THE GLASS INDUSTRY

FIXED & OSCILLATING SCOOP TYPE BATCH CHARGER





GENERAL DESCRIPTION

The batch charger is one of the most important pieces of equipment installed in a glass furnace as it has an important influence on the performance of the furnace.

Glass Service has developed a range of batch chargers with several models and sizes to suit different types of furnace, specific glass production and furnace sizes.

For each furnace and glass type, selecting the correct batch charger and charging method gives a number of advantages:

- Increase the furnace pull rate
- Decrease the energy consumption
- Reduce the carryover
- Reduce oscillations in the glass level
- Reduce the NOx formation

The **Glass Service** batch chargers are robustly designed and constructed to operate continuously in the arduous environment of the doghouse.

For the 24h/7days operation the design is optimized for quick and easy maintenance. The use of quick release components and simple mechanisms make maintenance quick and easy.

The correct sizing of the batch charger reduces the oscillations in the glass level and increases the precision of the glass level loop control. The correct and constant glass level increase the productivity throughout the forming process.

The **Glass Service** batch chargers operate with a fully sealed doghouse which reduces NOx by reducing the ingress of parasitic air.



SCOOP TYPE BATCH CHARGER

The main concepts behind the development of our batch chargers are simplicity, flexibility and reliability.

These machines can be easily adapted to a wide range of pull rates and require low maintenance even when operating under heavy working conditions.

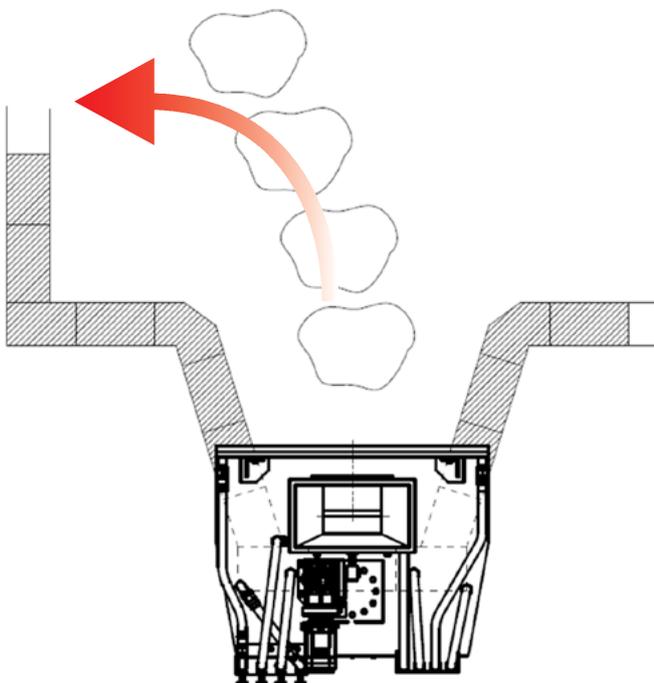
Our batch charging machine is directly installed and sealed on top of the dog house sidewall blocks, with the following advantages:

- Low NOx formation
- Low energy losses
- Low dusting (reduced carryover)
- Better furnace pressure control

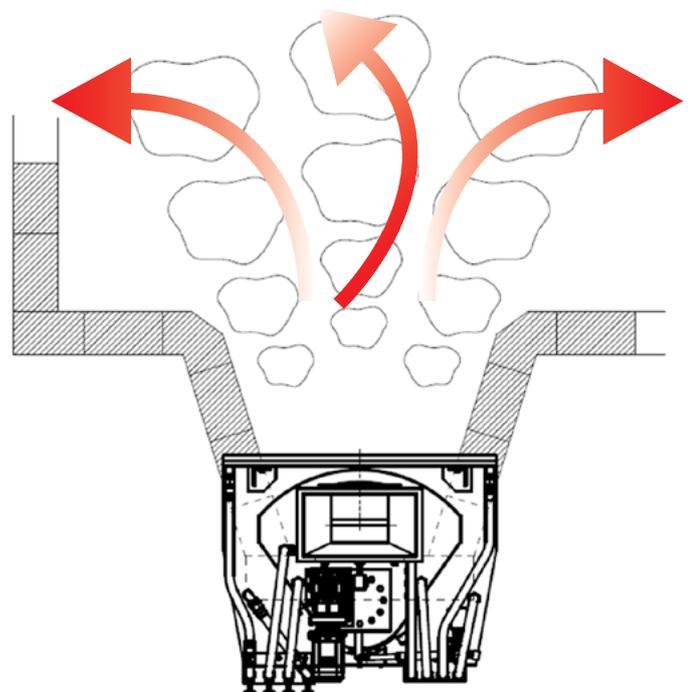
The supporting structure is basically a double electro-welded water-cooled stainless steel shield.

