



# CHEMISTRY AND ENERGETICS

# PACOVSKÉ STROJÍRNY

- **PACOVSKÉ STROJÍRNY** is a traditional and dynamic Czech company with a leading position on the Czech mechanical engineering market and a significant presence on international markets.
- We are a significant player on the Czech market with a significant share in foreign markets and an important supplier of complex technological and processing units designed for pharmaceutical, food, chemical, energy and power industries.
- The company's product portfolio consists a several specialized divisions offering the highly professional processing of high-grade stainless steel materials and copper products.
- The history of production at **PACOVSKÉ STROJÍRNY** dates back to 1876 when a coppersmith and boilermaker workshop was founded in Pacov by the Hradecký family. The workshop was one of the first pillars of mechanical engineering in the region on the border of the Bohemian-Moravian Highlands and South Bohemia.
- In addition to the original production and repair of agricultural equipment and the production of distilleries, the company soon began to also focus on other industries, especially the food industry. In response to this expansion, a new plant was built between 1957 and 1963 at the present address.
- In 1991, **PACOVSKÉ STROJÍRNY**, joint stock company, Pacov, was established. The company's manufacturing program draws upon its long tradition, while undergoing significant innovations reflecting the requirements of both domestic and international markets.
- In May 2013, the company became part of the **SAFICHEM GROUP**, whose members operate in the food, chemical and pharmaceutical industries and in power engineering.
- In January 2024, the company became part of the **CHARVÁT Group**.
- For more details you can see [www.pacovske.cz](http://www.pacovske.cz)

## The company's product portfolio includes a wide range of specialised divisions

Pharmacy



Food industry



Chemistry and Energetics



Breweries and minibreweries



Others:  
Technological process units  
Industrial and small distilleries  
Storage tanks and boilers etc.



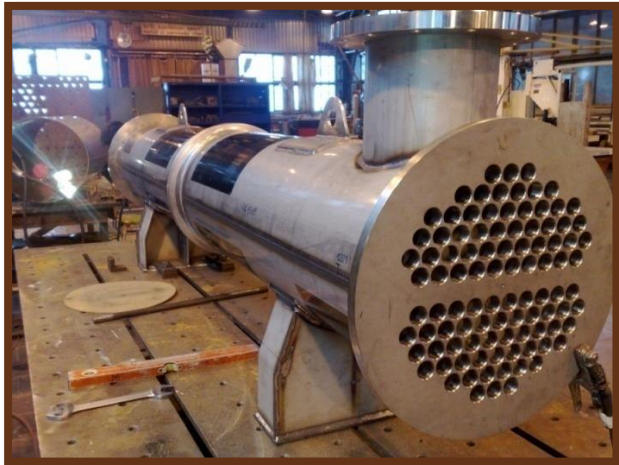
# CHEMISTRY AND ENERGETICS

- Pressure and non-pressure vessels
- Tube heat exchangers
- Vacuum vessels
- Transport containers
- Jacketed tanks
- Reactors
- Autoclaves
- Agitators
- Filtration devices
- Water heaters and storage vessels





## HEAT EXCHANGERS



- **Medium:** water / steam
- **Temperature:** to 135°C
- **Pressure:** 6 bar



## IC REACTORS



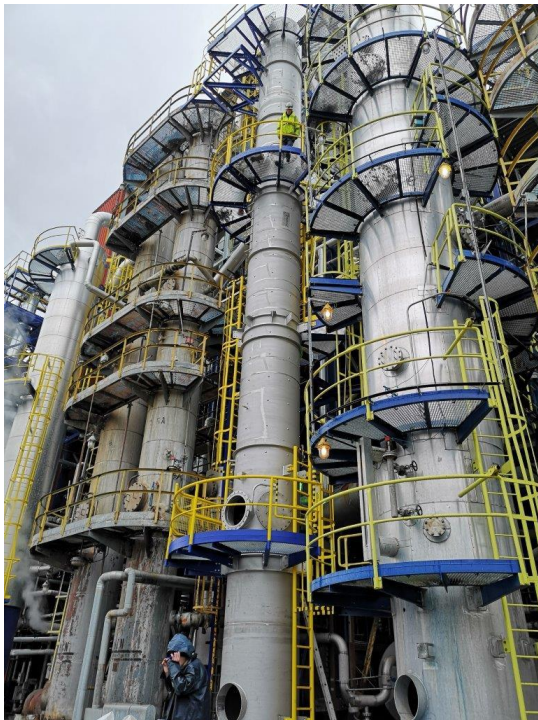
- Delivery for anaerobic waste water treatment
- **333 m<sup>3</sup>** Ø4m x 26.5m
- **1005 m<sup>3</sup>** Ø8m x 20m
  
- **Medium:** water
- **Temperature:** 55°C
- **Pressure:** atm.





# REACTORS AND COLUMNS

- **Reactor** – 140m<sup>3</sup>
- **Column** – length 20m, diameter 1,4m



- **Medium:** water, solvent
- **Temperature:** 200°C
- **Pressure:** -1 bar, atm.

