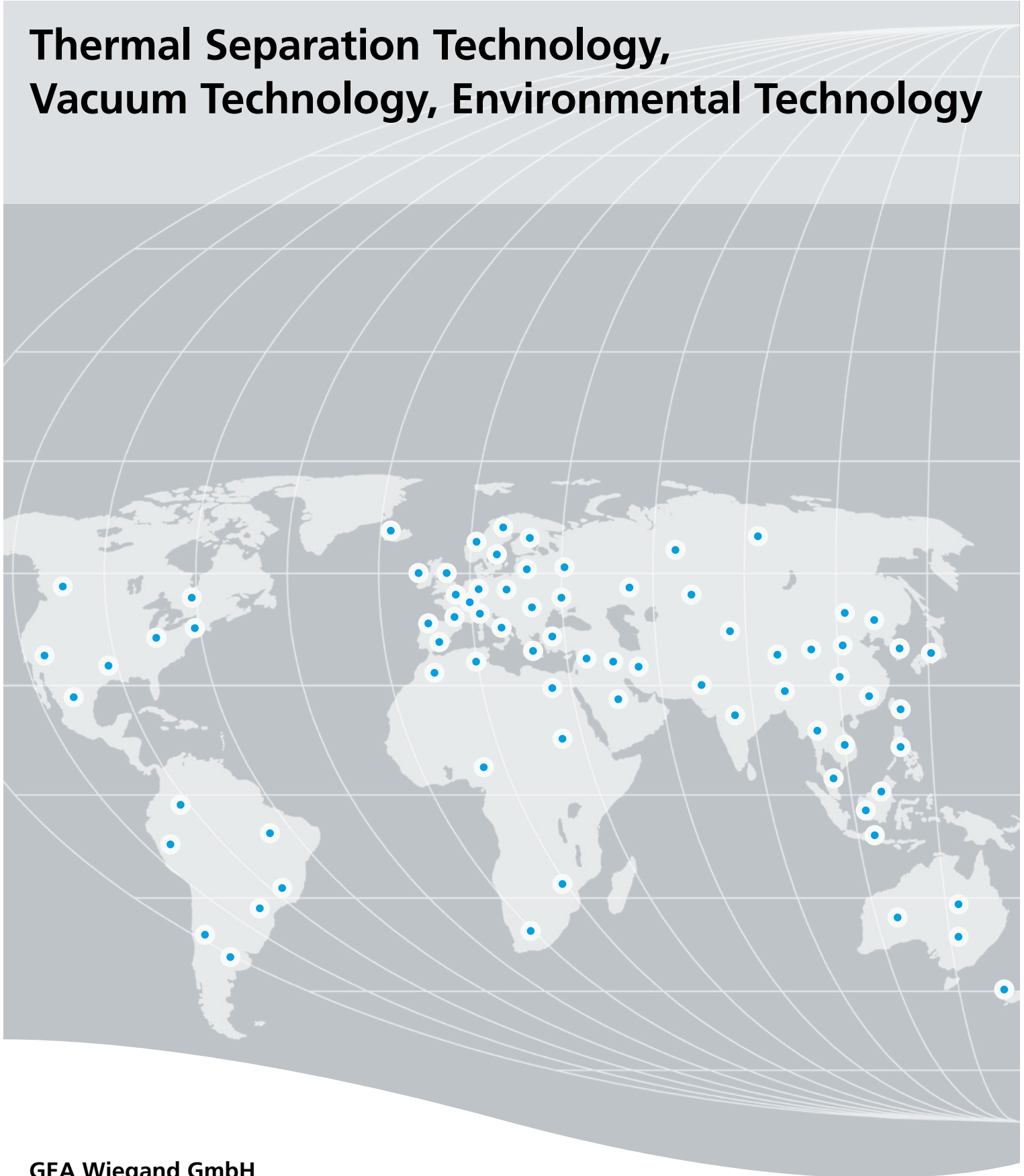


# Thermal Separation Technology, Vacuum Technology, Environmental Technology



# Introducing GEA Wiegand

## DESIGN, CONSTRUCTION AND SUPPLY

GEA Wiegand designs, manufactures and supplies evaporation plants, distillation plants and membrane filtration units, jet pumps, vacuum systems and gas scrubbing plants for the chemical and pharmaceutical industries, the food industry, for power stations and environmental technology. Full process plants for the production of ethanol complete our range of products. More than 200 members of staff are employed in Ettlingen and Karlsruhe doing complete engineering of our plants. Our work spans the entire project from the inquiry, design, construction and manufacture right through to the delivery, quality control and commissioning of the plant, up to the after-sales service.

