



Doosan Babcock Energy Polska S.A.

Comprehensive maintenance services

Built on 25 years of innovation, Doosan Babcock Energy Polska is a specialist in asset support, maintenance, repair, modernisation and upgrade services.

Our greatest advantage is comprehensive performance of services:

- pre-repair diagnostics,
- preparation and manufacturing of replaced and repaired subassemblies,
- mechanical working of subassemblies,
- repair and modernisation works,
- assembly,
- preparation of the facility for commissioning,
- preparation of the documentation
- post-repair recommendations.



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Boiler and industrial equipment

Doosan Babcock Energy Polska offers a wide range of services for the boiler island and boiler room, as well as facilities outside the boiler room and flue gas cleaning installations.

□ Professional maintenance services

Thanks to its end-to-end services, starting from diagnostics to end with modernisation, service maintenance, delivery and installation of boilers and auxiliary equipment can offer the optimum integrated solutions to its customers.

- Pressure parts of the boiler
- Boiler drum
- Fittings
- Burners
- Air nozzles
- Coal pulverisers (vertical ball mills, vertical roller mills, drum and ball and fan mills)
- Heavy duty transmission including sewing of the bodies
- Air and flue gas fans
- Coal feeders (screw type, scraper type)
- Rotary air heaters
- Slag removers
- Boiler "cold clouds",
- Air and flue gas ducts
- Dust and air mixture conduits
- Electrostatic precipitators
- and the other auxiliary equipment



Pressure parts
Auxiliary boiler equipment
Carburizing plants
Ash removal and
desulphurization plants
Biomass feeding plants
Heavy oil plants
Hoists and cargo and
passenger lifts

Turbines & machinery room services

Using the turbine technology and service resources of Doosan Skoda Power, Doosan Babcock Energy Polska can offer solutions for power industry which make it possible to achieve the highest effectiveness to cost ratio and the optimum capacity and efficiency of the turbines at all stages of the period of their use at a power plant.

❑ Turbine

- Repairs and revitalization of steam turbines and repair of generators in the mechanical part
- Assembly of steam and gas turbines
- Repairs cooling systems, oil condensing and vacuum
- Repairs and modernization of control systems and servomotors

❑ Fittings

- Repairs industrial fittings regardless of the medium and parameters
- Repairs, production and modernization of regeneration and heat exchangers
- Repairs and upgrades pressure reducing – cooling station
- Settings and diagnostics of safety valves

❑ Pumps

- Pump repairs
- Delivery of spare parts
- Diagnostics
- Turnkey installation of pump systems

❑ The other rotating equipment

- Repairs and assembly of compressor regardless medium flow
- Repairs of water turbines
- Repairs fans, suction pipe, centrifugal machine and blowers



For more than 20 years,
and for 6 year with the
support from Doosan
Skoda Power, we have
offered repairs, service
maintenance, moderni-
sation, assembly and di-
agnostic services



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Automatic control and measuring and electrical systems

Doosan Babcock Energy Poland is a supplier of advanced and comprehensive solutions for the electrical and automation systems.

❑ EC&I maintenance services

- Inspection and maintenance of the measuring systems of physical quantities, physicochemical and special measurements of rotating machines,
- Calibration of equipment in the laboratory and on site,
- Maintenance and repair of electric and pneumatic actuators,
- Inspections, repairs and modernization of control and automation systems.

❑ Electrical maintenance services

- Maintenance and modernization of electrical systems and low and medium voltage panel,
- Inspection and maintenance of generators, exciters and transformers,
- Inspection and repairs of electric motors of low and medium voltage
- Inspection and repair of electrical systems of electrostatic precipitators

❑ Complex construction work in the electrical and EC&I

- Ongoing maintenance and failure removal of industrial installations, also in hazardous areas. Availability 365 days a year, around the clock.
- Implementation of the formula turnkey modernization and new installations from concept and design to commissioning stage (EPC) and service, including:
 - supply of software and computer control system,
 - delivery and distribution of electric power distribution system,
 - performing data communications networks, installation supervision and CCTV.



Integrated solutions for industry are our advantage. We combine experience in the EC&I and electrical with the potential of other Doosan's departments, which gives us the ability to offer comprehensive solutions.

