

**ENERGIZING PHARMA.  
ENERGIZING YOU.**

# GEA in the pharma industry

## Core technologies

- Distillation & fermentation
- Drying & particle processing
- Granulation
- Homogenization
- Liquid processing
- Membrane filtration
- Product handling
- Separation
- Tablet compression

## Integration expertise

- Automation
- Utilities
- Service



# PHARMA SEPARATORS SKID

Plug&play homogenizers  
for the Pharma industry

Parma, July 2022



# Highly customized: GEA pharmaceutical skids



Pharmaceutical skids perfectly designed for standard and customized requirements

Maximum safety, maximum yield, perfect fit to your process.

# GEA – Kytero

## Single use centrifuge

1 new design –  
3 × benefits for your operation



**Maximum  
cell harvesting**

**Batch-ready in  
5 min**

**Friction-free  
drive**

- Easy and time-saving operating concept
- Mobile plug & produce unit – fit for every cleanroom!
- Minimum set-up and changeover time (5 min for preparation)
- No utilities required (no water, no buffers, no tanks etc.)
- Convenient batch recording optionally available
- Gamma-treated cartridges optionally available

# GEA separation solutions in pharma production

## Centrifuges in downstream processes for:

- Monoclonal antibodies (mAb)
- E-Coli
- Insulin
- Human and veterinary vaccines
- Starter cultures and probiotic products
- Human blood plasma
- Recovery of extracellular and intracellular enzymes
- Neutraceuticals
- Therapeutical proteins
- Extraction
- and many more



# PHARMA HOMOGENIZERS SKID

Plug&play homogenizers  
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# GEA Homogenizers in Pharma & Biotech Industry

- A more stable dispersion of the active ingredients enhances the drug tolerance and decreases the dosage
- Enhanced clinical effectiveness due to improved bioavailability
- Reduced particles size down to nanometers, thus allowing the preparation of injectables
- No use of solvents or chemical to break the cell wall
- No further costly purification of the collected material



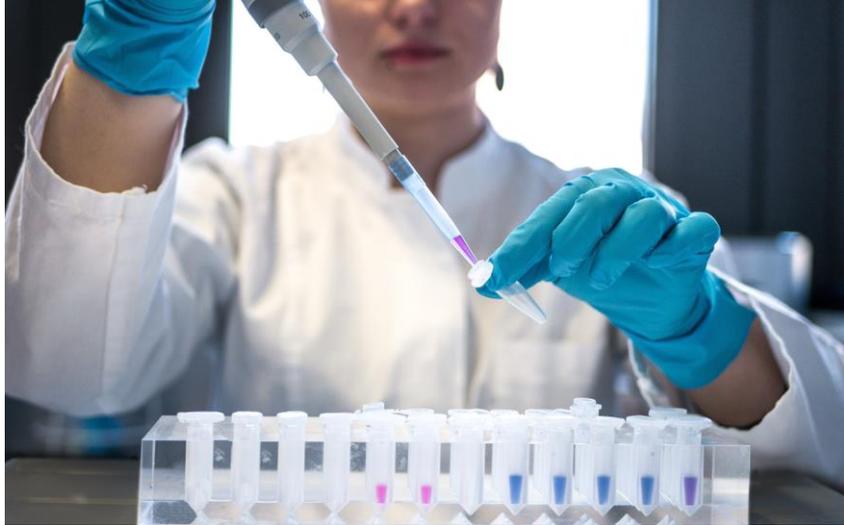
Homogenization guide in Pharma and Chemical applications

## Pharma & Biotech

- Ingredients
- Medicinal syrups
- Nutritional products
- Intravenous emulsions
- Inhalation products
- Liposomes
- Ophthalmic products
- Parenteral emulsion
- Gels
- Syrups
- Vitamins
- Enzymes
- Vaccines
- Antibiotics
- Cell rupture
- Ointments

# GEA Homogenizers in Chemical Industry

- Enhanced product properties and colour intensity in many pigments and paints
- Increased polymery chain
- Enhanced emulsion quality
- Minimized or even eliminated need for catalysts
- Improved chemical reaction by reducing reaction time and temperatures
- Suitable for viscosity control in the petrochemical industry



Homogenization guide in Pharma and Chemical applications

## Chemical

- Cellulose
- Chemical slurries
- Clay dispersion
- Paraffin emulsions
- Preservatives
- Waste water sludge
- Lubrication Oil
- Colorants
- PaintsPolymers
- Resins
- Latex
- Starches
- Waxes
- Grease
- Ink
- Fuel oil
- Detergents
- Pesticides

# TABLE TOP UNITS

- GEA PandaPLUS Lab Homogenizer 1000 (1,000 bar 20 l/h )
- GEA PandaPLUS Lab Homogenizer 2000 (2,000 bar 9 l/h)
- GEA TwinPANDA Lab Homogenizer 400 (400 bar 55 l/h)
- GEA TwinPANDA Lab Homogenizer 600 (600 bar 30 l/h)
- GEA TriplexPanda Lab Homogenizer 400 (400 bar 100 l/h)
- GEA TriplexPanda Lab Homogenizer 600 (600 bar 60 l/h)

GEA  
PandaPLUS  
Lab  
Homogenizer



GEA  
TwinPANDA  
Lab  
Homogenizer



GEA  
TriplexPanda  
Lab  
Homogenizer





**GEA Pharma Skid  
homogenizer 2006**



**GEA Pharma Skid  
homogenizer 3030**



**GEA Pharma Skid  
homogenizer 3006**



**GEA Pharma Skid  
homogenizer 3015**

## **Pharma Skid homogenizers**

# FLOW COMPONENTS FOR PHARMA APPLICATIONS

Energizing pharma. Energizing you.



