



Just one source

**E=ebner**  
engineering | manufacturing | establishing

# PLANTS APPARATUS ERECTION



family owned since 1965.

- Company
- Technology
- Manufacturing
- Service
- Market - Reference





## Company: Key figures

EBNER is an independent, medium-sized and family-managed company that is active in the field of plant- and apparatus construction, with its own future-oriented Know-How.

### JUST ONE SOURCE.

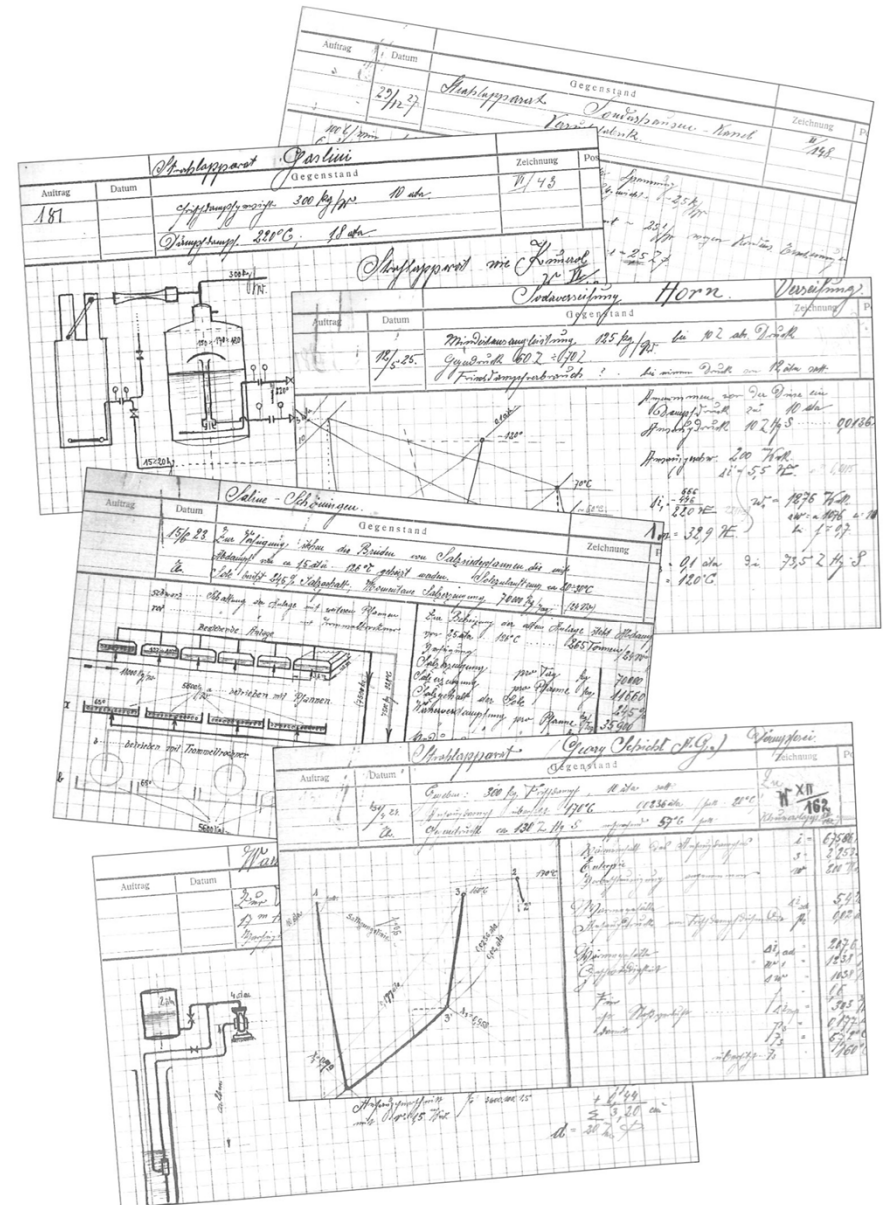
For more than 50 years we plan, manufacture and sell worldwide.

Our market is the environmental and finishing technology, with particular emphasis on the treatment and evaporation of industrial waste waters and process media as well as the production of crystalline products. We provide economic processes, plants and apparatus for the benefit of our clients and improving the environment.

