

# STATE OF THE ART IN ENERGY



UNIS Power is a well known provider of industrial steam generators and power plant equipment. The company continues longstanding tradition of Brno power engineering, dating back to 1814 when the company roots established while its first steam engine produced already in 1824. Continuous innovations and new steam generation equipment development enables UNIS Power to satisfy even the most demanding quality requirements and ensure outstanding performance of the source with minimum impact to the environment.





## Company presentation

### History:

History of the company UNIS Power is dated back to 1814 when Jan Reiff and his associates Mr. August and Bedrich Scholl and Kristián Memmert founded První brněnská strojírna (PBS). During 90's company continues under the new name, firstly ABB, later Alstom Power. In 2005 the company becomes part of Austrian Energy group and AE&E CZ is founded. From July 2011 production of the power equipment is transferred to Babcock Borsig Steinmuller group and subsequently Bilfinger Babcock CZ is introduced. In December 2017 return back to the Czech ownership through UNIS group owner under the new name of UNIS Power, s.r.o.

### Scope of activities:

UNIS Power provides comprehensive boiler solutions for broad variety of customer applications. For our fired boilers we use wide range of fuels including biomass, coal, different gases/off-gases, oils and other liquid fuels. Our waste heat recovery boilers are typically installed behind gas turbines

(HRSGs); alternatively, for different industrial waste heat utilization. The solutions by UNIS Power represent technical perfection and consistent customization from technical study to final delivery and assembly; lifetime service including reconstructions and operational improvements.

### Certificates:

Company manages functional systems according to:

- EN ISO 9001
- EN ISO 14001
- EN ISO 45 001
- ASME Boiler and Pressure Vessel Code
- Inspection certificate - Competence of pressure equipment manufacturer
- Certificate of Accreditation according to ČSN EN ISO/IEC 17025 for inspection activity



## Core products of the company UNIS Power, s.r.o.

### Turnkey Solutions:

- Conventional industrial power plants
- Industrial combined cycle power plants
- Steam cycle add-on to peaking power plants
- Extended scope of boiler Islands

### Reconstructions and Operational Improvements:

Complete boiler rehabilitation, performance enhancement or operational characteristic improvement of existing equipment is integral part of UNIS Power service portfolio - we make boilers more environmental friendly and increase plant flexibility and/ or availability. In cooperation with partner companies we offer excellent competence in reduction of NOx emissions with state-of-the-art solutions of primary emissions control measures (low-emission burners, combustion air staging and complex modernization of fuel preparation system) as well as secondary measures (SCR or SNCR).

### Boilers UNIS Power:

#### Heat Recovery Steam Generators

Behind Gas Turbines

- Utility concept (up to any size)
- Industrial concept (GT 10-170 MWe)
- Gas engines (large engine installations)

In Industrial Processes

- Customized design

- Vertical or horizontal design
- Single, double or triple pressure with reheat; DH circuit
- Hot water applications
- Supplementary / Fresh air firing
- Various erection concepts – „O“/“C“ modules, bundles or loose harps
- SCR and/or CO catalyst

#### Clean Biomass Fired Boilers

- 30-200 t/h
- 40-140 bar(a)
- up to 550 °C







- Grate firing
- Fluidized bed firing
- Different biomass fuels such as wood chips and pellets, sawdust, straw, bark, pulpwood, cardboard and other biomass residues including agriculture
- Coal as support/substitute fuel
- Bottom or top supported
- Primary De-NO<sub>x</sub>, SCR/SNCR systems

#### Coal Fired Boilers

- 30-500 t/h
- 40-175 bar(a)
- up to 565 °C

- Fluidized bed Firing
- Pulverized Coal Firing
- Grate Firing
- Wide range of coal quality experience
- Re-heat steam system
- Bottom or top supported
- Primary De-NO<sub>x</sub>, SCR/SNCR systems

#### Special Gas/Oil Fired Boilers

CoGB – modular concept for easy construction, packaged boilers

- 40-200 t/h
- 40-140 bar(a)
- up to 550 °C
- Modular concept for easy construction

