

A recipe for success

Today's glass production requires state-of-the-art mixers, say **Dr Peter Miczajka** and **Dipl-Ing Harald Eirich***.

Hundreds of Eirich glass batch processing intensive mixers have been sold worldwide, where a lifetime of more than 40 years is not unusual. The latest mixing units distribute all batch components evenly, regardless of their share in the formula or their physical properties. A high-speed rotor separates components that are prone to sticking together and a scraper prevents caking on the wall and bottom of the mixer. The mixers provide increased repeat precision, a high degree of homogeneity and short mixing times of 120 to 180 seconds. This enables quality levels that can seldom be reached by other current standard mixing systems. Granulation of dust, single raw materials and complete batch are possible within the same machine.

Development

At the beginning of the 20th Century Eirich produced a planetary geared mixer to improve the quality of mixed products with higher mixing intensity. Mechanical simplification of this system led to the creation of a driven pan and tool - the Eirich intensive mixing system. The D type mixers produced since 1924 are still available today. At the beginning of the 1970s a new generation was developed; the R type. Today both mixers are used to produce a whole range of mass and high quality glasses, with low wear and high energy efficiency.

D type intensive mixer (500 – 7000 litres)

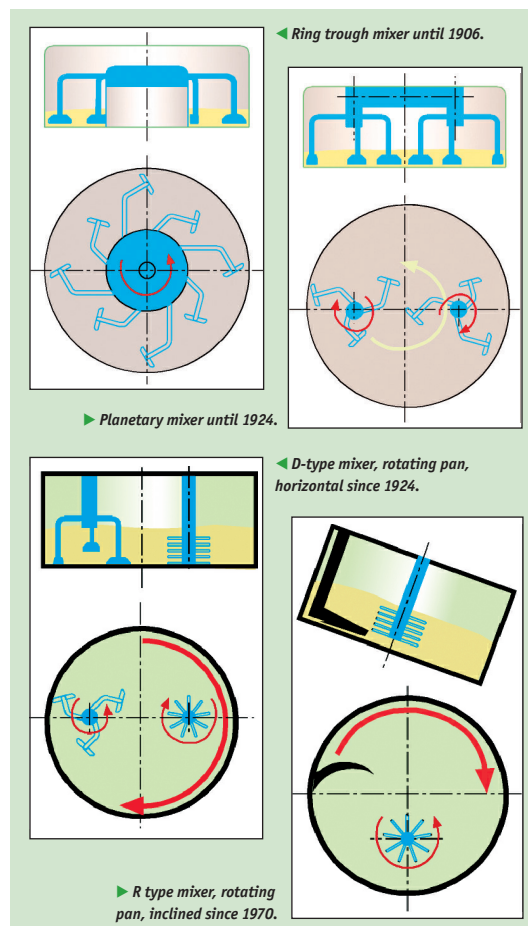
The rotating pan is arranged horizontally and the mixing star is positioned eccentrically. The mixing stars tools are arranged at different heights and provide both horizontal and vertical mix movement as a result of their inclined position and special shape. A higher degree of quality, or a reduction of one minute mixing time against ring trough mixing systems, is possible. Increased material filling height reduces the necessary wear lining surface, especially at the pan bottom.

The optional integrated agitator ensures separation and a reduction in mixing time of approximately 30 seconds.

R type intensive mixer (2 – 3000 litres)

This mixer has an inclined rotating mixing pan, an agitator that is positioned eccentrically to the pan and a fixed bottom wall scraper. The rotating mixing pan combined with the action of the bottom wall scraper ensures rapid homogenisation of the materials without any desegregation, effects known from plough shares or scraping mixer blades.

Both mixer types are emptied through a discharge opening in the centre of the pan bottom. Reversible vibratory tray feeders divert



the material stream to different production lines without any loss of building height.

The pan wall and bottom are lined with exchangeable segments. Because of low wear, both mixing types use standard milled steel. There is easy access to the few tools inside the mixer.

Productivity

One of the most important aspects of glass production is factory productivity. Energy consumption, reduction of CO₂ emissions, carry-over, wear of the refractory material and maintenance costs should be optimised.

High specific melting rates (SMR) can impact efficiency. Mixing effects within the furnace are based on chemical and physical processes and increasing the SMR is only possible to a certain degree. One way to extend this while maintaining product quality is to increase the degree of homogeneity in front of the furnace. Rotating pan mixers D and R represent the principle.

Granulated filter dust inside the Eirich mixers also helps to reduce carry over and dust free lead oxide enables better material handling. Palletised batch allows preheating.

* **Contact Dr Peter Miczajka and Dipl-Ing Harald Eirich, Maschinenfabrik Gustav Eirich, Hardheim, Germany. Tel: +49 62 83510. Fax: +49 62 8351 325. Email: eirich@eirich.de; Website: www.eirich.de**

Zippe batch plant for Arc International Dubai

It was a great honour for Zippe to have been selected by Arc International to supply the batch plant for its new tableware glass factory at Ras Al Khaimah in the United Arab Emirates. Zippe has installed a fully automatic plant on a rather small floor space supplying batch to feed the 150 tonnes per day furnace on call around-the-clock. The small floor space determined the compact tower form of the batch plant.

Raw materials are pneumatically filled into steel plate silos. A mechanical emergency system via bucket elevator and distributing screw feeder is provided. Weighing is carried out in three fully electronically operated container scales (2000 kg; 1500 kg; and 100 kg).

Homogeneous mixing occurs in a high-duty counter flow mixer with a volume of 2250 litres. Batch leaving the mixer is dumped into a storage hopper designed to feed a lorry transporting the batch to the furnace. The entire batch plant is commanded by an up-to-date electronic control system ensuring a trouble-free operation around 24 hours. A comprehensive documentation enables a transparent plant operation and remedy whenever required.

In May 2005 the batch plant was commissioned and since then has worked to the customer's entire satisfaction. Zippe would like to thank Arc International for having placed confidence in the company, and wishes Arc International every good success for its upcoming activities.

Contact Horst Moser, Zippe Industrieanlagen GmbH, Wertheim, Germany. Tel: +49 9342 8040. Fax: +49 9342 804138. Email: zippe@zippe.de; Website: www.zippe.de