Company area: about 60.000 m<sup>2</sup>

Production area: about 6.000 m<sup>2</sup>

Solar park area: about 3.000 m<sup>2</sup>

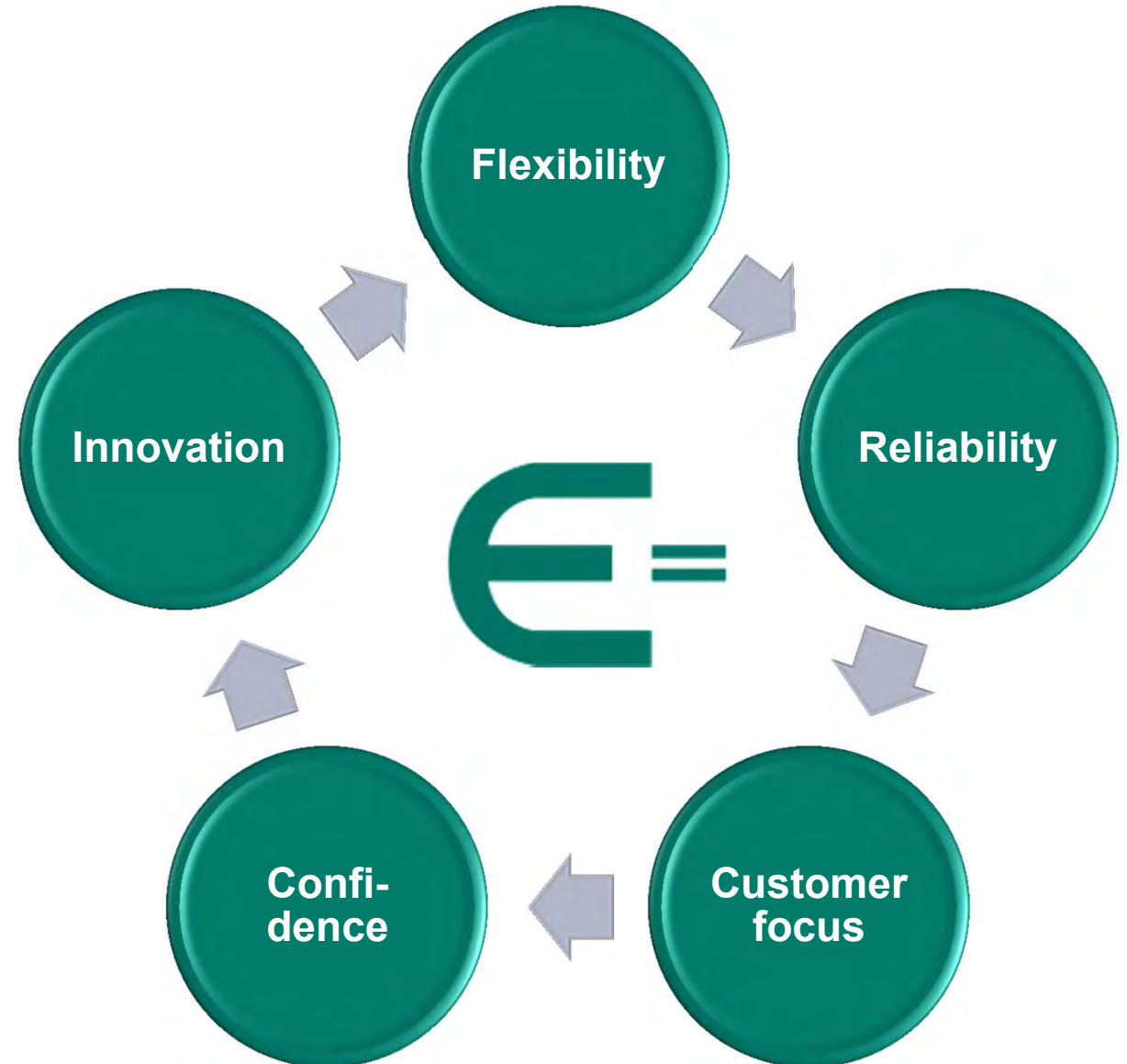


**Company: Staff**

The key factors of our success are executives and employees with high level of professional and social competence.

Our commitment as well as the appreciation of our clients and employees ensure our success.

In doing so, we improve and develop ourselves in all divisions on a constant basis in order to meet the increasing expectations of our clients.



