Alstom in Croatia

Over 65 years of partnership in Croatia and SEE Area

Alstom’s Presence

**KEY DATA:**

- **860** Employees
- **2** Sites
- Export: **75% of Sales**
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History

1949: The beginning of the steam turbine production in Karlovac under the name Jugoturbina
1951: Gaining of De Laval marine turbines license (up to 45 000 HP)
1953: Gaining of De Laval steam turbines license (up to 2.5 MW)
1954: First steam turbine 12.5 MW in operation (in Croatia)
1956: Gaining AEG steam turbine license (65 MW)
1978: Applying API 621 Design
1982: Gaining BBC steam turbine license (up to 1200 MW)
1985: New hall for large steam turbines production in Karlovac
1991: Factory of steam turbines acquired by ABB Group – the new company under the name ABB Power Plants Ltd.
1999: ABB Power Plants and Alstom Power Generation segment merger
2001: The factory / company operates under the name Alstom Power Ltd.
2003: Alstom Power Ltd. changes the name to Alstom Croatia Ltd. The same year: System certification ISO 14001:2003
2005: EHS system certification OHSAS 18001:2005
2009: Celebration of 60 years of the company
2010: Intensive investments in capacity at Site Alstom Croatia
2014: Celebration of 65 years of the company

Corporate Social Responsibility

University of Applied Sciences in Karlovac: A partnership with University of Applied Sciences in Karlovac was established in 1992 and has lasted ever since. Alstom Croatia has been supporting the development of both study curriculum and practical lectures. Cooperation with the University of Karlovac has been utilized on the following projects: foundation of Mechatronics Department and Centre of Excellence (Centre of Excellence for education and transfer of technology in Mechatronics at the University of Applied Sciences & Technical School Karlovac). Alstom supports the funding of laboratory equipment and practical lectures for students & scholars.

University of Zagreb – Faculty of Mechanical Engineering and Naval Architecture: Long term cooperation with the goal of enhancing the link of science and technology to the real economy. Alstom Croatia participates in different activities with an aim of sharing the knowledge of new operating methods and tools for improvement of the development processes. Alstom Croatia and Faculty of Mechanical Engineering and Naval Architecture are combining efforts in joint research and executing development projects.

An Association for children with growth difficulties, Zvoncici: 2013 - Alstom granted support for the heating system on wood pellets for sensory rehabilitation centre in Karlovac, Croatia.
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Awards and Certification

Awards

- 2011: «Golden Pine Marten» prize & diploma – Croatian Chamber of Economy on Country level for the most successful company in Croatia in 2010
- 2012: Recognition of Karlovac District & Town - outstanding results and economic contribution to the local community in 2011
- 2012: “Golden Pine Marten” prize and diploma – Croatian Chamber of Economy for the most successful big company in Karlovac district in 2011.

Certification


Power

Alstom Croatia has been present in the international turbo machinery market since 1949. Its activities are related to Thermal and Renewable sector, to support the power generation equipment market in Croatia and South Eastern Europe region.

Manufacturing facility in Karlovac has strong position as Blades Production Centre and Structural Parts Reconditioning Centre. It is serving both newly build and power plants in operation. Alstom Croatia is a qualified partner within the Alstom Group for all types of machining & welding processes. The most significant references have been acquired in supplying various gas & steam turbine components. On a gas turbine: hot gas path components, exhaust housings and diffusers, turbine and compressor vane carriers, compressor blades, on a steam turbine: blades (RTB & ITB blades) and diverse inner casing components.

Some 200 engineers are employed in Research & Development / Engineering, working in collaborative international teams on R&D activities, site development projects of mechanical equipment (gas & steam turbine design, reconditioning, quality control, field assessment, commissioning, operation & maintenance manuals) and arrangement planning, design of electrical equipment.

References have been acquired in numerous inspections, overhauls, modernization & service projects on the base of AEG, De Laval, JGT, BBC/ABB licenses, maintenance and project management, for utility and industry power plants. Alstom Croatia has provided 239 steam turbines from 1949 till now to worldwide locations.