## INNOVATIONS

Our company's expertise is based on more than 100 years of continual experience in the fields of research and development, design, project management and commissioning. This means more than one century of successful market and customer-oriented product development according to the latest technological standards.

## RESEARCH AND DEVELOPMENT

In our research and development centre located in Karlsruhe, new processes are developed, and existing processes and equipment are optimised. We research into new fields of application and determine data for the design of equipment and plants to meet the particular requirements of the individual customer. The results of our intensive research and development are reflected in numerous patents both in Germany and abroad. All GEA Wiegand jet pumps are checked on the test bench either directly or in simulation models of identical construction. With this check we ensure that the delivered jet pumps meet the customer's specification.



## MANUFACTURE

GEA Wiegand does not only plan and develop technical plants, but also partly manufactures them in the company-internal workshop in Beckum. Our design and fabrication departments work closely together. In this way, knowledge in the field of practical application complements the competence, efficiency and the technical know how of our engineers.

## INTERNATIONALLY ORIENTED

GEA Wiegand plants are to be found in many different areas of industry both in Germany as well as abroad. We sell our products through a well organized network of GEA Wiegand sales offices. GEA Wiegand is represented by affiliated companies and agents in many countries throughout the world.

## QUALITY

GEA Wiegand customers can rely on maximum possible precision and reliability. Our entire company was certified according to the international DIN ISO 9001 standard and we have certifications for the most important technical standards all over the world.

# Thermal Separation Technology and Membrane Technology



## EVAPORATION PLANTS

GEA Wiegand is one of the world leaders in the manufacture of evaporation plants for the concentration of all types of liquid food, organic and inorganic solutions and effluent. Depending on the particular requirement, we install a wide variety of evaporators, in tube or plate evaporator design. These plants are complemented by the additional equipment which is necessary for heating, cooling, degassing, crystallization, rectification and condensation.

## DISTILLATION AND RECTIFICATION

We supply distillation plants of any shape and size for the separation of compound mixtures, for gas stripping and for the recovery and cleaning of solvents. In so doing, we use any proven column system such as packed columns or tray columns with sieve, bubble caps, tunnel or valve trays.

For the production of alcohol, we design complete processing lines which cover all stages from treatment of the raw material, fermentation, distillation and stillage processing right through to steam drying.

## MEMBRANE FILTRATION

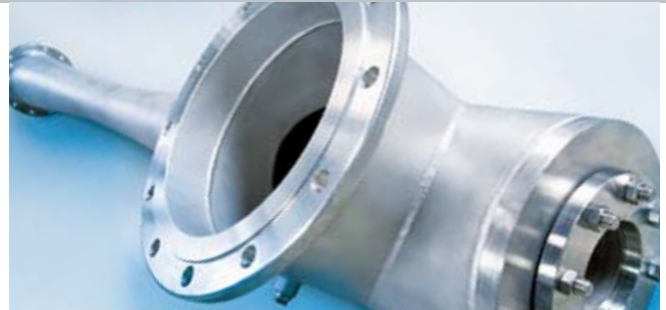
Based on the technology of GEA Filtration, GEA Wiegand delivers all common filtration plants, such as micro-filtration, nano-filtration, ultra-filtration and reverse osmosis, focusing on applications in the chemical and pharmaceutical industry.

## APPLICATIONS

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- **Chemical and pharmaceutical industry**  
lye, organic and inorganic acids, saline solutions, amine, alcohol, mineral oil products, glycerine, fatty acids, methyl ester, synthetic products, pharmaceutical solutions, solvents, effluents.
  - **Industrial sector – organic, natural products**  
fermentation broths, glue and gelatine, emulsions, extracts, stillage, steep water, press water, organic effluent, blood, liquid manure.
  - **Food industry**  
fruit juices, plant juices, protein juices, starch products, sugar, extracts, coffee, yeast, hydrolysates.
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# Vacuum Technology



## JET PUMPS

GEA Wiegand delivers jet pumps for compressing, conveying, heating and mixing gases, solid matters and liquids. These jet pumps do not have any moving parts and are therefore nearly maintenance-free. They are manufactured from various metals and corrosion-resistant materials and are able to handle any flow rate.

Typically, jet vacuum pumps are used in the generation and maintenance of vacuum in reactors, boilers, columns, evaporators, condensers, dryers and mixers. Jet pumps are even used as heat pumps. They can be used to heat evaporator effects by means of vapour recompression.

Areas of application are the chemical and petrochemical industries, the pharmaceutical sector, power stations, the steel industry, and the food industry.

