Cullet scraper conveyors unleash VIDROMECANICA recycling mastery

Effective management of hot waste glass recycling is crucial to ensuring smooth operation of the production flow. Under normal working conditions, errors are not tolerated by this equipment. Here it is essential to manage water consumption intelligently while prioritizing environmental considerations.

In today's glass industry, production rates and furnace capacities are increasing continuously. Equipment must therefore be designed and sized to facilitate efficient energy and environmental management while minimizing human intervention - all to ensure maximum reliability.

Glass manufacturing has evolved into a modern, high-tech

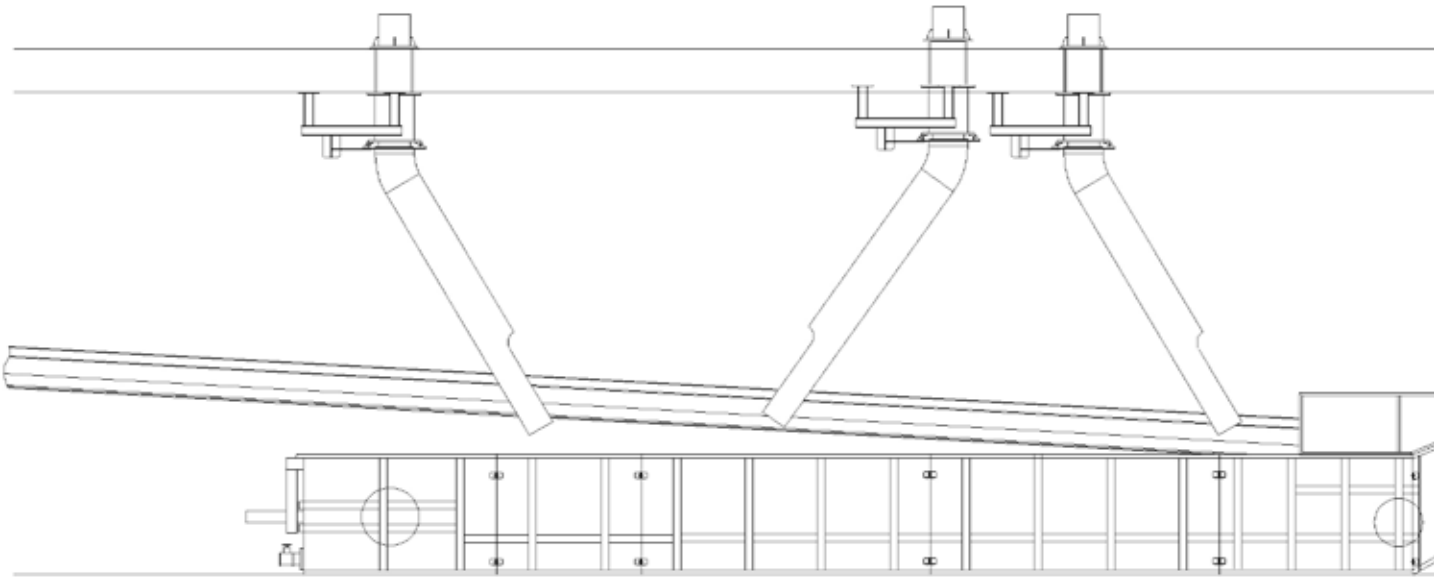
Showcasing VIDROMECANICA's singular expertise in hot waste glass recycling, its Cullet Scraper prioritizes energy efficiency, reduced water consumption and reliability. In this way the company addresses crucial factors in modern glass manufacturing against a backdrop of increasing production demands and growing environmental concerns.

industry that operates in a competitive global market. Here, key factors for maintaining market share are threefold, namely quality, design and service levels.

Glass containers, produced in various colours, have become an integral part of our daily lives. Glass packaging is used for a wide range of products, including wines, spirits, beers, medicines and cosmetics. As environmental concerns grow, glass recycling has gained significant importance. Recycling glass not only prevents used containers from ending up in landfills but -in comparison to melting raw materials- also saves energy. Additionally, recycling reduces the need for resource-intensive quarrying.

SCRAPER CONVEYOR 500 TPD

A crucial piece of equipment for receiving and processing hot



waste glass from furnaces and forming machines is the Scraper Conveyor. It cools and granulates the hot glass so it can be reintroduced into the production flow. This is achieved thanks to a continuous supply of water by which thermal energy from the glass is absorbed.

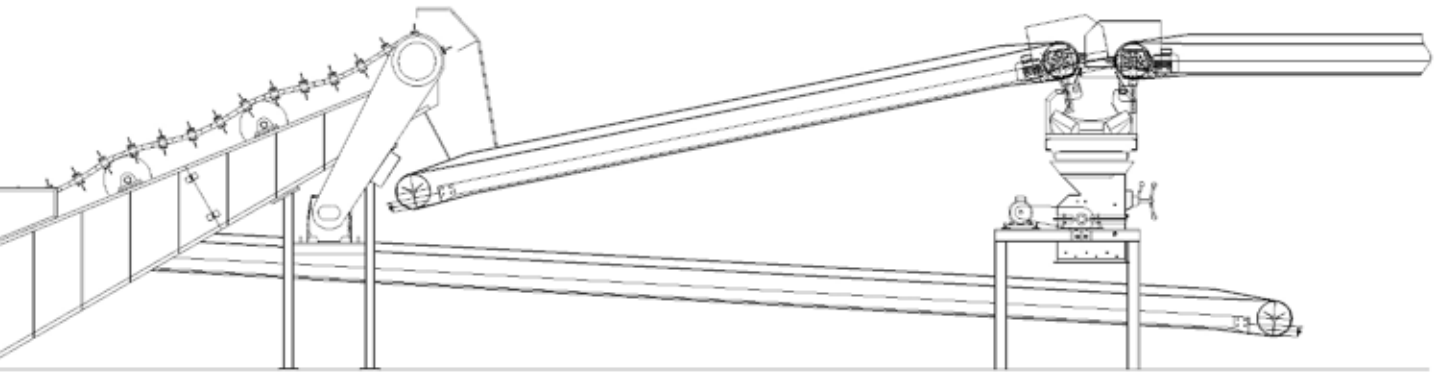
When designing such equipment, Vidromecanica employs calculation and dimension methods - both supported by numerical heat transmission analysis. Such methods ensure accurate characterization of the water flows necessary to granulate the glass effectively.

