

FrymaKoruma
› technology in motion

FrymaKoruma Frymix II
Vacuum processing unit for the pharmaceutical
and cosmetic industries



Vacuum processing unit

The Frymix II from FrymaKoruma is a further development of our successful Frymix vacuum processing technology. The system is designed to meet the stringent sterile application requirements of the pharmaceutical industry and the high quality emulsion and suspension demands of the cosmetic industry. And thanks to carefully defined energy introduction and a unique guide cone, the Frymix II is especially suited to shear-sensitive products.

The homogenizer is composed of an internal rotor-rotor colloid tool with an innovative guide cone. Consistent, reproducible, high product quality is assured and combined with high flexibility and reliability. Fully validated, the Frymix II offers an ideal environment for sterilisation (SIP).

Modular construction enables Frymix II to be individually adapted to your specific requirements. The system can be operated stand-alone or form the heart of a complex process. Flexibility is the key and each of the options available can be fully integrated, meeting all necessary process and safety standards.

Many years of application experience combined with extensive research and development form the basis for a processing unit which is perfectly tailored to cGMP requirements. The Frymix II has a wide useable volume range, allowing users the ability to run small or large batches on demand. Furthermore, the internal homogenizer offers precise control of shear energy introduction and therefore accurate control over particle and droplet size.

Homogenizer features

- /// Rotor-rotor colloid homogenizer
- /// Hygienic construction
- /// Graduated stator adjustment
- /// Variable shear energy introduction
- /// Internal product recirculation with positive guide cone

The adjustable vacuum system enables the in-feed of both liquid and dry raw materials and additives directly into the fluid mixing chamber beneath the homogenizer. The vacuum line is then fully cleaned for hygiene purposes.

The regulatory nature of cGMP manufacturing facilities requires a high degree of focus on product quality, system validation, and manufacturing record keeping. The Frymix II's automation system is available with varying levels of automation to match your specific requirements. The interface is intuitive and easy to navigate. From basic operations through automatic recipes and batch documentation the system allows you to optimize your process and production.



Colloid tool





Standard version

- /// Pressure vessel with agitator
- /// Vacuum system
- /// Homogenizer with adjustable milling gap
- /// Double jacket with insulation
- /// Heating and cooling unit
- /// Lid lifting device
- /// User-friendly control/visualisation

Options

- /// Various levels of automation
- /// Load cells and dosing units
- /// Comprehensive validation documentation
- /// ATEX compliance
- /// Full range of options available on request

Applications

- /// Sterile products
- /// Pharmaceutical agents
- /// High end cosmetics
- /// Creams, gels, ointments and parenterals

Key benefits

Batch time improvement

- /// Highly turbulent product flow (guide cone) combined with rapid mixing
- /// Efficient heating and cooling performance (dynamic thin film heat transfer)

Precise control of product quality

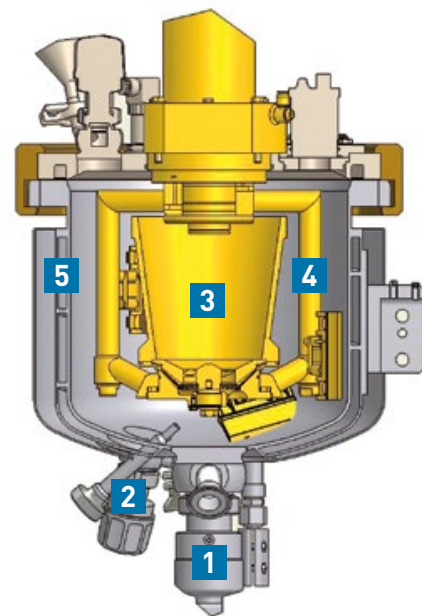
- /// Rotor-rotor design allowing "intensive shearing" to "shear-free"
- /// Accurate temperature control, even for small quantities
- /// Perfect particle and droplet size control
- /// Excellent deaeration thanks to thin film in the guide cone