The scoop machine is available in two versions:

- Fixed type, available in 2 sizes
- Oscillating type, available in 2 sizes



Fixed scoop type

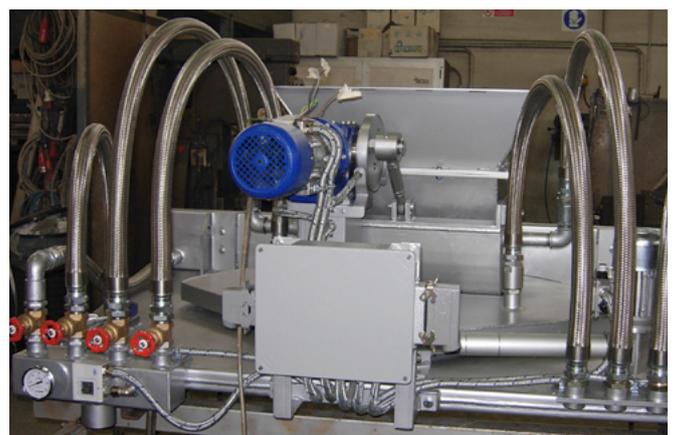


Oscillating scoop type

The batch charger comprises the following main components:

- Main horizontal base (water cooled)
- Vertical shield (water cooled)
- Small sized hopper to prevent batch compacting
- Water cooled scoop
- Drive system for oscillating scoop with AC servo-ventilated electric motor (driven by inverter) and coupled with gearbox
- Capacitive sensor to detect minimum batch level in the hopper
- Set of flexible hoses for water cooling (suitable for high temperature and pressure)

- Independent cooling water manifolds, equipped with flow-sensors and thermometers



