Alstom in Germany

Alstom Germany has a major industrial presence with a strong and advanced product portfolio

Alstom’s Presence

**Kassel**
- Manufacturing, services and engineering for high voltage switchgear

**Kassel**
- Engineering and manufacturing of high temperature products

**Düsseldorf**
- Engineering of high temperature products

**Bergisch-Gladbach**
- Services for boilers and industry turbines, environmental control systems

**Mönchengladbach**
- Manufacturing, services and engineering for power transformers & monitoring systems

**Frankfurt**
- General management Grid

**Wiesbaden**
- Engineering of CCS systems

**Mannheim**
- Manufacturing, services and engineering for steam- and gas turbines; service and engineering for power plants and generators; manufacturing of high temperature products; engineering and services for air and gas-gas preheaters; automation and control systems; power plant chemistry

**Bexbach**
- Manufacturing of turbine blades

**Waibstadt**
- Service and modernisation of diesel and electrical locomotives

**Ludwigslust**
- Manufacturing, services and engineering for Instrument transformers

**Stendal**
- Service and modernisation of locomotives

**Berlin**
- Head office Sales and Service Germany
- Engineering of power electronics, Wind Project Centre

**Berlin**
- Service generators and turbines

**Berlin**
- Commercial office

**Braunschweig**
- Service for electrical and diesel multiple units

**Salzgitter**
- Manufacturing of trains, railway vehicles, trams, bogies, traffic systems, service for freight wagons

**Peitz**
- Service

**Dresden**
- Engineering of high voltage systems, turnkey solutions

**Neumark**
- Manufacturing and service boiler

**Nürnberg**
- Service steam turbines

**Stuttgart**
- Service and engineering boiler, service for mills

**München**
- Commercial office

**Konstanz**
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**Key Data**
- Workforce of 8,700 people
- 23 main sites in 14 Bundesländer
Alstom in Germany

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History

1882: Founding of Deutsche Edison-Gesellschaft für angewandte Elektricität (DEG) which was renamed Allgemeine Elektricitäts Gesellschaft – General Electric Company (AEG) in 1887. (Grid)

1900: Founding of Brown, Boveri & Cie. (BBC) Germany in Mannheim; factory in Mannheim/Käfertal. (Power)

1910: Founding of Schmidt'sche Heissdampf Gesellschaft mbH (SHG) in Kassel. (Power)

1912: The company Linke KG merges with the railway freight car builders Gebrüder Hofmann, of Breslau. The new company is named Linke-Hofmann-Werke AG (LHB). (Transport)

1928: The company Linke-Hofmann-Werke AG merges with the company Waggon- und Maschinenfabrik AG (earlier known as Busch) of Bautzen. (Transport)

1950: The company, known as Linke-Hofman-Busch (LHB), starts new again in Salzgitter-Watenstedt, Germany, with organisation as a syndicate with the company Fahrzeug und Maschinen GmbH (FAMAS). (Transport)

1970: Founding of the company EVT Energie- und Verfahrenstechnik GmbH in Stuttgart, with acquisition of the steam-generation activities of the following companies: Buckau R. Wolf AG, Grevenbroich; Walther & Cie AG, Cologne; KSG Kohlenscheidungsgesellschaft GmbH, Stuttgart. (Power)

1989: Founding of ABB Kraftwerke AG (KWE). (Power)

1997: Linke-Hofman-Busch (LHB) is acquired by the international group GEC ALSTHOM which now holds 100% of the shares in LHB. (Transport)

1998: The company Linke-Hofmann-Busch now does business under the name ALSTOM LHB GmbH. (Transport)

2009: Alstom LHB GmbH becomes ALSTOM Transport Deutschland GmbH. (Transport)

2010: Founding of ALSTOM Grid GmbH. (Grid)


2014: Founding of ALSTOM Renewable Germany GmbH (Renewable Power)
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**Partnerships**

Alstom in Germany is in strategic partnership with associations from the industry and with technology research centres to further enhance the environmental use and efficiency in power generation, power transmission and public transportation.

**Selected technological and R&D partnerships:**

**Industrial Associations**
BDI – Bundesverband der Deutschen Industrie e.V.
BWE – Bundesverband WindEnergie e.V.
FDBR – Fachverband Dampfkessel-, Behälter- und Rohrleitungsbau e.V.
VDMA (FVV) – Verband Deutscher Maschinen- und Anlagenbau
VGB – Vereinigung der Großkesselbesitzer e.V.
IZ Klima – Informationszentrum für CO2-Technologien e.V.
VDB – Verband der Bahindustrie in Deutschland e.V.
VDI – Verein Deutscher Ingenieure
VDE – Verband der Elektrotechnik Elektronik Informationstechnik e.V.
VDEI – Verband Deutscher Eisenbahn-Ingenieure e.V.
WAB – Windenergieagentur Bremen / Bremerhaven e.V.
Wind Energy Network Rostock e.V.
ZVEI – Zentralverband Elektrotechnik- und Elektronikindustrie e.V.

