

	Usable volume (l)	Installed power (kW), approx.	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

FRY.EN.FX.0411 © 2011 Romaco technical data subject to modification



For over 50 years, FrymaKoruma has been a leading international supplier of innovative process solutions for the pharmaceutical, cosmetic, food and chemical industries. Based in Germany and Switzerland, the company employs 200 people. The company's two principal areas of expertise are in one bowl vacuum processing for liquids and crèmes and in milling and grinding of materials from chemical pigments through to food ingredients. With over 23,000 installations worldwide, FrymaKoruma is undoubtedly the leader in its field, consistently setting the standards to which the market aspires. The company's enviable reputation and continuing success are based on the proven high performance and robustness of its equipment together with a desire to exceed customer expectation and build

long term relationships. FrymaKoruma is a Romaco Group company.

Customer support

FrymaKoruma understands that the scope of supply embraces much more than technology. Our team of highly skilled engineers work with you to develop a technical specification that exactly matches your requirements. From initial consultation through to installation and commissioning, FrymaKoruma offer a professional turn key solution.

At ProTec, our process technology center, customers have the opportunity to develop and optimize recipes in a modern laboratory, produce test batches, carry out scale-ups or take part in detailed training courses. Our experienced team of process

application technologists can guide customers through the development of everything from liquids to semi-solid products.

Our After Sales Service department, provide a comprehensive range of aftermarket products to ensure high availability and longevity for your equipment. Our team of technicians are able to offer on site maintenance and training to ensure high levels of effectiveness from your equipment. Furthermore, modifications and upgrades to plant which reflect changes in your business can be carried out on site. Our spare parts service is customer-orientated. We provide a high availability of spare parts which are promptly dispatched.

Romaco
FrymaKoruma

Sales
FrymaKoruma GmbH
Fischerstraße 10
79395 Neuenburg
Germany
Tel. +49 (0)7631 7067 0
Fax +49 (0)7631 7067 29

Service
FrymaKoruma AG
Theodorshofweg
4310 Rheinfelden
Switzerland
Tel. +41 (0)61 8364 141
Fax +41 (0)61 8364 169

frymakoruma@romaco.com
www.frymakoruma.com



Paper and printing ink from sustainable sources

 **Romaco**
EXCELLENCE THROUGH INNOVATION



FrymaKoruma Frymix II

Vacuum processing unit for the pharmaceutical and cosmetic industries

 **Romaco**
EXCELLENCE THROUGH INNOVATION



Colloid tool

Vacuum processing unit for the pharmaceutical and cosmetic industries

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

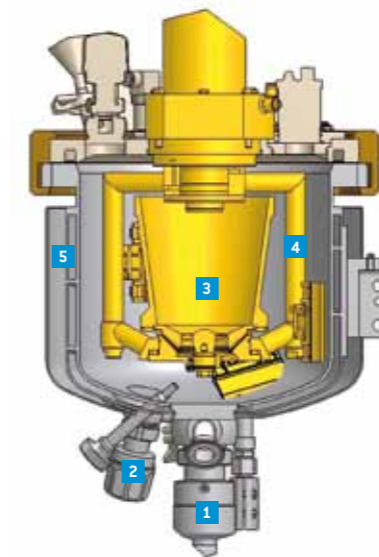
- ◊ Rotor-rotor colloid homogenizer
- ◊ Hygienic construction
- ◊ Graduated stator adjustment
- ◊ Variable shear energy introduction
- ◊ Internal product recirculation with positive guide cone



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.

- 1 Product inlet/outlet
- 2 Product inlet
- 3 Homogenizer & guide cone
- 4 Scraper agitator
- 5 Heating & cooling



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

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



Frymix II