GMAB

Environmental Technologies

Cool and Clean, Forward

GMAB™ Flue Gas Treatment Technologies

GMAB provides GMAB™ flue gas cleaning and flue gas condensation technologies for a wide range of applications, including waste-to-energy, co-incineration and hazardous waste incineration plants.
Our capabilities include complete process engineering, project execution, equipment supply, installation and commissioning on a turnkey basis.
We also supply associated water treatment and energy recovery technologies for district and local heating solutions.
Our unique, integrated technologies provide an efficient removal of toxic pollutants. And our service engineers are available to assist with plant improvements, retrofits and maintenance for optimal performance from your equipment.

Flue gas cleaning

GMAB maintains a recognized strength and long tradition in building complete flue gas treatment systems for waste-to-energy plants.
Our experienced engineering team, project expertise and reliable designs allow us to deliver high-quality state-of-the-art technologies, whether dry, semi-wet, wet, or a combination of these solutions is needed.

Wet flue gas cleaning

We are specialists in wet flue gas cleaning along with associated water treatment.
Our wet scrubber systems provide extremely reliable and efficient flue gas treatment.
Our core competence covers the complete process including water treatment technologies.

Benefits

- Reliable and effective emissions control
- Operation with high availability
- High buffer capacity to handle peak variations
- Minimum chemicals consumption
- Low residue generation
- Most suitable to combine with flue gas condensation

Combination dry/wet flue gas cleaning

Dry or semi-wet flue gas cleaning can often be combined with a condensing scrubber for energy recovery and/or an integrated polishing function to meet the most stringent performance standards.

Benefits

- Optimal chemicals costs/consumption
- High tolerance to peak loads
- Wastewater free operation
- Enhanced energy recovery

Energy recovery

Incineration plants convert flue gas energy into steam through boiler systems, producing electricity and district heating. Our condensing scrubber technology captures excess heat, transferring it into district heating or other systems. Maximize your energy system's efficiency with our condensing scrubber technology and reduce environmental impact, resulting in a sustainable, economical heating solution.

Scrubber in Finland

Scrubber in Finland

Absorption Chiller in Sweden

Absorption Chiller in Sweden

Flue gas condensation

We have taken the recovery of energy one step further.
By cooling the flue gas to below its dew point, it is possible to recover large quantities of latent heat. If the flue gas temperature after the boiler is approximately 150°C it is possible by means of flue gas condensation, to increase the energy efficiency by up to 20%.
Condensation may take place either as a direct heat exchange between gas and district heating water, in some cases utilizing an intermediate cooling water circuit, and/or by using an intermediate heat pump. For optimum energy efficiency, a combination of these methods are used.
The flue gas condensation can be combined with ADIOX® tower packings in the scrubber stages for dioxin removal and memory-effect prevention.

Heat Pump Technology

We provide both absorption and compression heat pumps for enhanced energy recovery, as well as absorption chillers for cost-effective comfort cooling in the summer.
These chillers can be installed locally in properties or centrally in a district cooling system, utilizing excess heat from the district heating network as their energy source.
Our solutions require minimal maintenance, offer substantial financial benefits, and support eco-friendly operations by reducing CO_2 emissions.

Electrostatic Precipitators

For more than a century Electrostatic Precipitators (ESP's) have been the preferred Air Quality Control Technology for particulate abatement in power generation and industrial processes throughout the world. ESPs can be designed to meet stringent particulate emission standards with minimal pressure loss and high equipment reliability for extended plant operation. GMAB™ provides a full range of equipment for dry and wet electrostatic precipitators, including preassembled and panel type collecting plates, durable rigid discharge electrodes, mechanical tumbling hammers or electromagnetic rapping devices and a full range of microprocessor controls.

Water treatment

Our total system experience includes designing and supplying technologies to treat the waste water from scrubbers to minimize and potentially eliminate the discharge of harmful substances into waste water treatment systems or to the environment.

Unique Technologies

GMAB has developed a number of unique technologies that can be retrofitted into existing plants and integrated with our total package solution.

ADIOX® dioxin removal

The ADIOX® dioxin removal process is based on the high affinity of dioxins to carbon. By dispersing small particlesof carbon in PP-plastics, a material excellent for dioxin abatement is produced. A dioxin molecule that is present in the flue gas is initially absorbed into the PP and then migrating to a carbon particle where it is strongly adsorbed (connected to its surface). The plastic material acts as a selective membrane with a preference for molecules like dioxins. When the service life of the ADIOX material has come to an end, the material is incinerated. The dioxins are destroyed during the incineration process and removed from the ecocycle. Tower packings and droplet separators, produced of ADIOX material, can be installed in wet, saturated and dry applications.