Batch to batch repeatability

- /// Ideal flow conditions (no dead zones in the vessel)
- /// Recipe controlled production
- /// Excellent cleaning and sterilisation characteristics

Low cost of ownership

- /// High yield process
- /// Energy efficient (heating/cooling/homogenising/mixing)
- /// No mechanical seal in the processing area
- /// High efficiency motor



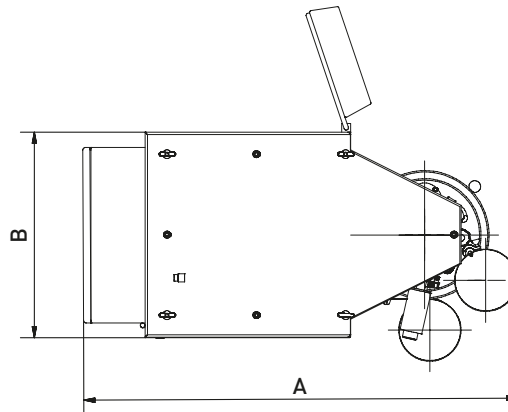
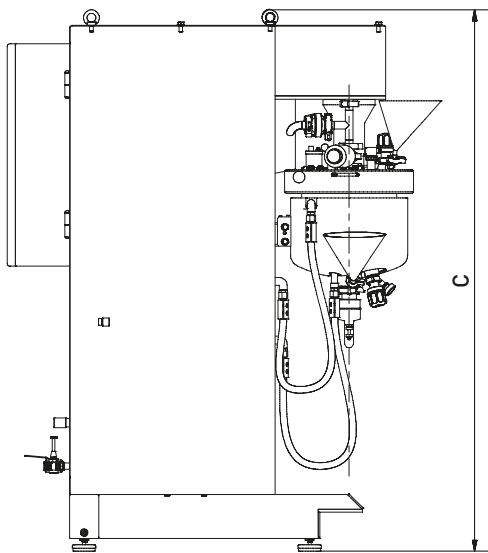
1 Product inlet/outlet

2 Product inlet

3 Homogenizer & guide cone

4 Scraper agitator

5 Heating & cooling



	Useable volume (l)	Installed power (kW)	Dimensions (mm)			Weight (kg), approx.
			Length A	Width B	Height C	
Frymix Lab	4-12	5	1500	700	1800	800
Frymix 50	15-50	12	1700	900	1900	1750
Frymix 120	40-120	20	2100	1300	2000	2300
Frymix 500	65-500	36	2500	1400	2200	4000
Frymix 1000	120-1000	56	2700	1500	2800	5800

For over 65 years, FrymaKoruma has been a leading international supplier of processing machinery and equipment for the pharmaceutical, cosmetics, food and chemical industries. Based in Germany and Switzerland, the company employs about 150 people. Our goal is not simply to meet all our customers' expectations without any ifs and buts; we also attach great importance to the development of long-term partnerships. Our pursuit of this objective is altogether successful – over 23000 installations are currently in use in more than 180 different countries.

Customer support

FrymaKoruma is more than just a supplier of machines and plant. As a customer focused partner for plant engineering, we take an idea and turn it into a high-tech solution that matches your requirements exactly – with installation, documentation and commissioning from one source. If you need to be further

convinced before you commit yourself, ProTec – our process technology and training centre – lets you do just that. Profit from our specialists' vast know-how and years of experience in the development of liquid and semi-solid products. In our well-equipped, modern laboratory, you can develop or optimize recipes, test machine models, scale up processes and produce test batches for pharmaceutical, cosmetics, food or chemical applications.

Our Customer Service, which is available worldwide, makes sure you continue to keep abreast of a constantly evolving market long after the development and manufacture of your plant has finished. It includes much more than simply maintenance, modifications and upgrading. We also advise and support you in all matters relating to your equipment, provide on-site training and stock a range of spare parts which can be shipped to you promptly.