NDT & E

❑ Laboratory personnel

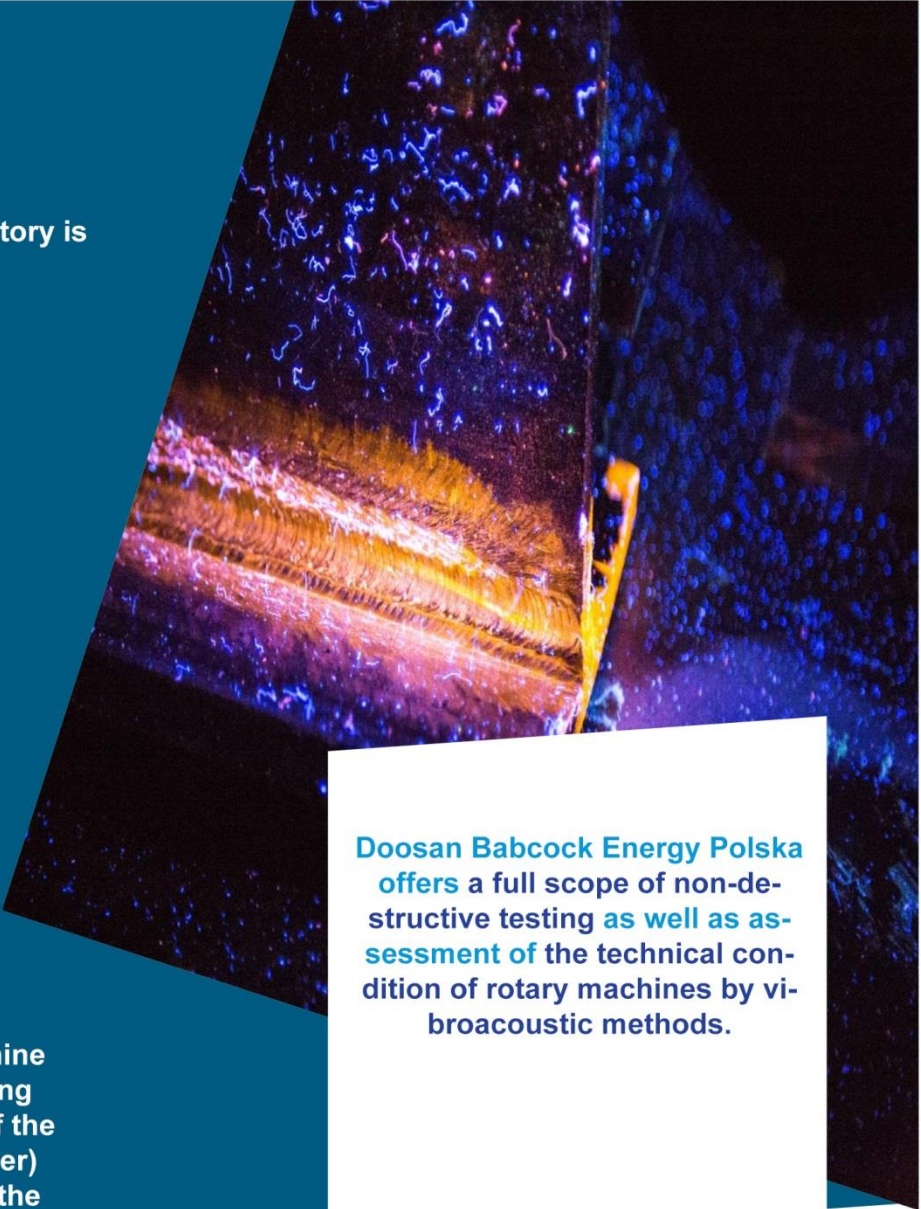
All laboratory personnel are certified according to EN ISO 9712, and the laboratory is approved by the Office of Technical Inspection.

❑ Non-destructive testing

- Testing VT, MT, PT, ET and volume testing UT and RT
- Metal magnetic memory
- Comprehensive measurement of forces in suspended pipelines
- Assessment of the technical condition of pressure power equipment using strength computing by finite-element Method (FEM) and calculations of residual life
- Metallographic testing
- Reclamation of turbine bodies and large fittings

❑ Vibrodiagnostics

- Mechanical vibrations level measurement
- Assessment of the general technical condition of rotary machines.
- Assessment of the condition of bearings
- Registration and analysis of dynamic phenomena during run-up and run-down of rotary machines to determine their resonance characteristics (e.g. critical rotation of rotors).
- Balancing machine rotors
- Consultation regarding the reasons for the present dynamic status of the machine
- Developing, constructing and installing a complete system for on-line monitoring of the dynamic status of rotary machines (continuing diagnostic supervision of the technical condition of the machine with an option of status view via web browser)
- Possibility to configure monitoring systems of any rotary machinery based on the existing measuring systems.