**Helmholtz Society**
Deutsches Zentrum für Luft- und Raumfahrt (DLR) Köln und Stuttgart
Forschungszentren (FZ) Jülich und Karsruhe
Bundesanstalt für Materialforschung und –prüfung (BAM) Berlin
Materialprüfungsanstalt (MPA) Darmstadt und Stuttgart

**Max-Planck and Fraunhofer Society**
MPI Stuttgart und Düsseldorf
FhI Freiburg

**Research and test centres**
Deutsches Zentrum für Luft- und Raumfahrt (DLR) Braunschweig
Frankfurter Institutes
Climatic tunnel, Vienna
DB test facilities
Corporate Social Responsibility

Our Corporate Responsibility

Alstom Germany assumes its social and environmental responsibility by focusing on a sustainable corporate strategy along the complete value chain. Our corporate responsibility towards employees, society and the environment is a crucial part of every corporate decision making.

Environmental Protection & Production

Due to environmentally sensitive considerations, Alstom solely uses energy saving lamps in all its locations. Furthermore, our videoconferencing system enables our employees to avoid unnecessary travelling whenever possible. Alstom’s latest accomplishment is a charging station for electric vehicles, operating through a wind turbine and photovoltaic cells. After a successful testing phase more green charging stations are planned to be installed at other Alstom locations throughout Germany.

Local Corporate Citizenship

Beyond the scope of our business operations, Alstom Germany feels responsible for its social environment. We support a wide range of projects on education, culture and social issues. With regard to the shortage of skilled professionals, it is one of our main concerns to inspire young people for technical subjects. Therefore, Alstom co-operates with schools and universities, offers factory visits at production sites, and has for some years been providing support to the “Girls’ Day”, an initiative to promote technical professions to young women.

Moreover, Alstom actively commits itself to charitable causes, for example by organising fundraising campaigns and by supporting initiatives, such as the free lunch for the deprived in Kassel. After the devastating flood in Germany in the summer of 2013, employees at Alstom’s Stendal site actively supported the flood victims. Moreover, our employees and the management gathered donations for the flood victims of the river Elbe.

Workplace Improvement and Personnel Development

In order to promote the individual development of our employees, Alstom offers a variety of professional programmes. We are devoted to a family friendly corporate policy and support our employees in managing the balancing act between their family and their job with possibilities such as cost sharing for childcare by the company and flexible working hours. Apart from that, our colleagues in Mönchengladbach received the award for being the most disability friendly company in North Rhine-Westphalia in 2013.
Alstom in Germany

References and Ongoing Projects

Power

Alstom Power presence in and contribution to Germany
Alstom Power employs a workforce of 4,000 people who are working on 11 sites.

Achievements
- Alstom is market leader in terms of environmental protection and pace maker for CCS technology.
- Neurath F+G is the first lignite power plant with ultra-supercritical process parameters and the biggest lignite power plant in the world with optimised plant technology (BoA); efficiency degree: > 43%; performance: 2 x 1,100 MW.
- Reference Emsland power plant has 59.3% efficiency in gas fired technology.

Main customers
- EnBW
- E.ON
- GKM
- RWE
- Vattenfall

Industrial footprint
- Turbines and Generators
- Gas-/Coal-/Hydro Power Plants
- Boiler
- Flue gas cleaning systems

All Service products and systems for:
- Steam and Gas Power Plants
- CCPP
- Hydro and Turbo generators
- Boilers

Service Port-Folio:
- Inspections, overhauls, spares, upgrades
- Consulting & studies
- Long-term service agreements
- Operation & maintenance

References
- Neurath F & G – Eng., ST & Boiler (consortium with HPE); conv. steam 2x1.100 MW
- Emsland (Lingen) - TK; CCPP 870 MW
- Boxberg - ST; conv. steam 1x670 MW
- Schwarze Pumpe / Oxyfuel; conv. steam CCS 1x30 MW
- Datteln - ST; conv. steam 1x1.100 MW
- Staudinger 6 - ST; conv. steam 1x1.100 MW
- Niederaussem: Boiler

Projects
- Köln-Niehl - turnkey construction of a 450 MW combined-cycle heat and power plant (CHP)
- Westfalen (Hamm) - Boiler; conv. steam 2x800 MW
- GKM 9 - ST & Boiler; conv. steam 1x910 MW
- RDK8 - TK; conv. steam 1x910 MW
- Moorb urg - ST; conv. steam 2x820 MW
- Rostock (KNG), Retrofit ST 553 MW
- Herne Block 4 (Steag GmbH), Retrofit ST 500MW
Alstom in Germany

References and Ongoing Projects

Transport

Alstom Transport presence in and contribution to Germany
Alstom Transport employs a workforce of 3,100 people who are working on 6 sites.

Achievements
- Alstom is the strongest player in diesel multiple units (DMU) in Germany.
- The manufacturing capability of Salzgitter site is of approximately 150 trains and up to 1,000 bogies per year.
- Each year, about 4,000 freight wagons can be repaired in Salzgitter.