# Company: Certificate



DIN EN ISO 9001



AD2000 HP0 / DIN 3834-2



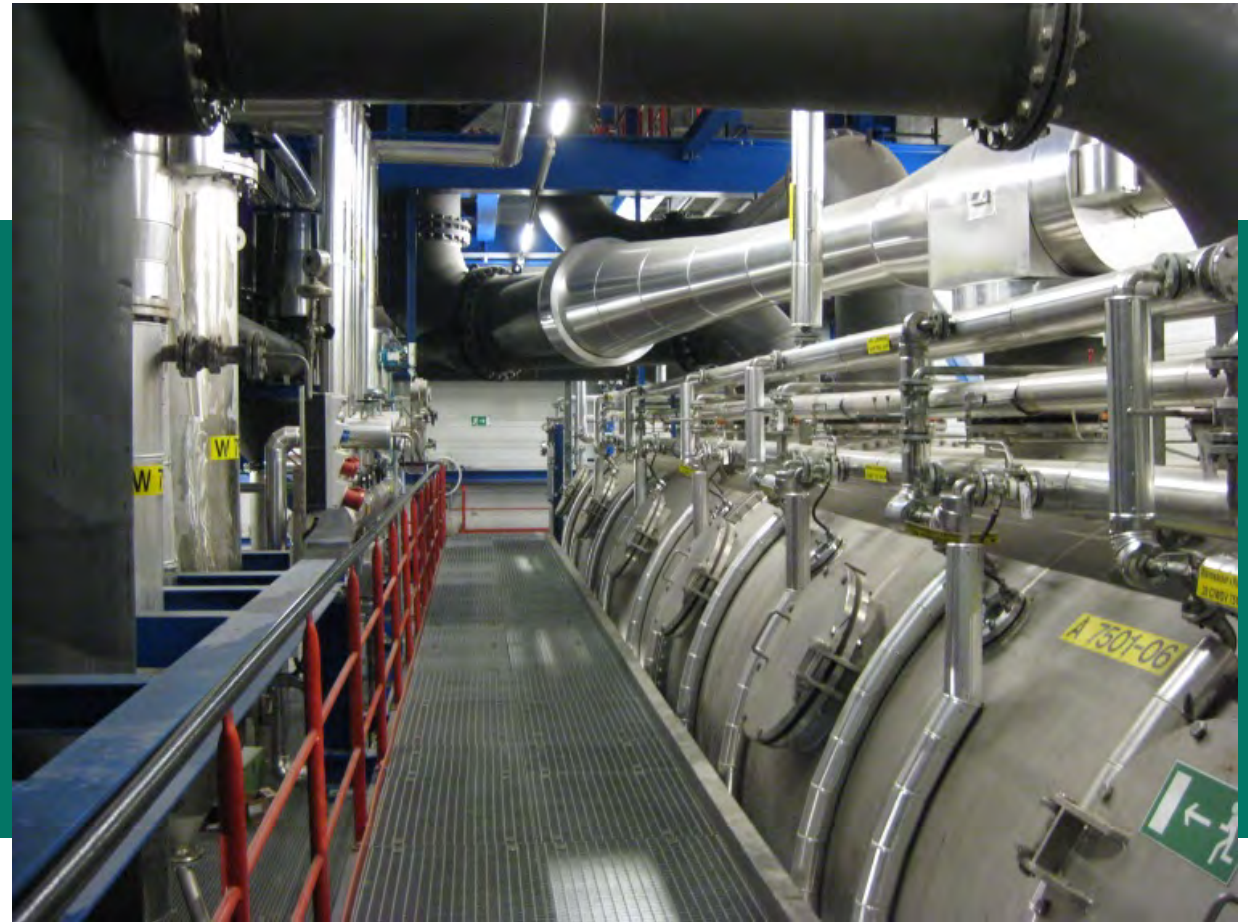
Specialised Company  
§ 19I WHG

The following certificates can be supplied for containers and equipment manufactured by **EBNER** and delivered to the Eurasian Economic Union: TR EAWU 004/010/020/020/032 and GOST 2.601 and 2.610

GOST & TR EAWU



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**Technology: Performances**

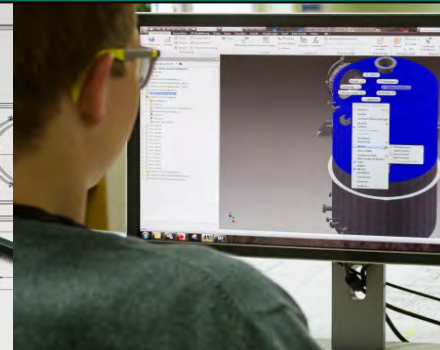
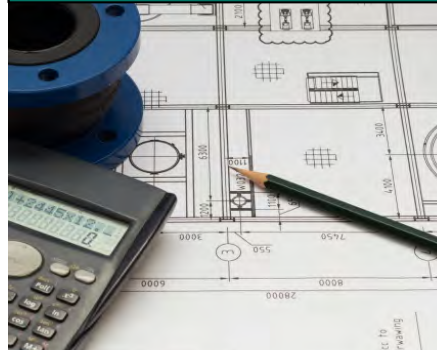
**Plants**



**Apparatus**

**Basic-, detail- & EMSR-engineering  
workshops & erection**

**Engineering**



**Design**

**Erection**



**Start-up and after-sales-  
service**

**We stand for:  
reliability, flexibility and overall competence**



## Technology: Performances

### Engineering Services

- ✓ Basic- and detail engineering
- ✓ Process- and P&I-flow sheets
- ✓ List of bill of material, pipelines as well as fittings and valves
- ✓ Electric-, process-, measuring- and control engineering
- ✓ Specification for mechanical equipment
- ✓ Process- and mechanical design of apparatus





## Technology: Performances

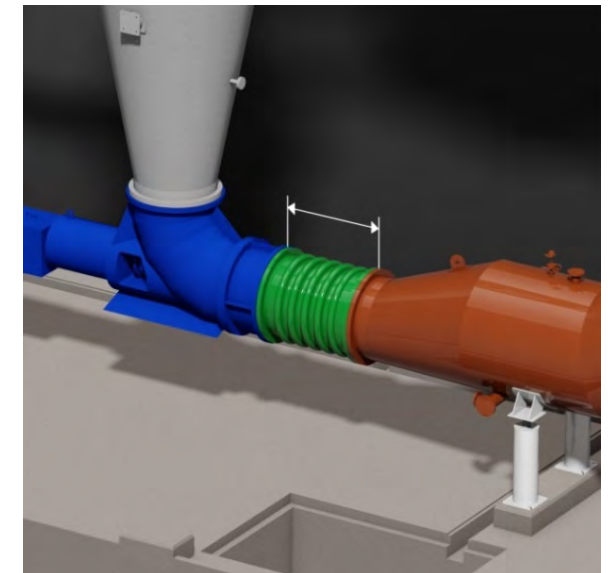
### Construction

- ✓ Apparatus workshop drawings
- ✓ Detail – layout plans (3D)
- ✓ Construction- + steel structure drawings
- ✓ Determination of all loads
- ✓ Pipeline planning including isometric drawings



### EBNER uses most modern CAD-systems of Autodesk

- ✓ AutoCAD
  - ✓ AutoCAD P&ID
  - ✓ AutoCAD Plant 3D
  - ✓ Inventor
- and **tools** for electrical as well as process- and control engineering
- ✓ EPLAN PPE
  - ✓ EPLAN PREPLANNING for project engineering



## Technology: Apparatus

According to the slogan „*individual service, best quality and reliability*“

**EBNER** treats all standard steel an stainless steel **such as:**

Unalloyed steel, 1.4301 (304 (AISI)) / 1.4410 (S32750 (AISI)) / 1.4501 (S32760 (AISI)) / 1.4571 (316Ti (AISI)) /  
1.4539 (Alloy 904L) / 1.4529 (Alloy 926) / 1.4462 (Alloy 31803) / 1.4562 (Alloy 31) **and more**

As well as speical materials **such as:**

Hastelloy® / Monel / Titanium / Graphite / Aluminium bronze / Inconel® / Copper- and Nickel alloys