References:

Manufacturing facility/Workshops (components)

- ALBA, COMBINED CYCLE POWER PLANT, Bahrain
- AFAM, GAS TURBINE POWER PLANT, Nigeria
- DIGHTON, COMBINED CYCLE POWER PLANT, USA
- ZUWEITINA, GAS POWER PLANT, Libya
- MIZUSHIMA, COMBINED CYCLE POWER PLANT, Japan
- MAJUBA, CONVENTIONAL STEAM POWER PLANT, South Africa

Alstom Croatia, February 2015
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Manufacturing facility/Workshops (cont’d)

- CASTEJON, COMBINED CYCLE POWER PLANT, Spain
- SENOKO, COMBINED CYCLE POWER PLANT, Singapore
- BAYSIDE, COMBINED CYCLE POWER PLANT, USA
- VALLE DE MEXICO, COMBINED CYCLE POWER PLANT, Mexico
- DOCK SUD, COMBINED CYCLE POWER PLANT, Argentina

Ongoing projects:
- over 180 projects for gas & steam turbine components, including reconditioning & upgrading

Thermal Services Local Unit

- 2000: PLOMIN 2, THERMAL POWER PLANT, Croatia: STEAM TURBINE 210 MW - design, manufacturing, assembly, commissioning
- 2003: ZAGREB TETO, COMBINED CYCLE POWER PLANT, Unit K, Croatia: STEAM TURBINE 66MW – design, manufacturing, assembly, commissioning
- 2007: STEAM TURBINE parts OEM reverse engineering & spare parts manufacturing – first projects started
- 2006: GOJAK, HYDRO POWER PLANT, Croatia: 3×21 MW, OEM – retrofit with capital parts replacement
- 2009: KRSKO, NUCLEAR POWER PLANT, Slovenia: STEAM TURBINE island, 696 MW – extension of 5-year LTSA
- 2010: ZAGREB ELTO, COMBINED CYCLE POWER PLANT, Croatia: GAS TURBINE 2×26 MW, OEM – B&C inspections with capital parts rehabilitation
- 2010: KOLUBARA, THERMAL POWER PLANT, Unit 5, Serbia: STEAM TURBINE 65 MW – rehabilitation with re-blading
- 2011: ZAGREB TETO, COMBINED CYCLE POWER PLANT, Unit C, Croatia: STEAM TURBINE 120 MW, OEM – boiler modernization with NOx reduction
- 2011: KOLUBARA, THERMAL POWER PLANT Unit 5, Serbia: STEAM TURBINE 65 MW - STEAM TURBINE control & protection system modernization
- 2011: KRSKO, NUCLEAR POWER PLANT, Slovenia: STEAM TURBINE island, 725 MW –5-year Long Term Supply Agreement
- 2012: ZAGREB ELTO, COMBINED CYCLE POWER PLANT, Croatia: GT 2×26 MW, OEM – B&C inspections with capital parts rehabilitation (with the delivery of spare parts)
- 2012: PLOMIN 1, THERMAL POWER PLANT, Croatia: STEAM TURBINE 125 MW – major inspection, spare parts, assembly
- 2012: DUBROVNIK, HYDRO POWER PLANT, Croatia: 2×108 MW, – major hydro mechanical equipment on Unit A and Unit B rehabilitation (with the delivery of spare parts)
- 2012: NE KRSKO, NUCLEAR POWER PLANT, Slovenia, STEAM TURBINE island, 727 MW – B-inspections
- 2012: THERMAL POWER PLANT TUZLA, Bosnia & Herzegovina: Unit 6, STEAM TURBINE 215 MW – revitalization and modernization of the turbine-generator set
- 2013: TE TO Osijek, THERMAL POWER PLANT, Croatia: C Inspection of 45 MW Steam Turbine
- 2013: TE TO LJUBLJANA, THERMAL POWER PLANT, Slovenia: Inspections on STs - Units 28, 42 and 50 MW
- 2014: TE OSLOMEJ, THERMAL POWER PLANT, FYROM: Generator site repair of 125 MW Unit
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Ongoing projects (2015):