#### Field Erected Boilers

- 80-600 t/h
- 40-140 bar(a)
- up to 565 °C

#### Hot Water Boilers

- 50-250 MWth
- 10-25 bar(a)
- Special gaseous and liquid fuels such as blast furnace gas, cokeoven gas, hydrogen, heavy fuel oil, coking tar and other waste fuels and fuel combinations
- Bottom or top supported
- Primary De-NO<sub>x</sub>, SCR/SNCR systems



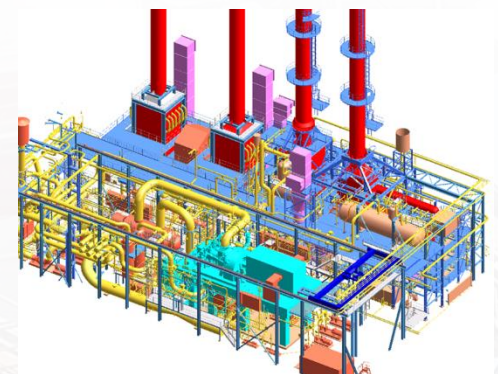
#### Variety of Services

##### Engineering activities

Broad portfolio of design only services is also part of activities. We offer elaboration of feasibility studies, documentation of technology plant systems for state authority approvals and/or plant conceptual or basic design documentation including project documentation system management. If desired so we also supply boiler design documentation alternatively including notified body approvals for further execution by our partners. We can also assist our partners with site construction technical assistance only or support third party construction site with expertise of our site managers and commissioning engineers.

##### Tests and Diagnostics

UNIS Power provides at site inspections and revisions, technical studies and consultations. We offer warranty measurements and/or measurements of other operational characteristics including diagnostics and equipment analysis such as residual life-time assessment. We are certified for emission measurements.





## References

### Eisenhüttenstadt, Germany:

#### 1 x HRSG / fresh air fired boiler

**Client:** DSD Power Technologies GmbH

**Year of Start-up:** 2022

1 x HRSG combined with fresh air fired concept

- 170 t/h (100 t/h fresh air firing)
- 120 bar (a)
- 540 °C
- horizontal with water cooled combustion chamber

**Gas turbine:** PG6551



### Toruń, Poland:

#### Combined Heat and Power Plant

**Client:** EDF Polska S.A.

**Year of Start-up:** 2017

2 x HRHWB

- 116 MWth
- 135/60 °C
- vertical
- supplementary firing (70 MWth)

1 x Heat accumulator

- 575 MWth
- 12 000 m3

**Gas turbine:** LM 6000 PF



### Dubai, United Arab Emirates:

#### Brownfield Project

**Client:** Dubai Aluminum Year of

**Start-up:** 2015–2017

Dismantling of existing equipment and installation of a new one into existing plant interfaces, recovery of existing plant infrastructure, supply of overall plant control system upgrade

5 x HRSG

- 228 t/h, • 20 bar(a), • 215 °C
- vertical
- by-pass stack system
- common FWS plant

**Gas turbine:** 9 BE



### Kelenföld, Hungary:

#### Turnkey Plant

**Client:** Budapesti Erőmű RT

**Year of Start-up:** 2006

Reconstruction and extension of municipal heating plant including heat extraction

1 x Oil and Gas Fired Boiler

- 125 t/h | 42 bar(a) | 425 °C

1 x Gas Fired Hot Water Boiler

- 70 MW | 90 / 130 °C

1 x Steam turbine

- 50 MWe | 39 bar(a) | 420 °C

**Fuel:** natural gas, light fuel



### South Nyírség, Hungary:

#### Biomass Fired Boiler for South Nyírség

**Client:** EGI – Contracting Engineering Co. Ltd

**Year of Start-up:** 2009

1 x Clean Biomass Fired Boiler

- 80 t/h
- 93 bar(a)
- 515 °C
- vibrating grate

**Fuel:** wood chips



### Hodonín, Czech Republic:

#### Reconstruction of Biomass Fired Boiler

**Client:** ČEZ, a.s.

**Year of Start-up:** 2008

fuel conversion from coal to biomass (100 %)

1 x Fluid Boiler

- 170 t/h
- 96 bar(a)
- 510 °C

**Fuel:** biomass, brown coal