**Heat exchanger** Ø 3.150 mm, tube length 9.000 mm, 113 t



**Evaporator** Ø 6.000 mm, overall length 15.000 mm, 55 t



## Technology: Apparatus



**Flash evaporator** Ø 3.500 mm, steel/rubber lined



**Reactor** Ø 3.500 mm, 1.4539



**Separator** Ø 700 mm, 1.4462

**Crystallizer part** Ø 1.800 mm, steel/rubber lined



**Stirring tank** Ø 2.400 mm, 1.4571

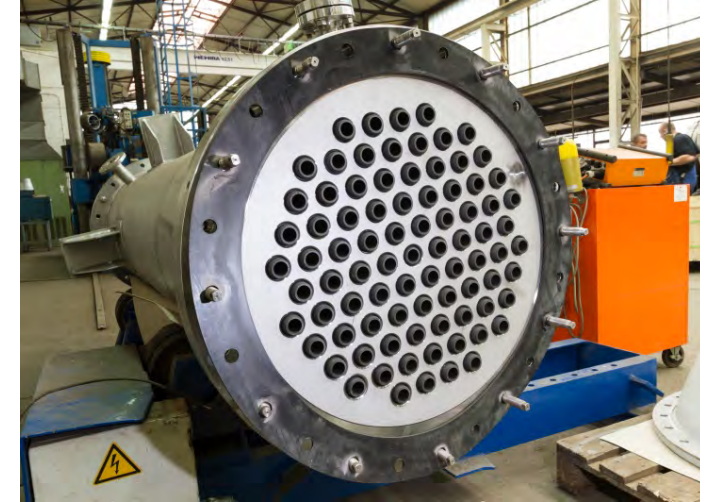


**SMR Reaktor** Ø 1.000 mm, SA 516 GR.60

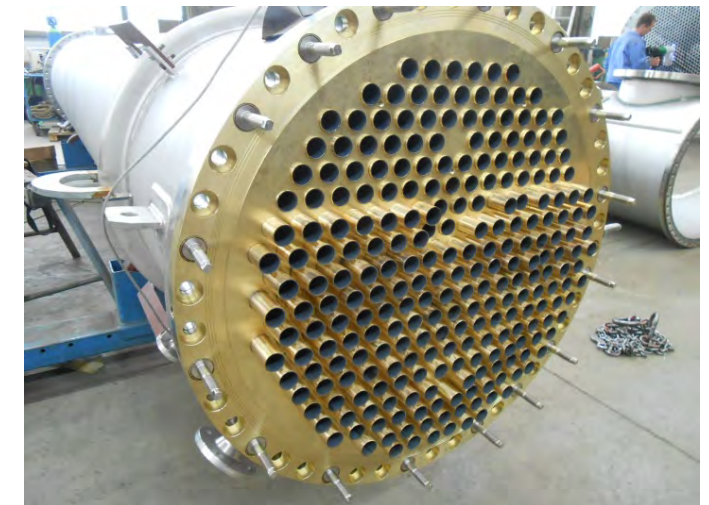




**Technology: Apparatus**



**Heat exchanger in various materials such as Monel, Titanium, Graphite**





**Technology: Apparatus**



**Oleum condensator** Ø 1.650 mm, 1.4571



**SMXL-High pressure mixer**  
 Ø 250 mm 1.4404 ASME mit U-Stamp



**Plume-condensator** Ø 1.800 mm, 1.4541

**Condensator with pullable bundle**  
 Ø 610 mm, 1.4571



**Flow modifier** Ø 950 mm, 1.4404



**Pre-heater** Ø 350 mm, 1.4539





**Technology: Apparatus**



**Site fabrication and mounting (Austria)**  
Evaporation crystallizer  $\varnothing$  6.400 mm, overall length 18.700 mm, 56 t, 1.4562

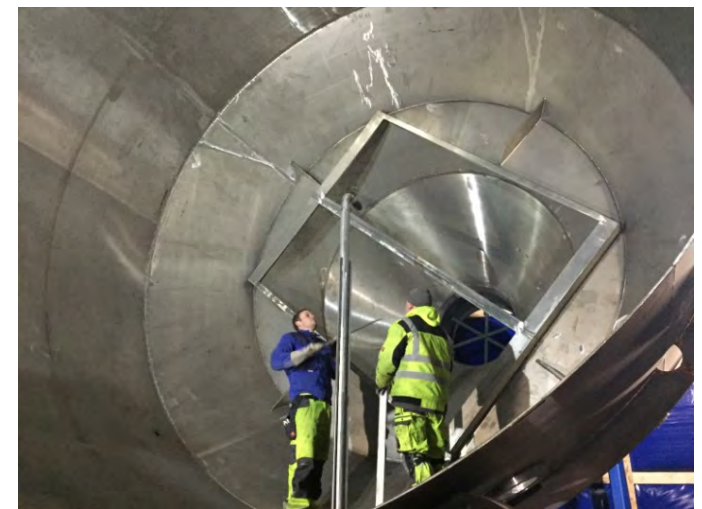




**Technology: Apparatus**

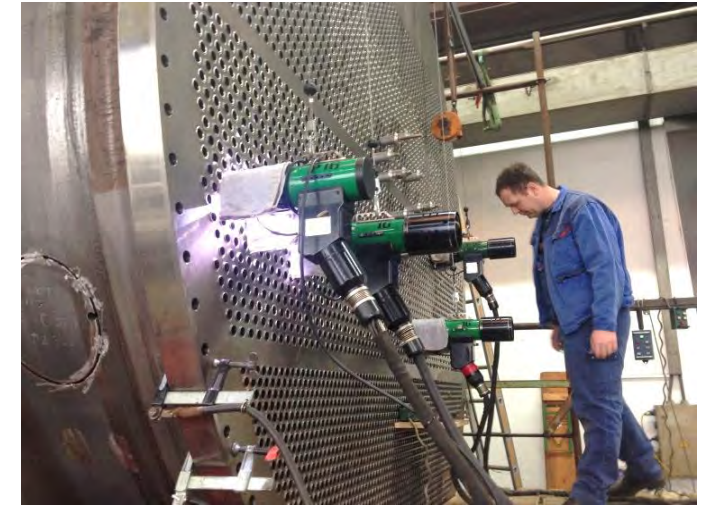


**Site fabrication and mounting (Russia)**  
**Evaporating crystallizer Ø 5.400 mm, overall length 21.800 mm, 40 t, 1.4562**