## STEAM JET VACUUM SYSTEMS

Multi-stage jet vacuum pumps using steam as motive medium are constructed for suction pressures of up to 0.01 mbar and for suction capacities of up to 2 million m<sup>3</sup>/h. There is no limit to the variety of applications for jet vacuum pumps within a defined suction capacity and suction quantity. It is even possible to combine them with mechanical vacuum pumps.

The use of product vapour as motive medium for jet pumps plays an increasingly important role in the production of polyester, foil and textiles. In this way, GEA Wiegand designs completely closed systems which are characterized by their ecological and economic efficiency.

## VACUUM COOLING PLANTS

The vacuum cooling plants represent a specialty among the jet pump systems. Vacuum cooling plants are used to cool a liquid directly without any additional refrigerant by means of flashing into the vacuum.

GEA Wiegand designs and manufactures plants for the cooling of acids, lyes, suspensions and liquid food.

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## APPLICATIONS

- Distillation of raw oil
  - Steel degassing
  - De-aeration of sea water evaporators
  - Deodorisation of vegetable oil, oil drying
  - Polymerisation of plastics
  - Conditioning of food stuffs and luxury foods
  - Suction for spinning baths
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# Environmental Technology



## JET SCRUBBERS AND VENTURI SCRUBBERS

Jet and Venturi scrubbers are the most effective scrubbers for wet cleaning. They provide the ideal means for the absorption of noxious materials, dust separation, and for the saturation and cooling of gases and the condensation of steam.

Our gas scrubbing plants for process and environmental technology ensure that the individual production stages accord with one another thereby guaranteeing a high purity of discharged air and low amounts of residual product.

## PLANTS FOR THE TREATMENT OF EFFLUENT

GEA Wiegand's effluent treatment by means of thermal-mechanical separation processes provides very economical solutions, even for the difficult cases.

Evaporation plants are used for the treatment of effluent containing oil originating from metal-processing companies and heavily contaminated effluent from other sectors of waste disposal. The plants are complemented by membrane filtration systems, crystallization and rectification equipment, ammonia strippers and other components.

Depending on the application, small effluent quantities are exclusively treated in membrane filtration plant.

## APPLICATIONS

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- Chemical process water, washing and rinsing water
  - Recovery of solvents in the chemical and pharmaceutical industries
  - Effluent from waste disposal firms, vat and tank cleaning and paint production
  - Photographic, pickling and galvanizing effluent
  - Organic effluent from different industries
  - Washing, steep and press water from the food industry
  - Cleaning of process exhaust gases
  - Neutralization of chlorine gas from chlorine-processing companies
  - Paint mist separation in paint workshops
  - Exhaust gas cleaning downstream of incineration plants
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# Overview on our Range of Products

## **Evaporation plants**

to concentrate any type of fluid food, process water, organic and inorganic solutions and industrial waste water; with additional equipment for heating, cooling, degassing, crystallization and rectification.

## **Membrane filtration – GEA Filtration**

to concentrate and process fluid food, process water industrial waste water, to separate contaminations in order to improve quality and recover valuable substances.

## **Distillation and rectification plants**

to separate multi-component mixtures, to recover organic solvents; to recover, clean and dehydrate bio-alcohol of different qualities.

## **Alcohol production lines**

for potable alcohol and dehydrated alcohol of absolute purity; integrated stillage processing systems.

## **Condensation plants**

with surface or mixing condensers, to condense vapour and steam/gas mixtures under vacuum.

## **Vacuum / steam jet cooling plants**

to produce cold water, to cool liquids and product solutions, even of aggressive and abrasive nature.

## **Jet pumps**

to convey and mix gases, liquids, and granular solids; for direct heating of liquids; as heat pumps; and in special design for the most diverse fields of application.

## **Steam jet vacuum pumps**

also product vapour driven; also in combination with mechanical vacuum pumps (hybrid systems); extensive application in the chemical, pharmaceutical and food industries, in oil refineries and for steel degassing.

## **Heat recovery plants**

to utilize residual heat from exhaust gases, steam/air mixtures, exhaust steam, condensate and product.

## **Vacuum degassing plants**

to remove dissolved gases from water and other liquids.

## **Heating and cooling plants**

mobile and stationary plants for the operation of hot-water heated reactors and contact driers.

## **Gas scrubbers**

to clean and remove dust from exhaust air, to separate aerosols, cool and condition gases, condensate vapours and absorb gaseous pollutants.

**Project studies, engineering for our plants.**



Process Engineering

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