Doosan Babcock Energy Polska offers a full scope of non-destructive testing as well as assessment of the technical condition of rotary machines by vibroacoustic methods.

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NDT & E

□ Testing station

➤ fittings test station EFCO PS50.

The station is designed for testing cut-off, control and safety valves from DN25 to DN500 at test pressure of up to 400 bar.

The unit makes it possible to carry out complete measurements in connection with the preceding repairs of fittings. In addition, the station is equipped with a VALVE-DOC system for diagnosing safety valves and archiving and printing measurement reports.

➤ fittings & pumps test stations

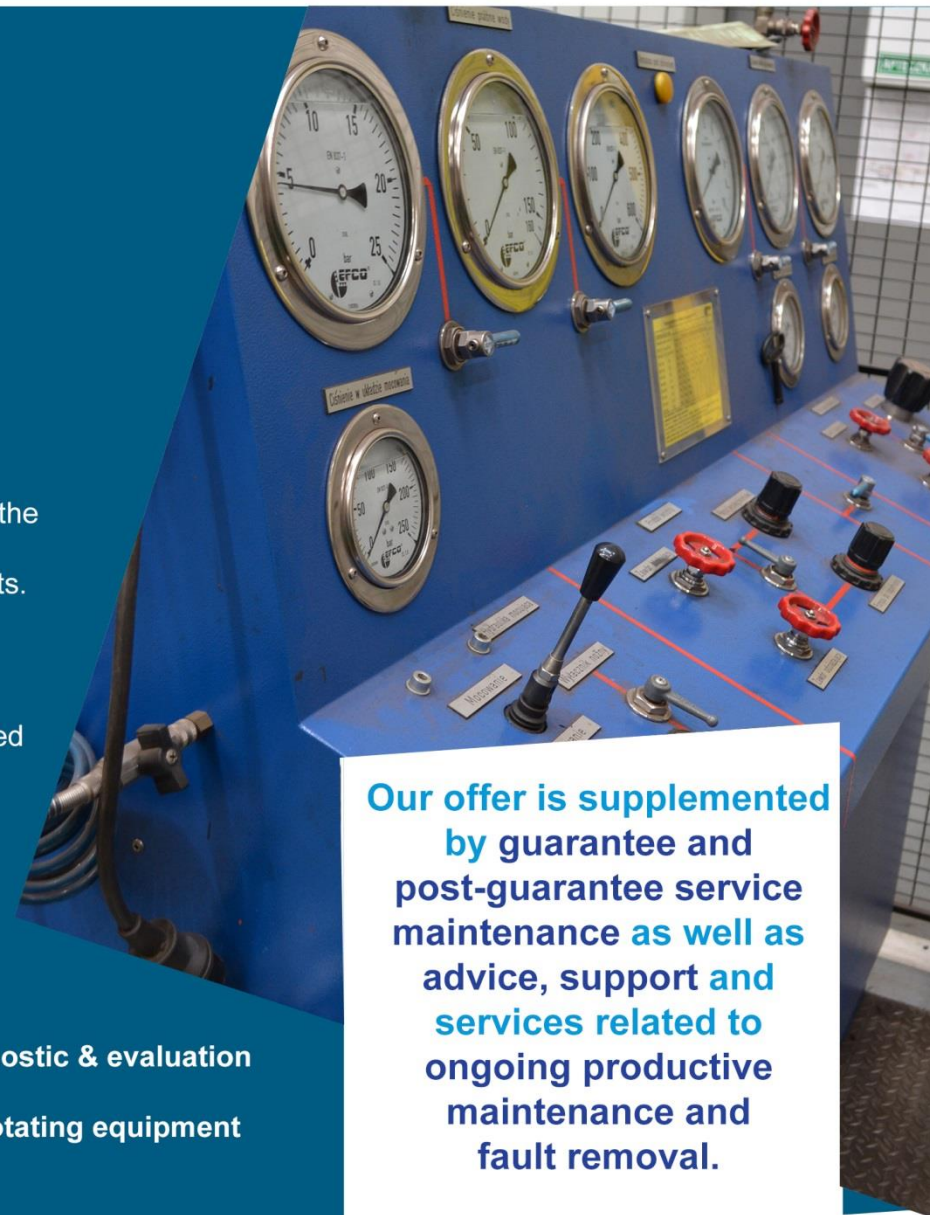
It allows measurably present the effect of repair or the modernization.

