

Screw Batch Charger – SBC-254

General

Equipment supplied by KTG Engineering will consist of –

- 1 off 10" Screw Batch Charger Assembly
- 1 off Electrical Control Panel (Remote)

When installed correctly, the 10" Screw Batch Charger (SBC-254) will feed batch into a glass melting furnace, by means of a helical screw conveyor.

Depending on the material being processed, each SBC-254 should deliver between 0 and 90 Tonnes per day.

The SBC-254 consists of a base frame on wheels, which facilitate them being manually pushed into or withdrawn from the furnace superstructure. A drive unit and gearbox is mounted within the base frame, which in turn drives a stainless steel helical screw shaft via a duplex chain and sprocket wheels. The helical screw passes through a mild steel hopper, into where the batch is fed. The helical screw then transfers the batch through a water cooled nose section (stainless steel), and deposits it out of the end. The speed that the flight shaft rotates, and therefore the quantity of batch moved, is variable.

Specification

Supply voltage – 380 V 3 phase, 50 Hz.

Low level indicator voltage – 110V AC.

Noise level when running – less than 70 DbA.

Maximum ambient temperature –

Drive unit - 35°C

Low level indicator - 90°C

Rotation sensor - 70°C

Description

Base Frame

The base frame is manufactured from mild steel and is fitted with grooved wheels for mounting onto rails. The height of the wheels are adjustable using jacking bolts mounted inside the base frame. It is totally enclosed with mesh guards, and has the drive unit and idler sprocket mounted within it and carries the flight shaft plummer blocks and hoppers on its upper surface.

Drive Unit

The drive unit can be run at very low speeds, the speed can be controlled manually or automatically, by changing the position of the " Auto/Manual " selector switch mounted on the batch charger control panel.

Transmission

Transmission from the drive unit to the screw shaft is via a 1" duplex British Standard chain driving sprocket wheels. There is an adjustable idler sprocket in between the drive & driven sprockets in order to take up tension on the chain. The drive shaft is supported on the base frame by plummer blocks. All moving parts are fully protected by guards.

Screw Flight Assembly

This comprises a stainless steel shaft, fitted with replaceable manganese steel segmented flights. The end flight is a heat resistant alloy steel. There is a rotation sensor fitted to the shaft which will trigger an alarm if the shaft stops rotating, or its speed drops below a pre-determined level. The flight shaft assembly is supported in between the two plummer blocks.

Hopper Arrangement

The hopper is supplied as two parts. The main (lower) hopper acts as a trough for the flight shaft, and supports the water cooled nose. There is a sealing arrangement at the back of the hopper around the flight shaft. This has a top flange, onto which the auxiliary hopper is bolted. The auxiliary hopper is fitted with a low level indicator, which will trigger an alarm if the batch level falls below the indicator.

Water Cooled Nose

Batch is fed into the furnace through a stainless steel water cooled nose. It is recommended that a water supply of 60 litres / minute is maintained through this. The water cooled nose is electrically isolated from the rest of the batch charger. The water cooled nose should be fitted into a suitably designed batch charger block mounted in the furnace superstructure.

Batch Charger Control Panel

The batch charger control panel can be wall or frame mounted close to the batch charger. The panel must be connected to the factory 3 phase and earth supply via a suitable distribution circuit breaker. The power and control cables from the control panel to the batch chargers are supplied glanded to the bottom of the panel and are usually 10m in length if remote, although longer cables can be supplied if required. All cables from the control panel to the batch charger are supplied with quick release plugs to enable trouble free removal of individual batch chargers, for easy maintenance.

The front of the batch charger control panel is usually equipped with the following:-

- Glass Level meter
- Illuminated "Stop/Start" pushbuttons, for each of the batch chargers
- Indication for batch charger "Low Level" and "Stopped"
- "Auto/Manual" selector switch
- Manual speed control potentiometer
- Group "Emergency Stop" pushbutton with mushroom head

Note: each batch charger is equipped with an emergency stop and provision is made to connect an external emergency stop.

The speed of the batch chargers can be group controlled from a single glass level signal in automatic, or manually controlled using a group potentiometer. The batch chargers can be set to run at different speeds by setting individual potentiometers inside the batch charger panel. The Glass level signal should be 4-20mA, 0-10V or 1-5V and can be provided by a glass level device, PLC or any other form of instrumentation.

This control system can be modified to meet any special customer requirements, by request.

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