



Glass

Area Impianti is based in Padua, North of Italy, and was established in 1990 by three founding members who are still successfully running the entire Group.

Strategy

Solutions tailored for customer's plants and needs
Focus on the customer's stringent emission limits
Capacity to work abroad

EPC contracting
Local customer service
Experience with both private companies and municipalities
Continuous training for customer operators

Areas of Activity

Flue Gas Treatment

Area Impianti designs, manufactures and installs flue gas cleaning plants with advanced technological content. **These solutions aim to reduce emissions below the limits required by national and international laws.**

The company is present mainly in:

Incineration

Urban and industrial waste incineration
Biomass incineration

Industry

Glass industry
Aluminium and cast iron smelters
Steel foundries
Tyre incineration factories
Cement and lime factories

Heat Recovery and Power Generation

Area Impianti designs, manufactures and installs complete lines of incineration, fermentation and anaerobic digestion used for waste processing in order to produce electric and thermal energy. Area Impianti also builds waste gasification plants for cogeneration.

The company handles:

Municipal, hospital and special waste
Sludge
Biomass
Agricultural waste

Presence in the World

Consolidated markets

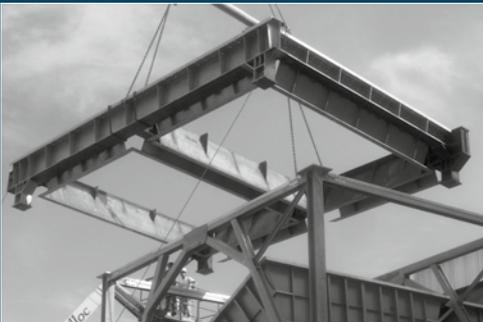
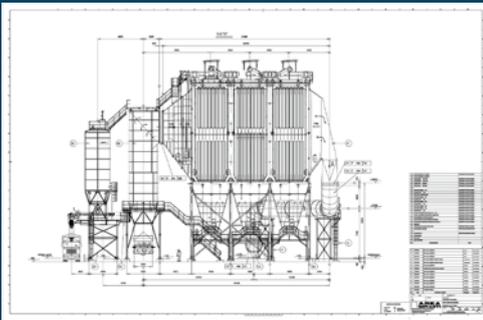


Thanks to a global and complete supply, client can have one single contractor, optimize costs & benefits, respect their deadlines, achieve their performance targets with minimal interference with the operation of their existing plants.

Area Impianti provides **Turnkey Solutions** and covers any different skill linked to complete industrial offers:
Planning and design
Component supply and manufacture
Erection
Start-up

For major projects, Area Impianti also set up strategic joint-ventures with first-class partners in order to acquire specific technologies to be integrated in the global provision.

Turnkey Projects



AIR CLEANING - HEAT RECOVERY - POWER GENERATION

Flue Gas Treatment

- Dedusting - using electrofilters and/or bag filters
- DeNOx - adopting SCR catalytic treatments and/or SNCR thermal treatments
- DeSOx & Acid gas removal - by means of dry adsorbent, like sodium bicarbonate and HSS lime
- DeDioxin - using activated carbon and/or catalytic treatments

Heat Recovery and Power Generation

- Boilers for biomass and waste
- Heat exchangers and boilers for thermal recovery from waste gas
- Steam thermal cycles
- Organic Rankine cycles
- Anaerobic digestion
- Drying of sludge and domestic wastes
- Systems**
- Steam turbine over 600°C
- Organic oil turbines from 250° to 600°C
- Alternative internal combustion engines

Know-How

ISO 9001: 2008
 for Quality Management System
 Cert. No. 491226 QM08RT

ISO 14001: 2004
 for Environmental Management System
 Cert. No. 491226 UM

BS OHSAS 18001: 2007
 for Occupational Health and Safety Management System
 Cert. No. 491226 BSOH

SOA OS 14, VIII unlimited
 special certification for Public Italian tenders and works

Certifications





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AREA IMPIANTI CHINA

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AREA IMPIANTI TURKEY

Bursa, TR



**AREA
IMPIANTI**

AIR CLEANING • HEAT RECOVERY • POWER GENERATION

ESP plants

For a long time ElectroStatic Precipitators have been the most common solution for industrial dedusting. This technology is the heart of more than 24 flue gas treatment systems installed by Area Impianti in the European glass market.

The use of 2 or 3 field ESPs is suitable for glass furnaces of any kind and size but it becomes definitively brilliant when high flue gas flow rates are present. This is the case of float furnaces or several furnaces joined together into the same flue gas treatment. Typical temperatures for ESP range from 250 to 400°C.

