

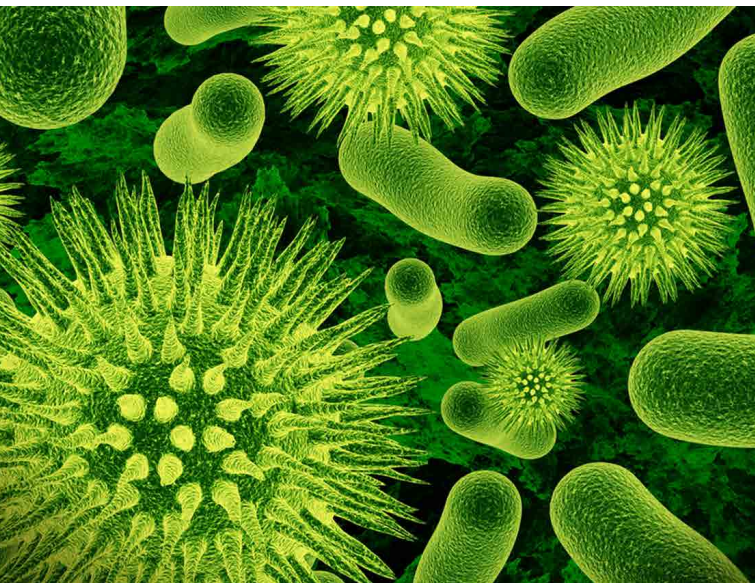


GEA Pharma Skids

Plug & play homogenizers for the
Pharma industry

Turnkey solutions in cell rupture and nanoparticles

Ultra-clean homogenizer systems for pharmaceutical and biotech productions



Today, pharmaceutical, biotech and even chemical manufacturers are demanding safe and ultra-clean turnkey solutions, able to work in aseptic conditions and fully compliant with all pharmaceutical requirements and regulations. Each Pharma Skid features a highly customized homogenizer, allowing a wide range of applications up to 1,500 bar.

Our skids are able to achieve excellent results: effective particle size reduction, maximum efficiency and optimal yield in cell rupture. Nanoparticle and nanoemulsion production skids allow excellent performances and energy saving, compared to other systems. Any unit is suitable for the realization of batch and continuous flow processes, which are often used for pharma emulsions and dispersions, liposomes, personal care and biotech applications.



Flow passage through the homogenizing valve

Main advantages:

- Maximum efficiency and optimal yield in cell rupture
- Energy saving in nanoparticles and nanoemulsions production
- The complete skid is fully compliant with all pharmaceutical requirements, Gmp5 and cGMP regulations
- Suitable for batch and continuous flow processes (pharma emulsions and dispersions, liposomes, personal care and biotech applications)

Automated Pharma Skids to meet your needs

Custom-equipped plug & play skids with GEA Ariete homogenizers facilitate demanding production steps and make new processes possible



Pharma Skid Homogenizer 2006

Find the right skid for your production

Pharma Skids are available for homogenizers able to process from 35 l/h up to 1,100 l/h. In their standard configuration, they are composed of feed pump, homogenizer and electrical power board and they have a long list of available options to easy-fit any customer's need. Optionally, they can be equipped with a product cooling system, with a tubular heat exchanger before and after homogenization, in order to cool down the product back to the inlet temperature value. They also can be cleaned (CIP) and sterilized (SIP) in place.

From lab to industry, evolution takes its place

The growing success of plug & play laboratory skids has taken GEA to a new project step: developing Pharma Skids also for industrial homogenizers. Our specialized engineer teams have studied and designed high-pressure skid solutions according to customers' needs. Suitable materials are selected according to each application, in order to always guarantee reliable and long-lasting components.