## Technology: Apparatus



**Manufacturing and mounting (Netherlands)**  
**Sea water condenser Ø 3.650 mm, overall length 10.000 mm, 40 t, 1.4462/P355GH**





## Technology: Apparatus

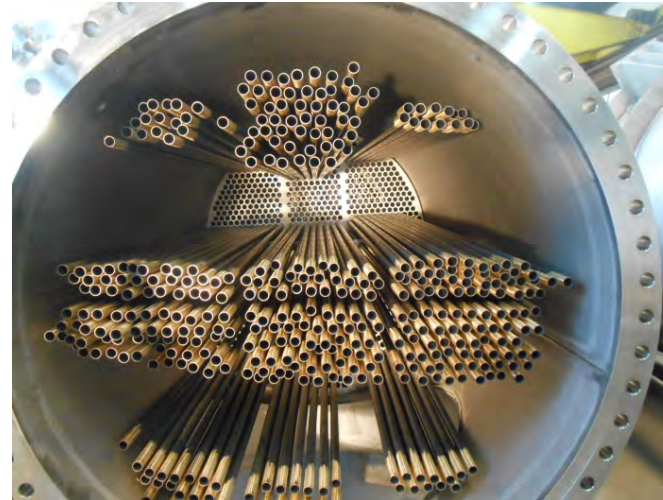


**Manufacturing and mouting of agitator tanks incl. EMSR-Technology (Germany)**  
Ø 2.200 mm - Ø 3.000 mm, overall length 5.700 mm, weight 7 - 11,6 t, Steel

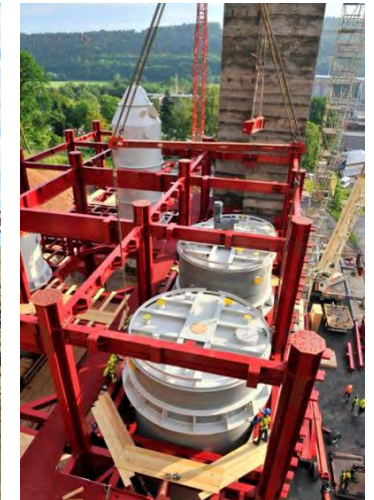




## Technology: Plants



Manufacturing, transport and erection of various plant components

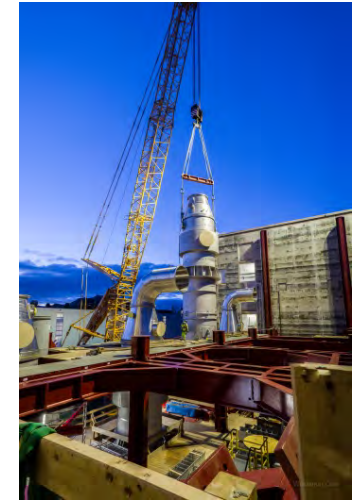




## Technology: Plants



**Heat exchanger** Ø 3.100 mm, overall length 17.640 mm, weight 113 t  
A special transport on air cushions was necessary



## Technology: Plants

### Reference project



### Plant type:

Evaporation crystallization  
with mechanical vapour compression

### Characteristics:

Optimal operability, high efficiency, easy  
maintenance concept

### Capacity:

88 m<sup>3</sup>/h feed

68 t/h water evaporation

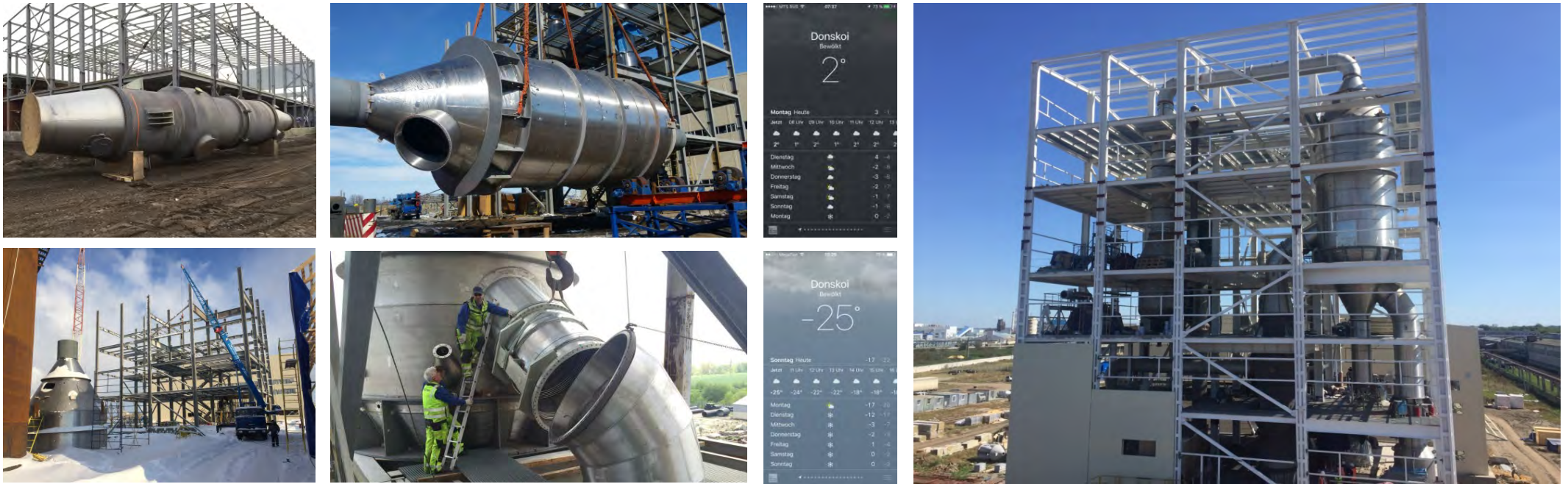
21 t/h salt production (NaCl)