To optimize the performance of the Scraper Conveyor, it is advisable to position the hot gobs chutes near the glass exit zone. The equipment features a double bottom design, allowing for reasonable glass cooling and a significant reduction in water consumption.

By considering these factors, daily water consumption can be decreased compared to traditional cooling and granulating methods for glass equipment.

SOME PRODUCT FEATURES

Vidromecanica's Scraper Conveyor consists of a steel vat, typically 900, 1200 and 1400 mm wide and 1100 to 1200 mm high, filled with water. Inside the vat, a conveyor belt with highly wear-



resistant dragging rods transports the glass while facilitating contact with the water. The granulation process occurs due to the thermal shock resulting from contact with the lower temperature water.

The dragging chain, a vital component, must withstand aggressive working conditions. It comprises a roller chain conveyor of high durability, with glass dragging rods connected throughout. The shape of the rods can be either T or L, depending on the type of scraper used (double or single bottom). The vat bottom is usually entirely covered with basalt plates that offer excellent resistance to erosion.

Conveyor belt speed and water temperature are continuously monitored and adjusted to accommodate glass flow received by the equipment. The double bottom design allows the glass to move in the opposite direction of the exit flow - increasing contact time with the water.

For furnaces with capacities of 400-500 T/day, it is common to have a scraper with a double bottom measuring 30 to 40 metres in length. This equipment demonstrates high performance but it requires preventive and corrective maintenance when furnaces are rebuilt.

ESSENTIAL FACTORS FOR SCRAPER LONGEVITY

To maximize the lifespan of the scrapers, several key factors should be considered:

- Whenever possible, reduce the speed of the glass-dragging chain
- Direct the hot gob chutes onto the centre of the scraper vat
- Minimize water entry temperature into the scraper
- Maintain control over water temperature inside the vat
- Regularly check and adjust the chain tension
- Implement preventive and corrective maintenance as needed

AUXILIARY EQUIPMENT

Vidromecanica offers a range of auxiliary equipment to enhance functionality of the scraper - including conveyors, pipes for hot gobs chutes, crushers for floating bottles and roller flattening gobs to facilitate efficient thermal exchange between glass and water.

WASTE GLASS

BELT CONVEYORS FOR CRUSHED GLASS

These conveyors transport the crushed glass for further processing, thereby ensuring a smooth flow within the recycling system.

PIPES FOR HOT GOB CHUTES

These tubes serve the purpose of directing the hot glass to the scrapers. Internally-coated with highly durable material to resist erosion caused by the movement of hot glass, the pipes typically have variable diameters ranging from 350 to 400 mm. They are pneumatically-driven at high speeds, allowing for efficient transfer of glass to the scrapers or nearby storage containers. The chutes play a crucial role in maintaining the equipment's operational integrity - automatically diverting the glass to the exterior of the scraper in the event of a power outage. Vidromecanica has dedicated efforts to develop robust glass conveying systems that minimize the need for preventive maintenance operations.

AUTOMATICALLY-ROTATING FALLING TUBE

This equipment facilitates controlled and efficient transfer of the glass from one location to another, thereby optimizing the recycling process.

ROLLER FLATTENING GOBS

When dealing with the production of larger glass gobs, such as those used in insulators or for washing machines, it is advisable to incorporate roller flattening gobs. These devices increase the contact area between the glass and water - enhancing heat transfer efficiency, cooling effectiveness, and glass granulation.

CRUSHERS FOR FLOATING BOTTLES

Floating bottles present a potential risk to the conveyor chain due to their impact and tension. To mitigate this issue, crushers installed on the scraper effectively break the floating bottles - eliminating the need for manual intervention during the bottle-breaking process.

To optimize the entire hot glass recycling process, careful consideration is given to factory layout. Here, by strategically-positioning the equipment and establishing efficient material flow, the company ensures seamless, productive operation.

With its innovative solutions for various glass industry applications, the company's equipment and systems are deployed worldwide. Whether it be glass containers, tableware, or technical glass, choosing Vidromecanica means selecting reliability and investment security.

The company won't settle for the status quo. Instead it strives continually for improvement while looking to the future with confidence. Here the approach encourages groundbreaking ideas - pushing the boundaries of conventional thinking to develop new solutions. Indeed, drawing on its extensive knowledge and experience accumulated over the years, Vidromecanica fosters continuous progress and trust. Here an overriding belief comes in fostering strong partnerships with customers while engaging in ongoing exchanges of ideas, opinions and experiences. This collaborative approach ensures that the company remains at the forefront of glass engineering - driving progress and solidifying its position as a leading company in the global glass engineering industry. ■