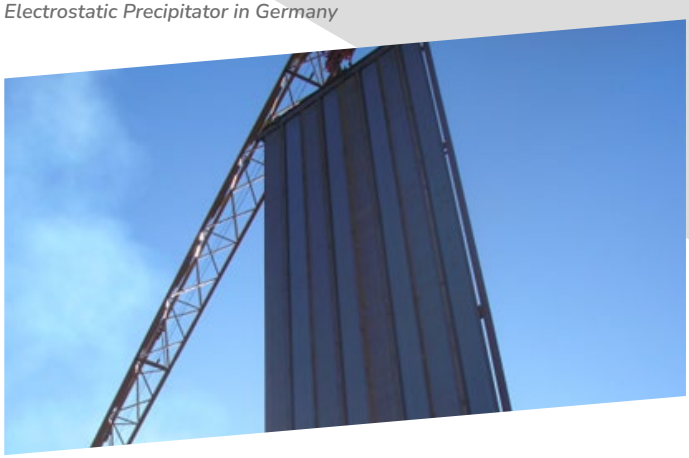
ReZinc Ash Leaching Plant in Sweden

Electrostatic Precipitator in Saudi Arabia

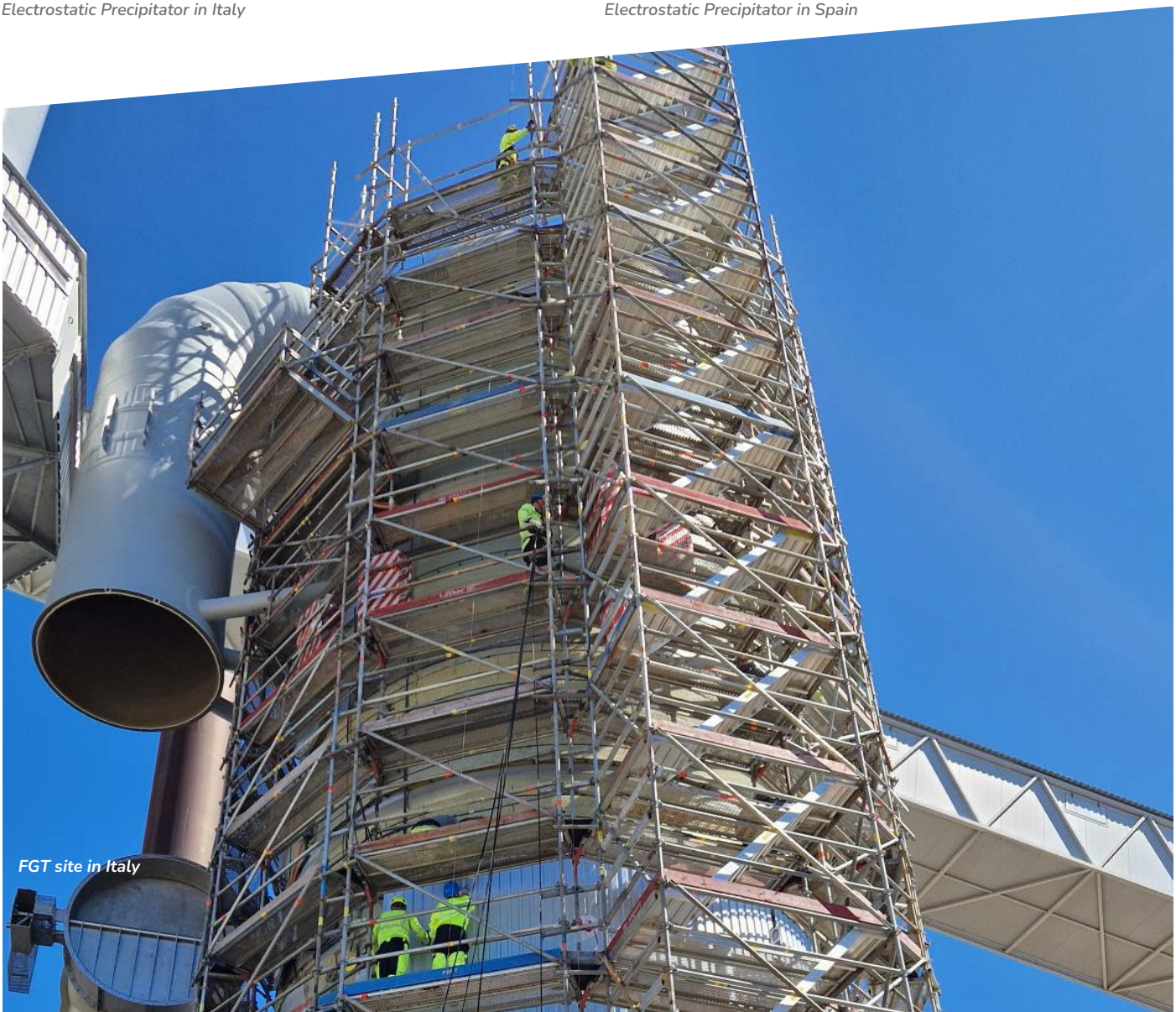
Electrostatic Precipitator in Italy

Electrostatic Precipitator in Germany

Electrostatic Precipitator in Italy



Electrostatic Precipitator in Spain



FGT site in Italy

With roots tracing back to Götaverken in 1841, from 1988 GMAB pioneered emissions-reducing technologies. Today, it continues advancing flue gas cleaning innovations, collaborating widely to minimize environmental impact.

FGT Service

With decades of specialized experience in servicing and maintaining flue gas cleaning systems, compressors, and absorption heat pumps, we provide an unparalleled level of expertise tailored to the unique needs of your operations.

Expert Maintenance and Service Solutions

- Decades of specialized experience in flue gas cleaning systems, compressors, and absorption heat pumps
- Comprehensive service program covering swift spare parts delivery and complete plant maintenance for long-term reliability and smooth performance
- Extensive knowledge and expertise tailored to meet the specific operational needs of your facility

Enhanced Upgrades and Proactive Support

- GMAB™ offers advanced conversions, upgrades, and system optimizations, ensuring adherence to the latest environmental standards and efficiency gains
- Expert installation, commissioning, and servicing for absorption chillers, enhancing system longevity and minimizing potential issues
- Preventive maintenance agreements for a proactive interventions, designed to reduce unplanned downtimes and ensure sustainable, long-term operations

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Quality, Health & Safety, and Environmental Management System is certified by

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