- **SOSTANJ**, THERMAL POWER PLANT, Slovenia: 600 MW steam turbine set - trial run
- **ZAKUCAC**, HYDRO POWER PLANT, Croatia: Reconstruction of Hydro Mechanical Equipment, Unit C
- **PLOMIN 2**, THERMAL POWER PLANT, Croatia: New Selective Catalytic Reduction (SCR) plant
- **ZAGREB TETO**, THERMAL POWER PLANT, Croatia: Service Frame Agreement - rotating equipment and Balance of Plant
- **OSIJEK**, THERMAL POWER PLANT, Croatia: Service Frame Agreement - rotating equipment and mechanical Balance of Plant
- **PLOMIN 2**, PLOMIN 1, THERMAL POWER PLANT, Croatia: Servicing of 210 MW and 125 MW steam turbines
- **SENIJ**, HYDRO POWER PLANT, Croatia: Repair activities on unit B (72 MW)
- **JABLANICA**, HYDRO POWER PLANT, Bosnia and Herzegovina: Overhaul of butterfly valves
- **OBRENOVAC A**, THERMAL POWER PLANT, Serbia: Retrofit of 330 MW Steam Turbine unit A3
- **MORAVA**, THERMAL POWER PLANT, Serbia: Retrofit of 125 MW steam turbine

R&D / Engineering Unit

- Development of gas turbine new structural components, including all casings, intake / exhaust sections and base frame
- Development of instrumentation & control systems for gas turbine thermal block and auxiliary systems
- Development of arrangement, piping, aero systems for the new gas turbine power plants
- Development of gas turbine combustion chambers including hot gas path parts, carrier structures and fuel injection systems
- Lifetime prediction for gas turbine components including lifetime assessment, cooling concepts and heat transfer analyses
- Standardization of gas turbine documentation including work instructions, internal standards and design of standard parts
- Developing & testing protection logic and mimics (MFC3000 & CE3500 systems) for all types of Alstom gas turbines
- Design of modular steam turbine control logic for control, operation and protection
- Modelling and simulations of the processes and systems for steam turbines and auxiliaries
- Alstom Plant Support Centre (PSC) – part of internal engineering network which provides support to Alstom customers 24/7
- Development of reconditioning processes of the hot gas parts for Alstom gas turbine fleet
- Reverse engineering – GT hot turbine and compressor blading, steam turbine blading
- Design, upgrade, inspection recommendations for gas turbine auxiliary systems and fuel modules of Alstom gas turbine fleet
- Arrangement planning and piping engineering for more than 50 Alstom combined cycle and fossil power plant projects
- Update of Operation & Maintenance documentation for gas and steam turbines, auxiliary systems and generators for the entire Alstom fleet (IPLs, CFSIs)
- Advanced know-how of conventional manufacturing processes and continuous investigation of novel technologies
- Application of high-end development / simulation platforms
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Transport

Transport representative office in Croatia is covering business development activities, auxiliary and preparatory service for bidding numerous projects in Croatia and South Eastern Europe Area, for railway Infrastructures and rolling stock business.

Alstom is one of the key player in urban transport and actively supporting plans for tram and metro projects in the region (Belgrade, Skopje, Tirana, Pristina ...).

Ongoing projects (2015):

- **Slovenia**: ERTMS on the Infrastructure of Mediterranean Corridor - Alstom to provide Balisas for complete line
- **Serbia**: PANCEVO INTERLOCKING: Supply of signaling systems for upgrading of a section of the Beograd – Pančevo route by the end of 2016.

Ongoing prospects and tenders:

- **Croatia**: Corridor 5, section Dugo Selo – Križevci, Reconstruction and new track
- **Slovenia**: ERTMS development on the rolling stock of Slovenske železnice
- **Serbia**: Signaling Projects Stara Pazova-Noví Sad section, Belgrade Metro Project
- **Macedonia**: Tramway project in City of Skopje
- **Albania**: Tramway project in Tirana