Main customers
- Arriva
- Deutsche Bahn AG
- Hamburger Hochbahn
- Hessische Landesbahn (HLB)
- Landesnahverkehrsgesellschaft Niedersachsen (LNVG)
- Swedish customers (eg Östgötatrafiken, Skånetrafiken)
- Veolia

Industrial Footprint
- Rolling stock:
  Electrical and diesel-electrical railed vehicles for city- regional- and long distance rail transport
  Shunting locomotives
  Components (bogies eg)
- Service, refurbishment and maintenance:
  Repair and maintenance for Alstom and non-Alstom trains, locomotives and freight wagons, spare parts
- Signalling and infrastructure:
  Train control and monitoring systems
  Train information systems
  Electrification and the supply of electromechanical equipment

References
- 462 ET 423 urban trains
- 452 Trams for Hannover, Braunschweig, Magdeburg, Darmstadt, Gera
- 439 DT2-4 Metros for Hamburger Hochbahn
- 136 “S-Togs” for Danish Rail (DSB)
- 84 ET 422 urban trains for North Rhine-Westphalia (in consortium)
- Coradia Duplex for SJ, Stockholm
- 100 RegioCitadis Tramtrains for Kassel and DenHaag
- 5 hybrid shunting locomotives for MEG

References (ongoing)
- 189 Coradia Continental Electrical Regional Trains for Deutsche Bahn and private operators
- 247 Coradia Nordic Electrical Regional Trains for Sweden
- 760 Coradia Lint Diesel Regional Trains for Deutsche Bahn and private operators

Further Projects
- H3 hybrid shunting locomotives for Deutsche Bahn (5) and Volkswagen (3)
- 27 DT5 metros for Hamburger Hochbahn (in consortium)
- Renovation, inspections and maintenance of (diesel) locomotives (Stendal site)
- To equip 121 trains of Deutsche bahn (DB) fleet ICE with its signalling ERTMS (European Rail Traffic Management System) based-train control solution Atlas
  Trains to be equipped are 71 ICE-T tilting trains and further 50 ICE3 trains
- 7 Diesel Multiple Unit (DMU) Coradia Lint to modernize for HLB
- 24 Diesel Multiple Unit (DMU) Coradia Lint to modernize for LNVG
References and Ongoing Projects

Grid

**Alstom Grid presence in and contribution to Germany**

Alstom Grid employs a workforce of 1,300 people who are working on 7 sites and in 11 Sales offices.

**Achievements**
- More than 40,000 high voltage switchgears sold worldwide from Kassel site in the last 10 years - more than 4,000 high voltage switchgears from Alstom Grid are in operation in Germany.
- More than 1,000 power transformers have been delivered with a total output of 100,000 MVA, 50% of them for Germany (also in the last 10 years). Today, every 4th power transformer in Germany is from Alstom Grid.
- Over 30,000 instrument transformers have been manufactured and integrated into the grid.
- More than 80% of all German MSCDN systems (mechanically switched capacitor with damping network) have been realized by Alstom Grid.
- Delivered electro-technics for the first offshore substation in Germany (alpha ventus).
- Alstom Grid engineers are pioneers of HVDC transmission systems and have been a guiding light in this field for over 50 years.

**Main customers**
- 50 Hertz Transmission GmbH
- Amprion GmbH
- Deutsche Bahn AG
- EnBW Transportnetze AG
- E.ON
- RWE
- Tennet TSO GmbH
- Vattenfall
- Wind energy business (onshore, offshore)

**Industrial footprint**
- HVDC technology
- Turnkey projects: HV substations
- Power electronics
- Power transformers and monitoring
- Instrument transformers
- HV switchgear
- Generator circuit breakers
- HV circuit breakers
- Disconnectors
- Network management solutions
- Service maintenance, repair, retrofit, asset management, spare parts & training

**References**
- Alstom Grid has successfully delivered the offshore substation platform for the Trianel wind farm Borkum in the German North Sea, and handed it over to Trianel Windkraftwerk Borkum GmbH & Co. KG.
- Alstom installed first self-erecting substation in Germany for Global Tech I offshore wind farm
- Power transformer order (850/1100 MV) for Vattenfall Europe
- Turnkey order from Bard Engineering for offshore Wind park Veja Mate
- Turnkey order from Wetfeet Offshore Windenergy for Global Tech I
- Delivery of electro technics for the first offshore substation alpha ventus
- Electro technical components for power plant expansion of Boxberg unit BoxR
- Construction of 380kV switchgear unit Osterath for Amprion GmbH
- Power compensation systems for TenneT TSO GmbH
- Air and gas insulated substations for municipalities
Alstom in Germany

References and Ongoing Projects

Projects
- DolWin3 (TenneT) offshore project awarded to Alstom (investment volume of more than €1 billion)
- Several orders for turnkey projects for self-floating and self-installing offshore substations to come, e.g. Meerwind and Baltic
- Power transformer order for Vattenfall Generation
- Power transformer order for E.ON
- 2 frame contracts for the delivery of circuit breakers 110 and 420 kV by Amprion
- Turnkey project for the reconstruction of 110-kV-substation VAW Jenfeld by Vattenfall
- Air core reactors for offshore wind farm Baltic 1 for 50Hertz GmbH