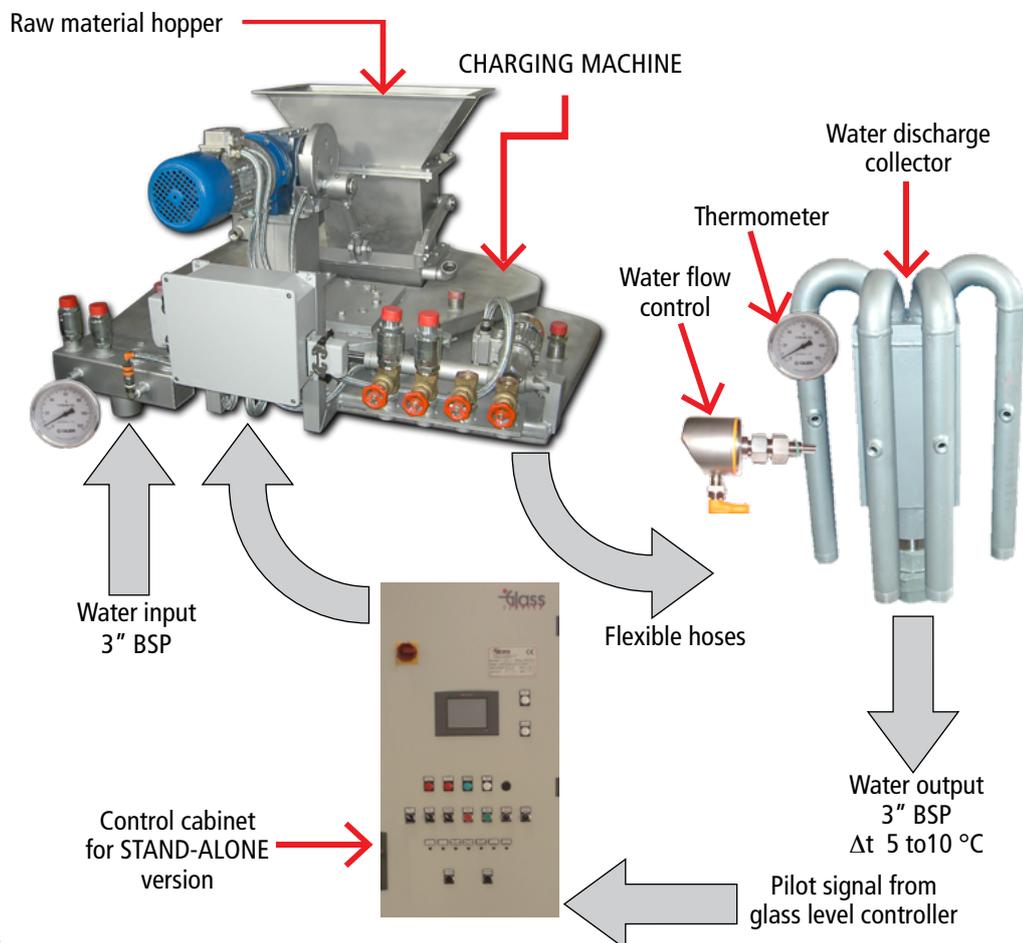
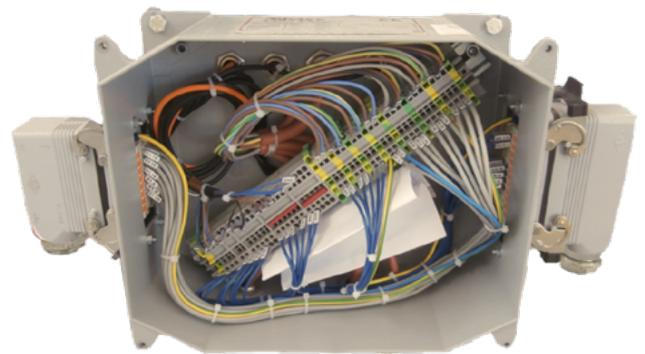
The oscillating version has the following additional features :

