

WANDRES

Clean removal of glass chips, interleaving powder and particles

To secure the trouble-free destacking of sheet glass during downstream processes in industrial production, a fine coat of interleaving powder is applied to each glass plate prior to stacking. The interleaving powder presents various challenges, however, during processing further down the line. This article explains how best to tackle these issues.

If sheet glass has been coated with interleaving powder, the small beads of the powder are spread loosely on the glass plate. During handling, or when the glass is raised, particles may fall off and, bit by bit, become spread around the production environment. If particles fall onto the floor of the production hall, they pose a high slip risk and therefore the serious danger of accidents to the staff.

This can be prevented by passing the glass plates after destacking through a modular cleaning installation which combines contactless cleaning using ventilation technology with brush cleaning technology. Wandres GmbH has developed the Combi Sword Brush Una G, as well as the Suction Channel Tom, specifically for this micro-cleaning procedure. The slender, high-performance suction channel guides loose particles from any residual interleaving powder, towards a suction system. Subsequently, the Combi Sword Brush absorbs any particles remaining on the surface of the glass, wiping from above and from below. The micro-moistened filaments of the linear brushes, maintaining constant contact with the surface of the glass, bind any fine particles still present. Removal of the interleaving powder has the additional advantage of taking the strain off the washing machines since particles of interleaving powder tend to clog up filters very quickly. This, in turn, would lead to increased maintenance work and therefore result in higher maintenance costs.

A temperature of just 20°C in wash water which already contains particles, can promote the proliferation of undesirable strains of bacteria and in turn means the washer has to be cleaned on a weekly basis. As filter cleaning can only be

performed during machine stoppage time, this would mean a weekly production downtime of 3 - 4 hours. Upstream cleaning by Sword Brushes makes perfect sense as a viable financial option here. Similarly, after cutting and grinding processes, a sludge consisting of water, cutting oil, glass particles and glass chips is left behind on the surface. The Sword Brush Aqua disposes of this mixture. In addition, the surface of the glass is left almost dry after the procedure. Subsequent washing processes can be reduced significantly or may even be dispensed with entirely.

The Sword Brush is made entirely of corrosion-resistant stainless steel and features an encapsulated motor. At the deviation of the brush belt, metal pins shake water and particles out of the filaments.

A pressure buffer ensures that, even with slightly curved glass surfaces, the linear brush always exerts a constant pressure onto the surface, thus providing for consistent cleaning results. An adjustment unit allows the brushes to adapt to variations in glass thickness. The operating side can be chosen according to client requirements as is the case with all the other systems, too. Before the pre-formed or curved panes of glass are restacked or packaged, they are subjected to a final video inspection for quality control. To avoid any particle-related false error messages, a linear brush can also be deployed beforehand.

Even extremely curved glass panels of up to a maximum transverse dimension of 103 mm and a minimum radius of 625 mm, can be cleaned using this method, for instance vehicle side window panels. The Combi Sword Brush Una GV has been developed specifically for this purpose. Here the linear brushes are mounted on flexible guides and adapt to the curved line of the glass by means of several actuators. The rate of products rejected on account of contaminating particles can be drastically reduced using this inline cleaning process, thus lowering production costs and boosting productivity.



Image: Wandres

Interleaving powder can be removed after destacking using brush cleaning technology. Here linear brushes wipe the surfaces of glass panels from above and from below.

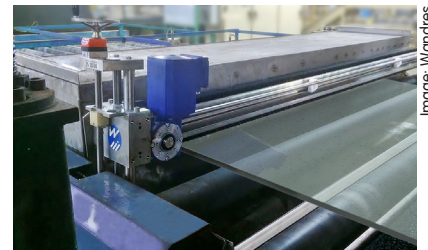


Image: Wandres

A Sword Brush Aqua cleaning sheet glass after cutting and grinding.



Image: Wandres

The Combi Sword Brush Una GV cleans curved glass panels prior to camera inspection. Robot Sword Brushes can be deployed to deal with more intensely bent glass.

All of the cleaning systems described here can be integrated into existing production lines due to a narrow footprint (depths of 200-300 mm). The nominal width of the brushes is between 400 and over 3000 mm, while the maximal cleaning width for curved glass is 1320 mm.