# Our product lines



## GEA HYGIENIC PUMP TECHNOLOGY

A COMPREHENSIVE SELECTION OF HYGIENIC PUMPS WITH SMART-SIZED, HIGH-EFFICIENCY MOTORS AND FLOW PATHS OPTIMIZED FOR EFFICIENT, SAFE AND SUSTAINABLE OPERATION.



## GEA HYGIENIC VALVE TECHNOLOGY

A COMPLETE PORTFOLIO OF SOPHISTICATED HYGIENIC VALVES FOR ALL TASKS REQUIRING HIGH PRODUCT QUALITY AS WELL AS HIGH EFFICIENCY.



## GEA CLEANING TECHNOLOGY

INDEX, ORBITAL, ROTATING AND STATIC CLEANERS IN A COMPLETE RANGE DEVELOPED TO SAVE VALUABLE RESOURCES IN THE CLEANING PROCESS.



## GEA ASEPTIC VALVE TECHNOLOGY

ULTRACLEAN AND ASEPTIC VALVES SUPPORT APPLICATIONS THAT REQUIRE HIGHER PROTECTION AGAINST CONTAMINATION AND ENSURED MICROBIAL STABILITY.

# SUPPORTED APPLICATIONS

GEA COMPONENTS ENSURE SAFE AND EFFICIENT OPERATION ACROSS ALL SECTIONS OF OF PHARMA PROCESS LINES:

- **PRODUCT DISTRIBUTION AND STORAGE**  
HYGIENIC VALVES, PUMPS AND CLEANERS
- **SYSTEMS FOR EFFICIENT CLEANING AND PRODUCT RECOVERY**  
CIP + SIP SYSTEMS, CLEANERS, PRODUCT RECOVERY
- **HANDLING OF SENSITIVE PRODUCTS**  
GENTLE TRANSPORT THROUGH OPTIMIZED VALVE AND PUMP DESIGN
- **ASEPTIC PROCESSING AND FILLING**  
SPECIAL ASEPTIC VALVES AND FILLING SYSTEMS
- **INTEGRATION OF PROCESSES BY VALVE AUTOMATION**  
DIGITAL VALVE MONITORING AND OPERATION

GEA COMPONENTS ARE THE BACKBONE OF FUTURE-PROOF BIOPHARMA PROCESSES

- WATER TREATMENT, STORAGE AND DISTRIBUTION
- CIP-WATER AND MEDIA, PURIFIED WATER, WATER FOR INJECTION
- PRODUCT & MEDIA PREPARATION AND DISTRIBUTION SYSTEMS
- UPSTREAM & DOWNSTREAM PROCESS SUPPORT
- PROCESS UNITS: FERMENTATION, FILTRATION, SEPARATION, CHROMATOGRAPHY
- FINAL FILL AND FINISH OF INJECTABLES



# STERILE PUMPS FOR PHARMA

## GEA STERILE PUMPS

- RELIABLE OPERATION - ENSURED PLANT VALIDATION AND PLANT INTEGRITY
- RELIABLE CLEANING WITH OPTIMIZED CIP/SIP
- OPTIMIZED DRAINABILITY
- NO CASTED COMPONENTS IN CONTACT WITH THE PRODUCTS = NO BLOWHOLES OR CAVITIES



## ADVANTAGES WITH EVERY PUMP

- NO DEAD LEGS
- ALL WETTED PARTS ELECTRO-POLISHED
- FULLY DRAINABLE IN VERTICAL POSITION AND OR BY DRAIN VALVE
- MULTIPLE CONNECTION OPTIONS
- ROUGING PREVENTION
- EXTENSIVE CUSTOMER- AND REQUIREMENT-SPECIFIC DOCUMENTATION AND CERTIFICATES

# HYGIENIC VALVE TECHNOLOGY

## WE OFFER:

VARIVENT® SEAT VALVES

VARIVENT® VALVES WITH A SPECIAL  
FUNCTION

HYGIENIC BUTTERFLY VALVES

VARICOVER® PRODUCT RECOVERY SYSTEMS

VARITOP® TANK SAFETY SYSTEMS

VARINLINE® PROCESS CONNECTIONS

VARICOMP® EXPANSION COMPENSATORS

T.VIS® CONTROL AND FEEDBACK SYSTEMS

LOTO VALVE SAFETY SOLUTIONS





# ASEPTIC VALVE TECHNOLOGY

## WE OFFER:

D-TEC® STEM DIAPHRAGM TECHNOLOGY

VESTA® PTFE BELLOWS TECHNOLOGY

ASEPTOMAG® STAINLESS STEEL BELLOWS TECHNOLOGY

ASEPTOMAG® MAGNETIC SEPARATORS

LOTO VALVE SAFETY SOLUTIONS

T.VIS® CONTROL AND FEEDBACK SYSTEMS

# Cleaning Technology

Static, rotating and orbital cleaners as well as monitoring systems available for safe and secure pharma applications.

**Our portfolio of tank cleaners is as diverse as the applications and requirements:**

- HPLC columns
- Disinfection fluid tanks
- Fermentation vessels
- Batch vessels
- Mixing tanks

## Advantages with every cleaner

- Orbital Cleaners designed for most efficient cleaning of small and mid-sized vessels
- Perfect for challenging cleaning tasks in various applications in the pharma industry.
- Large selection of spray patterns, materials and surfaces
- Minimal capital investment
- No maintenance required



**GEA** Engineering  
for a better  
world.

[GEA.com](http://GEA.com)