A technology tuned with the glass industry



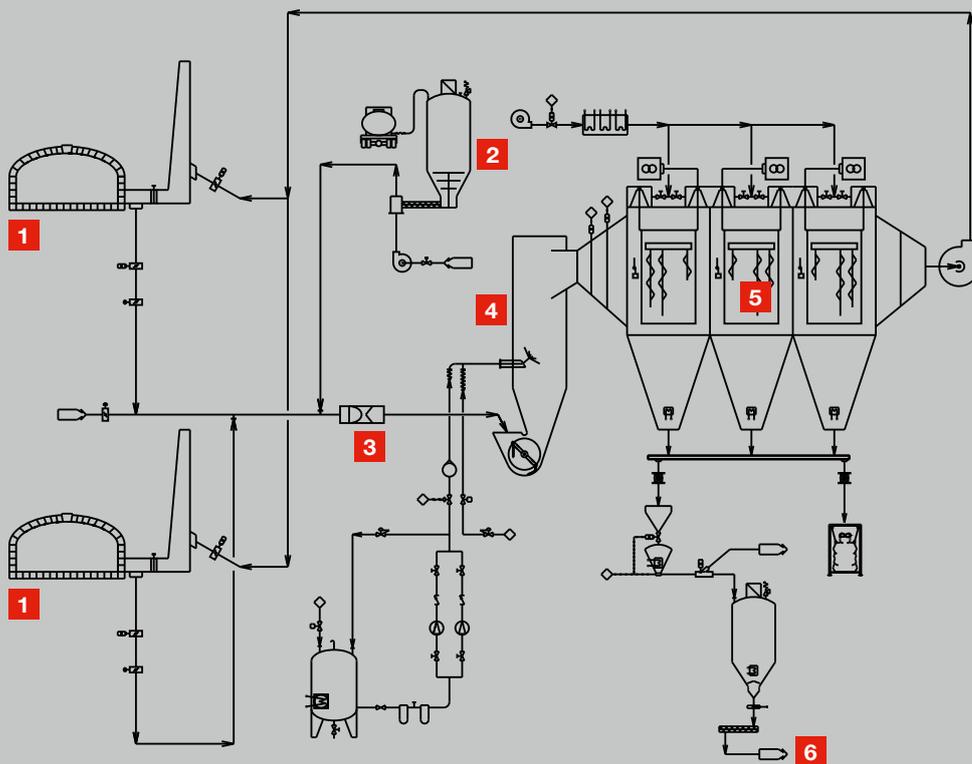
Area Impianti ESPs are designed using a specific simulation software that joins fluid- dynamics and electrostatic aspects of each application. This allows a continuous improvement of the proposed solution, that is tailored on customer specific requirements and on dust characteristics (such as granulometry and resistivity).

Area Impianti neutralizes acid gases (SO_x, HCl, HF, HBr and others) by injecting a dry absorbent (sodium bicarbonate, standard or HSS lime and other absorbents) directly in the duct using a mixer. This reaction can also be completed in a classic vertical tower reactor or in a cooling quencher.

Conditioning of the gas upstream the ESP, if required, can be achieved by dilution, heat exchanger or water quenching.

Finally Area Impianti can also supply a new metal chimney that is high enough to ensure a natural draft for flue gases.

- 1 Glass furnace
- 2 Reagent storage
- 3 Motionless mixer
- 4 Quencher - reactor
- 5 ESP
- 6 Dust storage or recycling



With its top technologies and large experience (more than 24 bag filters for glass factories since 1992) Area Impianti is able to turn standards into tailored solutions and vice versa.