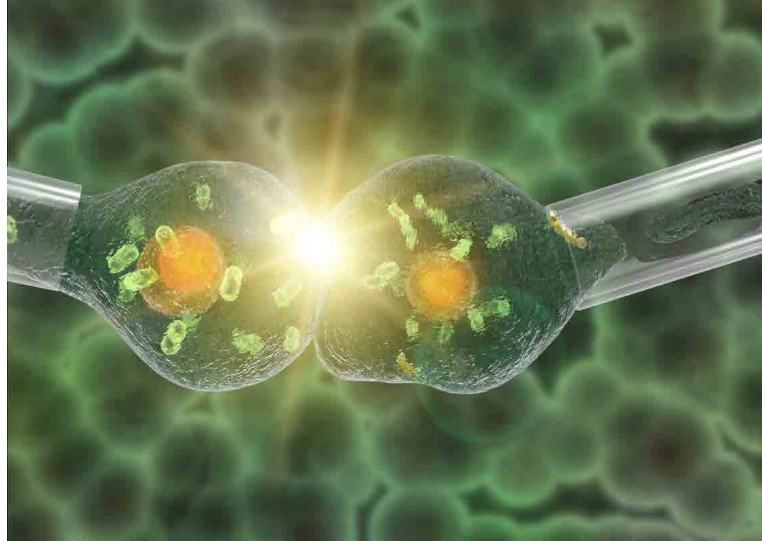
Customized and flexible Pharma Skid homogenizer 3015, able to homogenize 250 l/h at 1,500 bar

cGMP

FDA

A[®]
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Gamp



GEA HIGH PRESSURE SKID PLUG & PLAY SYSTEMS

	Pharma Skid Homogenizer 2006	Pharma Skid Homogenizer 3006	Pharma Skid Homogenizer 3015	Pharma Skid Homogenizer 3030
Pressure Range (bar)	700 - 1,500	700 - 1,500	700 - 1,500	700 - 1,500
Capacity Range (l/h)	35 - 80	50 - 120	250 - 600	330 - 1,100
Variable Capacity	Optional	Optional	Optional	Optional
CIP-able	Yes	Yes	Yes	Yes
SIP-able	Yes	Yes	Yes	Yes
Aseptic execution-able	Yes	Yes	Yes	Yes
Dimensions* (mm) (Width x Length x Height)	1,800 x 1,475 x 1,760	1,800 x 1,475 x 1,760	2,000 x 1,650 x 2,130	2,600 x 1,650 x 2,130
Net weights* (kg)	750	850	1,200	1,500
Gross weights (kg)	1,000	1,100	1,475	1,700

*Dimensions and weights refer to the whole double trolleys skid and can change according to machine-specific configuration

Main Features:

- Adjustable capacity for different batch sizes
- Product cooler available after and before the homogenizing valve
- Temperature measurement at inlet, outlet of the homogenizer and outlet of the cooler
- Digital recording of process data (nominal capacity, pressure and temperatures) suitable also for validated processes under cGMP regulations
- Process parameters recording and data storage according to 21 CFR Part 11
- Dust control system for clean room
- FAT/SAT/IQ/OQ protocols available with engineer support and customization if needed
- FAT includes, upon request, homogenizer tests for CIP (Riboflavin) and SIP procedures
- PLC and HMI control the whole system (process parameter monitoring and regulation, system safety functionalities)
- Tailor-made Pharma Skids are customized according URS



Take advantage of our knowledge

Our experts assist each customer in establishing the maximum-value process solution

Expert's support guarantees validation

For pharmaceutical formulations under qualified conditions, we supply the full documentation package and support for qualification (IQ/OQ) on site. From the initial feasibility study and throughout the entire life cycle of the machine, our clients are supported by skilled personnel, offering customized solutions, product tests (FAT-SAT) on the machine, and the documentation required to secure the most stringent certifications (Gamp5, cGMP EUGMP – US GMP).

Get the best performance

Customer services guarantee constant updates, high quality spare parts availability, customer training on the machine to maximize machine operating condition. After-sales service includes also maintenance programs to optimize original spare parts investments, minimizing the risk of downtimes while improving machine efficiency.

Innovation & Technology Center at customer support

Innovation & Technology Center, located next to the GEA homogenizers production plant, provides more and more groundbreaking answers and skills. Our experts are regularly supporting customers to evaluate their processes needs; for this reason the homogenizing valve is configured and selected by GEA to meet the best performance for that specific applications.





We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

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