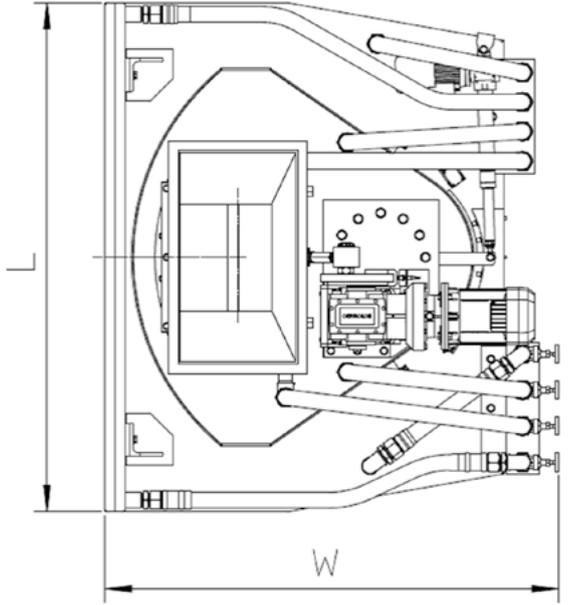
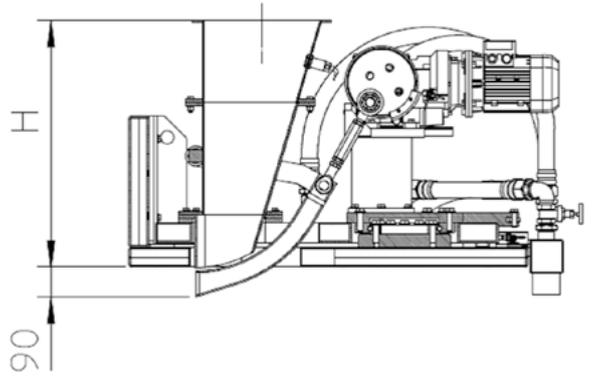
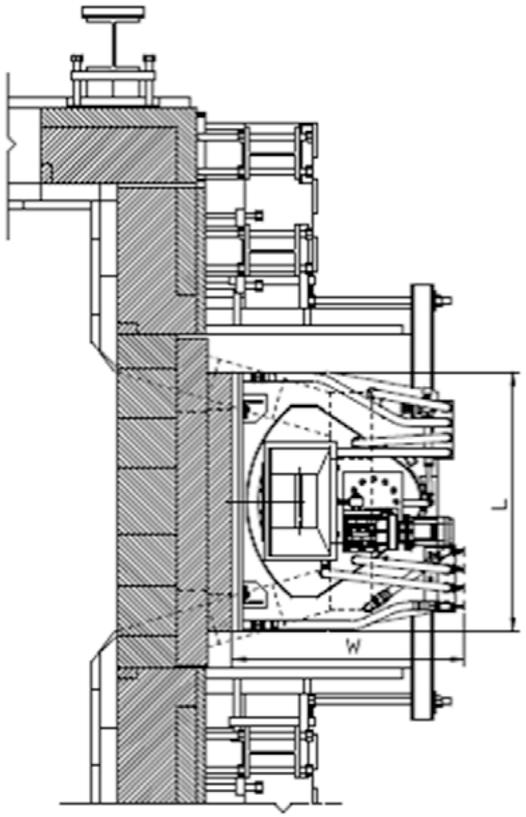
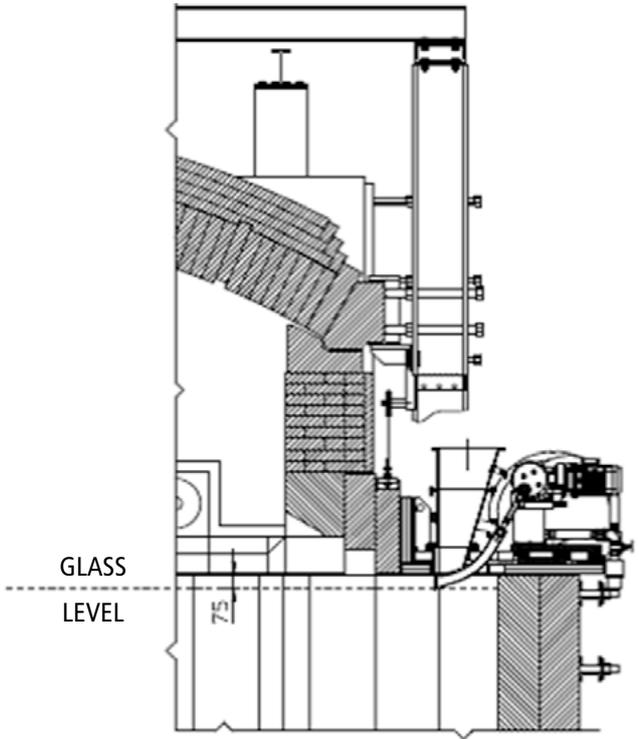
- Water cooled oscillating base with $\pm 22^\circ$ max rotation angle and five positions selectors (manually settable)
- Drive system for the oscillating base via an electric motor and linear actuator

A crankrod mechanism is used to operate the scoop mechanism which is manually adjustable for good control of the raw material flow rate.

All machines are fully tested and wired with high temperature cables, components and junction box.

