

HARBURG-FREUDENBERGER MASCHINENBAU GMBH

Foundation

- 1942

Employees

- Approx. 240

Branches

- Mixing room equipment for rubber and plastic applications

Key products/services

- Internal mixers
- Dump extruders
- Automation systems
- Complete mixing lines
- Customised engineering



MIXING GROUP

Company

Applying our competence in mixing room technology to your Wood Plastic Composites and Natural Fibre reinforced Plastic compounds: Harburg-Freudenberger Maschinenbau, a company within the HF MIXING GROUP, is traditionally focused on the rubber business and so heavy duty internal mixers became one of the Key products.

Following the increasing interest for Wood Plastic Composites (WPC) and Natural Fibre reinforced Plastics (NF-P) as well as requests for new compounding technologies tailored to the special demands of these materials, Harburg-Freudenberger has recently developed very successfully mixing room solutions based on internal batch mixer technology with intermeshing rotor design.

Today our latest generation of machinery sets a new standard for the compounding of Wood Plastic Composites and natural fibre reinforced plastics. This development, combined with our specialized automation control system **ADVISE ES** and its functional modules **ADVISE ES Batch Temperature Limit Control** and **ADVISE ES Ram Position Profile**, has raised the bar in compounding.

All statements are based on intensive research and development work in our world-wide established R&D centre which is also available to our customers for proving their own compounds. Equipped with state-of-the-art mixing room technology we offer the opportunity to carry out mixing trials from laboratory to production scale. This provides our customers the possibility to confirm the capability of our machines under real production conditions before making an investment decision.

Besides Harburg-Freudenberger's internal batch mixer technology, Farrel Corporation, another company within the HF MIXING GROUP, again with a vast experience in mechanical engineering related to the Rubber and Plastics Industry has within its' product portfolio the Farrel Continuous Mixer (FCM) and Long Continuous Mixer (LCM) which have demonstrated their ability to successfully incorporate high levels of mineral fillers into various biodegradable polymers giving excellent dispersion whilst operating at low specific energy levels – offering potential for cost savings. Farrel also give the opportunity for customers to run their formulations on midsized production machine to verify product quality and scale up parameter to other equipment within the range. For further information regarding products of the Farrel Corporation please visit the homepage of the HF MIXING GROUP.



MIXING GROUP

Products

Innovative compounding technology for Wood Plastic Composites (WPC) and Natural Fibre reinforced Plastics (NF-P): Harburg-Freudenberger provides innovative and individually designed mixing room solutions based on internal mixer technology. The internal mixer technology is capable of incorporating high contents of fillers into various polymers. Typical fillers include, however, may not be limited to: wood flour, technical wood fibres, natural fibres such as kenaf, jute, hemp, cellulose etc. Depending on the plant configuration and the raw materials to be processed, throughputs of more than 3,000 kg/h per mixing line are possible.

Apart from the mixing line key components such as internal mixer and dump extruder, we also can provide the entire plant periphery from raw material feeding to ready packed granulate including PLC control system ADVISE CS and our automation system ADVISE ES. Turn-key solutions are possible as well.

Advantages of the internal mixer technology: The internal mixer technology has been well established in the rubber industry for many decades and also offers various advantages for the production of WPC and NF-P:

- High degree of automation guarantees excellent process control, process repeatability and process documentation.
- Fast and optimal adjustment of the process of each material by independently variable process parameters such as mixing time, rotor speed, time and order of addition, ram pressure, fill factor and temperature control.
- Equipment is highly flexible to different forms of natural fibres to be processed - no modification of the equipment configuration is required.
- Direct incorporation of biological raw material components in a one-stage mixing process without any pre-treatment – no pre-cutting or pre-drying process is required. Also raw materials with moisture content of more than 20% can be directly processed.
- Compounds having filler contents of more than 80% and moisture contents less than 1% can be achieved.
- No thermal degradation of the bio-fibre raw materials during compounding by the use of modern controllers and precise process control.
- Surplus or scrap plastic components can be directly introduced into the machine as recycled material – no pre-treatment required.
- Significantly better product properties and superior mechanical characteristics.
- Substantially lower absorbed water content of the final product checked against conventional processes.



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