### Installed in:

Russia



## Technology: Plants



### Site fabrication of the crystallizer (Russia)

The conditions were difficult

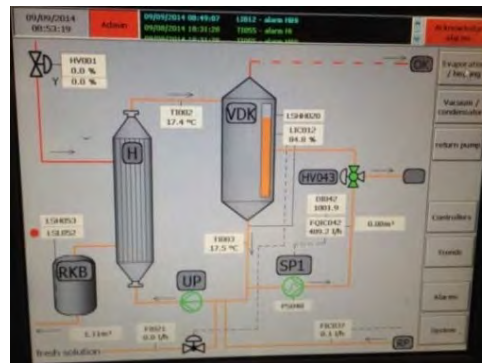
- a building did not exist
- fabrication has been carried out inside a tent
- prevailing temperatures were between + 2 °C and – 25 °C





## Technology: Plants

### Mobile pilot plant



### Plant type:

Mobile evaporation or evaporation crystallization plant

### Characteristics:

Transportation to the place of use worldwide is possible on a standard semi-trailer

### Capacity:

ca. 0,4 m<sup>3</sup>/h feed

ca. 300 kg/h water evaporation

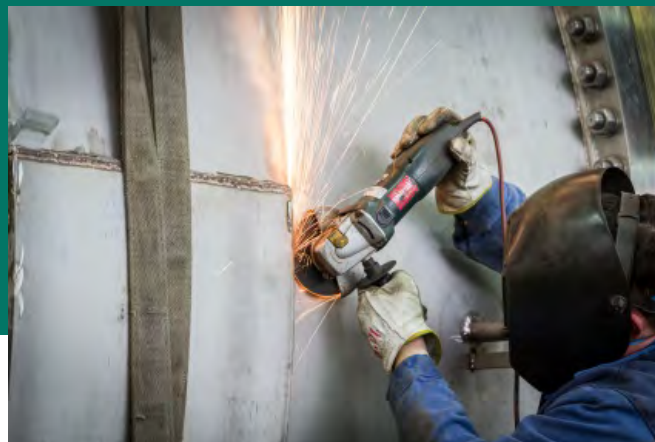
ca. 150 kg/h salt production

**This plant is available in our company for renting.**

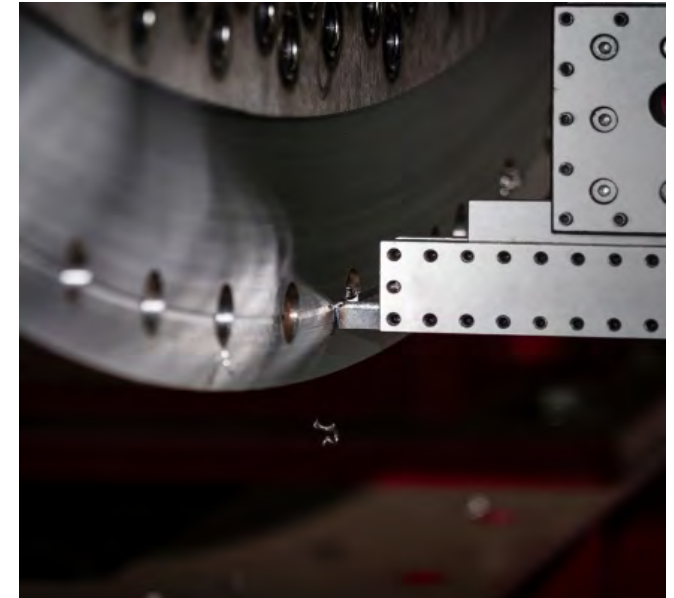
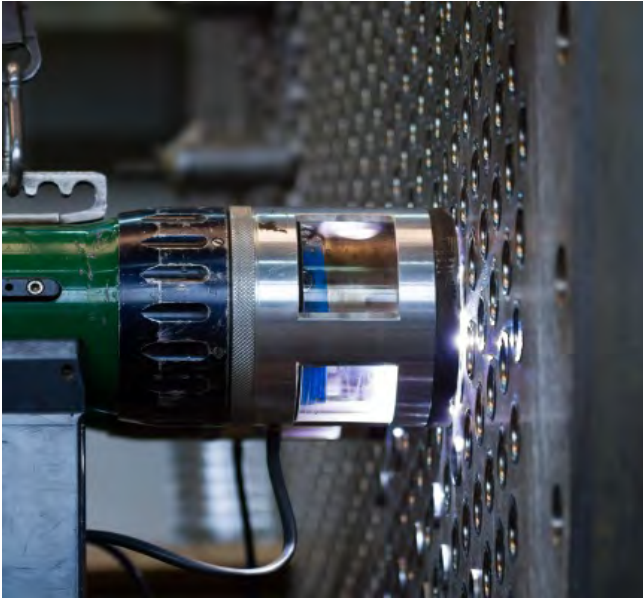
**Please contact us!**



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## Manufacture: Equipment



- ✓ Plasma longitudinal seam welding machine
- ✓ UP-welding mast
- ✓ Tube welding machines (WIG)
- ✓ Metall protective gas welding (MAG+MIG)
- ✓ Protective gas welding (WIG)
- ✓ Non-destructive test equipment
- ✓ Plate rolls

- ✓ Tube expander
- ✓ CNC-drilling machine / CNC-milling machine
- ✓ Boring mill
- ✓ Vertical turning lathe / Turning lathes
- ✓ Plasma-shearing equipment
- ✓ Tube bending machines / Profile bending machines
- ✓ and further...