➤ servo-motors test station

Allows diagnosis and determination of static characteristics of servo-motors mounted on the turbine control systems and making the necessary adjustments to the regulators EHR.

□ Turbine testing

- Specialist testing of notches vane, the central opening of turbine shaft, diagnostic & evaluation
- Testing of lifetime lubrication of turbine's bodies and rotors
- Diagnostic before and after the repair of turbines, valves, pumps and other rotating equipment



Our offer is supplemented by guarantee and post-guarantee service maintenance as well as advice, support and services related to ongoing productive maintenance and fault removal.

Production

□ Prefabrication & repairs

- Coal mills' parts
- Coal feeders (screw type, scraper type)
- Mill's fan, air fan, flue gas fan
- Dirt trap
- Dumping hopper
- Mill's gear
- Grinding mill
- Mechanical separator
- Spare parts for: wagon tipplers, stacker-reclaimers, bunker discharge trucks, shunting equipment, belt conveyors and belt retreading
- OFA nozzle
- Burner
- Boiler drum
- Boiler pressure parts (superheater, heater, collecting pipe, etc)
- Turbine's spare parts (screws, steering wheels, cable fittings, clamps, etc.)
- Heat exchanger

□ Production of the highest

The workshop is equipped with assembly stations with stays welding and place of storage. There is blasting adapted to run on two type of medium eg. steel shot and granules of glass (glass beads) according to the recommended surface quality, there is also the paint shop.



**Our factory in Rybnik,
Poland provides
a range of machining,
welding
and fabrication services**



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Machining

The parameters of the machines are selected in a manner making it possible to carry out comprehensive repairs of turbine elements and auxiliary components such as bodies, steering wheels, cable fittings, clamps, pumps, transmissions. It also offers its services to anyone interested in machining of elements within the parameters of the selected machines.

❑ Modern and specialist park of machin-

- CNC heavy duty centre lathe (Ø3000/ Ø2700x7000)
- CNC turntable drilling and milling machine (11000x4500x2200)
- CNC turret lathe with power tools (Ø4000/ Ø4700x3000)
- Low speed balancing machines by Schenck (from 50 kg to 50 tonnes)
- Bending machine for pipes CNC 100TSR – RBF (101,6x5,5)
- Manual/conventional machines
- Mounting plate 5000x10000
- Rotators rollers (to set up and instalation of rotors)
- Cranes rotary (1,6 t., range 5 m)
- Gantry cranes 50 /20 t., 30/12,5 t., 12,5 t.

❑ Mobile machining:

Doosan Babcock Energy Polska is equipped with machine tools and field equipment such as:

- grinders of various sizes,
- mobile hobbing machine, e.g. repair of threads in turbine bodies without disassembling them,
- induction heater - unscrewing and screw tightening
- mobile radial and axial boring machines for turbine body surfaces, dia. up 4500 mm
- mobile radial and axial machine tool for valve bodies
- planer for elliptical surfaces, e.g. drum manholes
- mobile grinder and lathe for rotor trunnions with no need to rotate the shaft



Large size elements
Coal mills Gears
Feeding screw
Rotors (turbine, pumps, fans)
Steering weels Shafts
Pumps
Rollers Pressure chambe
Clamps Cable fittings

Thank you for attention.

Doosan Babcock Energy Polska S.A.

ul. Golejowska 73b

44-207 Rybnik,

Polska

T: +48 32 739 17 30

F: +48 32 739 64 30

E: sekretariat@doosan.com

www.doosanbabcock.com/pl/main.do



**Integrated Quality,
Environmental and
Occupational Safety and
Health Management System
meeting the requirements of:
ISO 9001, ISO 14001,
OHSAS 18001 and
SCCP standard**



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