## TOWER REACTORS - ABSORBER AND STRIPPER

- separation of carbon dioxide from flue gas
- absorber - length nearly up to 40 meters
- stripper - length 30 meters
- total weight of the absorber - 37 tons
- stripper - 24 tons weight
- temperature:  $-20/+200^{\circ}\text{C}$ , pressure:  $-1/+3,5$  bar





## APPARATUSES AND VESSELS

- Delivery and instalation of a horizontal autoclave
- The autoclave is for curing composite materials for production in the automobile industry
- The autoclave is cylindrical, horizontal vessel of 1 600 mm diameter and 2 500 mm length with conical bottoms
- Electric heaters
- Programmable Logic Controller (PLC), touchscreen
- **Medium:** air
- **Temperature:** 200°C
- **Pressure:** 12 bar



## STORAGE TANK FOR ETHANOL

- Added storage tank ethanol with a capacity of 150 m<sup>3</sup>
- The tank was shipped out including timber platforms, connecting walkways and ladders .
- Total weight of equipment, including platforms and ladders are 14 400 kg, total length 24 880 mm, 3200 mm average.



## STORAGE VESSELS

- The delivery of 4 large-volume stainless steel tanks for nitric acid.
- The tanks are completely made of 1.4306 material (stainless) and each tank has a volume of 3000 m<sup>3</sup>.
- Diameter of each tank is 14 m and height 21 m.
- Material deliveries were based on pre-fabricated sections from PACOVSKÉ STROJIRNY and subsequently there was an on-site installation.
- The tanks are located in drainless a steel concrete traps.
- **Medium:** 60% HNO<sub>3</sub>
- **Temperature:** -20 /+55°C
- **Pressure:** atm.





## STORAGE TANKS AND SILOS

- Capacity of silos from 10 m<sup>3</sup> up to 200 m<sup>3</sup>
- Capacity of storage silos up to 4 000 m<sup>3</sup>
- Bulk storage silos and stainless steel vessels for loose materials and liquids designed for storing food products, non-food plastic granules, building material, and liquid media.
- **Medium:** vinegar
- **Temperature:** 80°C
- **Pressure:** atm.



## TECHNOLOGICAL PROCESS UNITS

- Complete supply of technological process units for the food and chemical industries.
  - Fermentation driers – process lines for blood drying for the production of bovine hemoderivative
  - Operating units for high-capacity filter systems for industrial wastewater
  - Ammonia stripping tanks
  - Stainless steel tanks for pumping stations
  - Evaporation stations for solvent recovery
  - Large capacity tanks built on site
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- **Temperature:** -20/+200°C
  - **Pressure:** -1/+0,5 bar



# DECONTAMINATION STATION

Building a decontamination station  
NDS10 for reconditioning after uranium  
exploitation

**PS 101 – Neutralization**

**PS 102 – Filtration**

**PS 104, 114 – Ammonium stripping**

**PS 106 – pumping station**

- **Temperature:** -20/+100°C
- **Pressure:** +-0,01 bar





## PS 101 - NEUTRALIZATION

Five tanks have been delivered - 2 units - fermentation tank 183 m<sup>3</sup>, 1 unit of residual solutions storing vessel 309 m<sup>3</sup>, 1 unit of slops storing vessel 207 m<sup>3</sup> and 1 stripped slops storing vessel 181 m<sup>3</sup>. The slops storing vessel has been delivered right from PACOVSKÉ STROJÍRNY, another four vessels have been delivered to Stráž pod Ralskem in parts and subsequently assembled. Temperature: 98°C, pressure: atm.



## PS 102 - FILTRATION

Delivery of 6 tanks of various design and parameters (2 x storing tanks of suspension of 184 m<sup>3</sup>, 2 x filtrate storing tank 151 m<sup>3</sup>, 1 x storing tank of washing water 53 m<sup>3</sup>, 1 x distillate storing vessel 10 m<sup>3</sup>). Two tanks were made and delivered from PACOVSKÉ STROJÍRNY as a whole unit, 4 tanks were delivered in parts and assembled on site.  
Temperature: 98°C, pressure: atm.





## PS 104, 114 – AMONIUM STRIPPING

The biggest delivery made was for technological units PS 104 and PS 114 Ammonium stripping. Since September 2011 there have been 3 towers delivered and another 6 tanks with a various volumes.

Temperature: 200°C, pressure: atm.





## PS 106 – PUMPING STATION

Delivery made of stainless steel tank having a volume 200 m<sup>3</sup>.



# OTHER PRODUCTION POSSIBILITIES



## CERTIFICATION

- **PACOVSKÉ STROJÍRNY** are certificated by ISO 9001 by organisation Bureau Veritas Czech Republic
- Pacovské strojírny are owner of the following permissions and certificates for the manufacturing of the pressure vessels:
  - Europe Unit – PED, EN, ISO 3834-2
  - TÜV, AD Merkblatt, HPO
  - EAC
  - ASME Code, U- stamp, NB
  - China – Level D Certificate
  - Special certifications: South Korea, Canada etc.
  - ATEX - explosive environment certification
  - Certification for the manufacture, installation, maintenance and designing of steel structures EN 1090-2 +A1





## CONTACT

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Thank you for your attention.