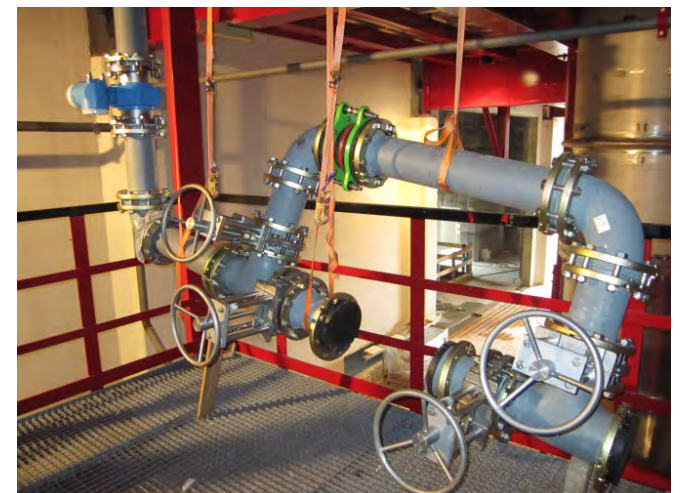
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**Service: Erection**



Our assembly team is integrated in the fabrication sector and involved in the erection work for flexible solutions from project to project  
**EBNER assemblers continue the work, where others stop.**





## Service: Erection



We coordinate the cooperation with specialised companies for:

- ✓ Earth- and concrete works
- ✓ Steel structure
- ✓ Transportation of components
- ✓ Crane work
- ✓ Insulation
- ✓ Painting



We undertake the entire handling and coordination of erection work.  
Benefits for you: **Cost- and time savings**

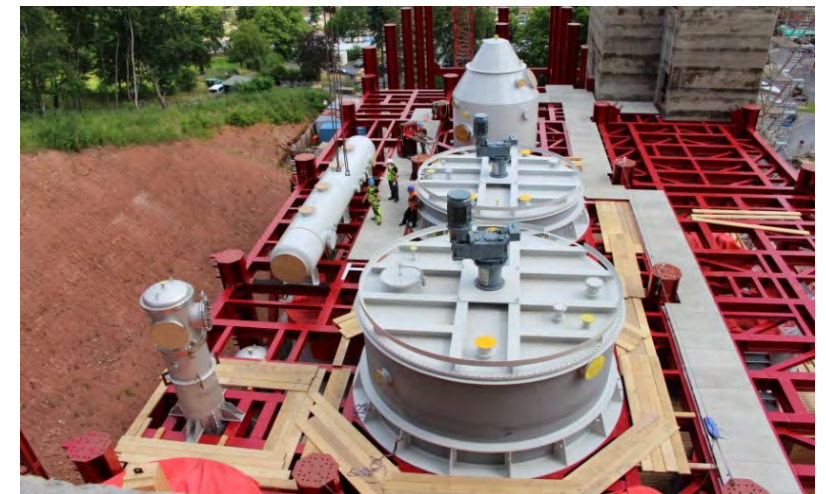




**Service: Erection**



**EBNER – assemblers work in a structured manner following a predefined timetable. Assembly work worth millions were already completed in timely manner and to full satisfaction of the customer.**



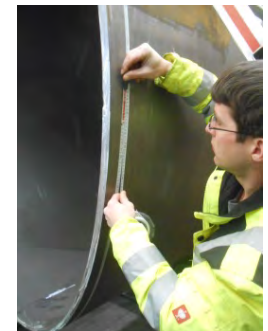
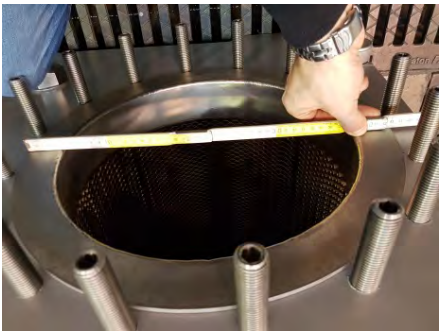


**Service: Erection**



Beside the standard erections of plants and plant components the following focuses are our distinguishing marks:

- ✓ Assembly of sensitive, rubberlined or coated equipment parts and pipelines
  - ✓ Inspections for recurring tests (e.g. TÜV)
- ✓ Wall thickness measurements for detecting corrosion attacks
- ✓ Local replacement of pipes of existing heat exchangers (among others fragile graphite pipes)
  - ✓ All welding works





**Service: Start-up**



Check of electrical, process- and control systems



pressure and leakage test



Vacuum test



Cold commissioning



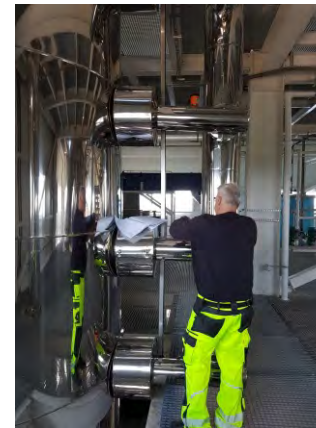
Warm commissioning



Test run



Performance test





- Company
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## Market – Reference: Excerpt of substances being processed till now

### Degassed substances:

Air  
H<sub>2</sub>S  
CS<sub>2</sub>  
CO<sub>2</sub>  
SO<sub>2</sub>

### Evaporated substances:

Aluminate liquor  
Aluminium sulphate solution  
Ammonium rhodanide solution  
Ammonium sulphate solution  
Black liquor  
Calcium chloride solution  
Caprolactam  
Cellophane bath  
Filament fiber spinbath  
Glycerin-water mixture  
Iron sulphate solution  
Kerosene-oil mixture  
Laktam-water  
Mixed bath  
Normal fiber spinbath  
Oil mixture  
Picking bath