To cope with the high temperature environment, the scoop is driven by a class F, self braking motor with inverter which is also fitted with separate air cooling.





TECHNICAL FEATURES

Model		INF PO 250-100-AA	INF PO 400-180-AA	INF PG 400-180-AA	INF PG 600-280-AA
Type		Fixed		Oscillating	
Scoop width	mm	250	400	400	600
Scoop max. depth		70			
Scoop speed range	strokes/min	6 to 30			
Crank gear positions		4			
Flow rate @ 50 Hz.	kg/min	43 to 98	76 to 177		122 to 281
Oscillating angle		-	-	44° (± 22°)	
Number of oscillating position		-	-	2, 3 or 5	
Material being handled		Glass batch - Cullet only - Glass batch & cullet			
Max cullet size	mm	25			
Moisture content		0,5 to 3 %			
Main motor power	kW	1.5			
Oscillating motor power		-	-	0,13	
Electric power connection		3Ph + E 400 VAC 50 Hz			
Water cooling requirements	liters/min	120			160
Water cooling inlet pressure	bar	2 to 4			
Water inlet specifications		Treated industrial water (4 French degrees) 40 ppm calcium content - @ 20 to 35 °C			
Water flow control		1 water input thermometer 3 water output thermometer 1 water input pressure switch 3 water output flow switch		1 water input thermometer 4 water output thermometer 1 water input pressure switch 4 water output flow switch	
Dimensions (L x H x W)	mm	900 x 635 x 1230	1050 x 750 x 1230	1550 x 750 x 1360	1850 x 750 x 1360
Weight	kg	325	400	550	600

CONTROL BOARD

The batch charger can be controlled and actuated through a local control board or it may be connected to the main control room by a suitable 4-20mA signal.

The control board is of rugged steel construction and is delivered completely wired and tested ready to be connected with special connectors to the batch charger junction box.

Two different operating modes are available:

- a) Continuous cycle
- b) ON-OFF cycle

a) In **Continuous cycle** mode, the machine works continuously and the charging speed is controlled either automatically or manually.

In "Automatic mode" by a remote 4-20mA signal (from the glass level control) continuously adjusting the quantity of raw batch charged according to the production needs.

In "Manual mode" the charger speed is set manually (1 to 100%) from the AUTO/MAN station located on the front of the control board.

b) In **ON-OFF cycle** an adjustable timer is set by the operator to stop and start the batch charger.

In "Automatic mode" the ON-OFF signal comes from the glass level control. The machine works at the selected speed during the time when the

"ON" signal is active and stops during the "OFF" time range.

In "Manual mode" the operator can directly set the start and stop timing cycle and the relevant charging speed.



TECHNICAL FEATURES

Model	QCM P F 1 AA	QCM P G 2 AA
Charging machine Type	Fixed	Oscillating
Management and control	electromechanical	PLC
RS 485 Modbus	-	✓
Alarms management	with LED	on PLC panel
Manual mode (0 to 100 %)	✓	✓
Remote control signal (4 to 20 mA)	✓	✓
Alarm transmission	free contact	with RS 485
Speed controller	Electronic frequency inverter	
Management of oscillating position	-	Timer for each position
Number of machines controlled	1	max. 2
Electric power connection	3ph + E 400 VAC 50 Hz	
Dimensions (L x H x W)	600 x 1900 x 600	600 x 1900 x 600





CUSTOMERS WORLD WIDE

PBC-17-01-E



turn key project

batch plants

furnaces:

recuperative

regenerative

gas fired

oil fired

oxy-fuel fired

mixed fuel

electric

forehearth:

colouring forehearth

combustion systems

day tanks

mini melters

boosters

bubblers

metallic recuperators

batch chargers

stirring machines

glass level controls

frit dosing and transport

control cabinets

SCADA and DCS

cooling systems

robotics

gathering - 4 or 5 axis

services:

installation and supervision

commissioning

training

preheating

technology transfer

assistance

laboratory and analysis

refractory consulting

project financing



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