Polynositic fiber spinbath  
Potash lye  
Potash magnesia solution  
Radioactive waste water  
Salinen waste water  
Silver nitrate solution  
Sodium aluminate solution  
Sodium carbonate solution  
Sodium chloride solution  
Sodium sulphate solution  
Sodium sulphite solution  
Special fiber spinbath  
Titanic oxide solution  
Waste water  
White spirit  
Wolframat solution  
Zinc chloride solution

### Crystallized substances:

Ammonium chloride  
Ammonium rhodanide  
Ammonium sulphate  
Carbon disulfide Carnallite  
Carnallite  
Copper sulphate pentahydrate  
Diammonium phosphate  
Glaserite  
Glauber's salt  
Hexamethylentetramin  
Iron sulphate heptahydrate  
Iron sulphate monohydrate  
Kainite  
Langbeinite  
Magnesium sulphate  
Magnesium sulphat heptahydrate  
Metal salt  
Mixed salt  
Monoammonium phosphate

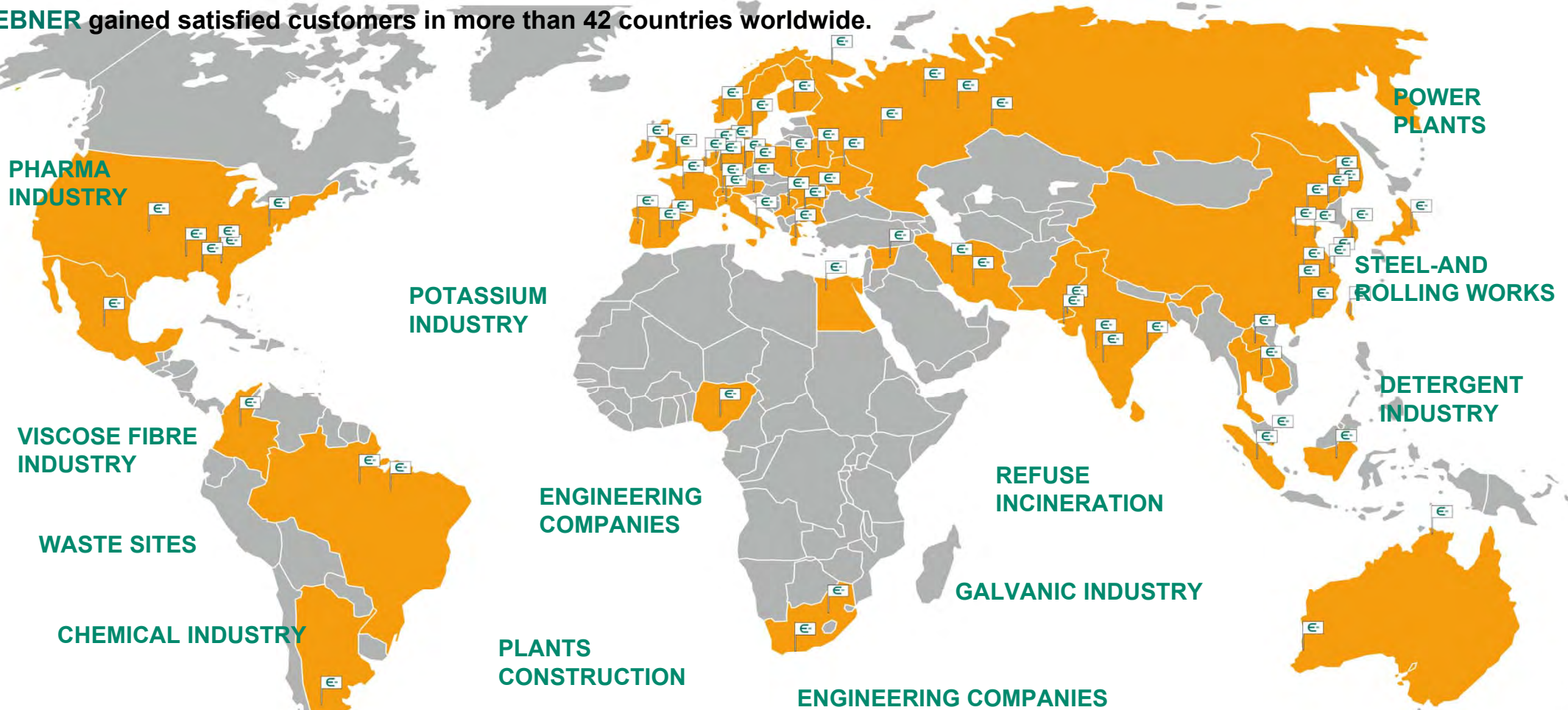
Monopotassium phosphate  
Nickel sulphate  
Nickel sulphat hexahydrate  
OAT  
Organic salts  
Potassium chloride  
Potassium sulphate  
Schoenite  
Sodium aluminate  
Sodium carbonate  
Sodium chloride  
Sodium thiocyanate  
Sodium sulphate  
Sodium sulphite  
Strontium nitrate  
Thiourea  
Wolframat salt  
Zinc sulphate heptahydrate

With the plants projected till now over 34 aqueous solutions are processed and more than 35 salts are produced with a complete capacity exceeding 16 million tons per year.



## Market – Reference: Supplier countries

EBNER gained satisfied customers in more than 42 countries worldwide.



Australia	Brazil	Czech Republic	Germany	Indonesia	Laos	Nigeria	Portugal	South Korea	Syria	USA
Austria	Bulgaria	Egypt	Great Britain	Iran	Malaysia	Norway	Romania	Spain	Taiwan	Yugoslavia
Belarus	China, P.R.	Finland	Greece	Ireland	Mexico	Pakistan	Russia	Sweden	Thailand	
Belgium	Colombia	France	India	Italy	Netherlands	Poland	South Africa	Switzerland	Ukraine	

## Market – Reference: Excerpt of our list of clients



Customer satisfaction is our main goal