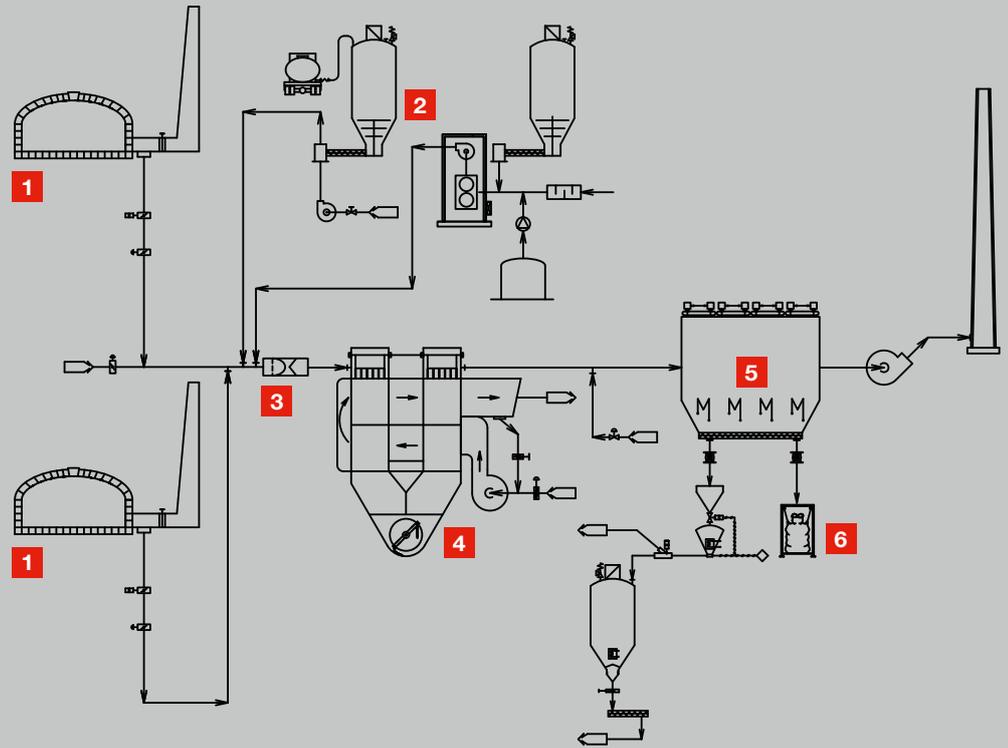
In order to meet customer needs, Area Impianti is further developing their bag filters, with particular attention to the duration of bags (minimum expected lifetime: 6 years) and to the reduction of compressed air consumptions (PPoD system), offering a high degree of automation and a simplified maintenance.

Area Impianti solutions for the cooling of the flue gases typically include: heat exchanger and water quencher, but also heat recovery systems boilers.

Furthermore Area Impianti has developed its own solution that makes possible low temperature catalytic treatment (SCR) for NOx to be placed downstream of a Bag Filter.

For all these reasons, the Bag Filters of Area Impianti are tuned with the future and represent a solution that meets the highest standards for both environmental protection and cost saving.

- 1 Glass furnace
- 2 Reagent storage
- 3 Motionless mixer
- 4 Heat exchanger
- 5 Bag filter
- 6 Dust storage or recycling



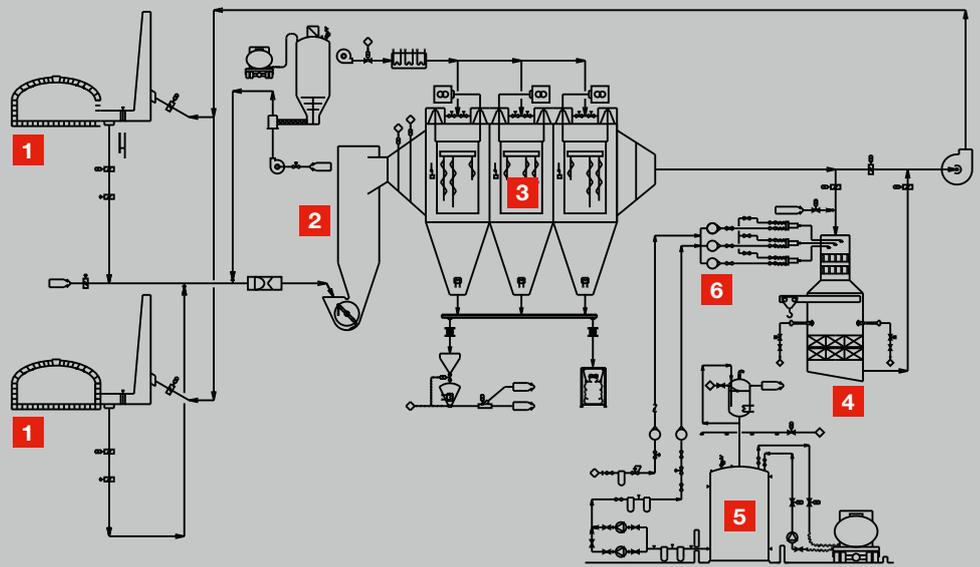
The development of new technological materials and the optimization of shape and cleaning processes have given a new impetus to Bag Filters. Their well known advantages – such as high de-dusting efficiency, optimization of the absorbent efficiency due to the “fixed bed reactor” effect – are now strengthened by low operational costs and simplified maintenance.

This is why bag filters are so often applied to the various scenarios of the Glass Industry and still represent one of the most suitable solution for the cleaning of flue gases.

Bag filter plants

A long experience for a reliable solution

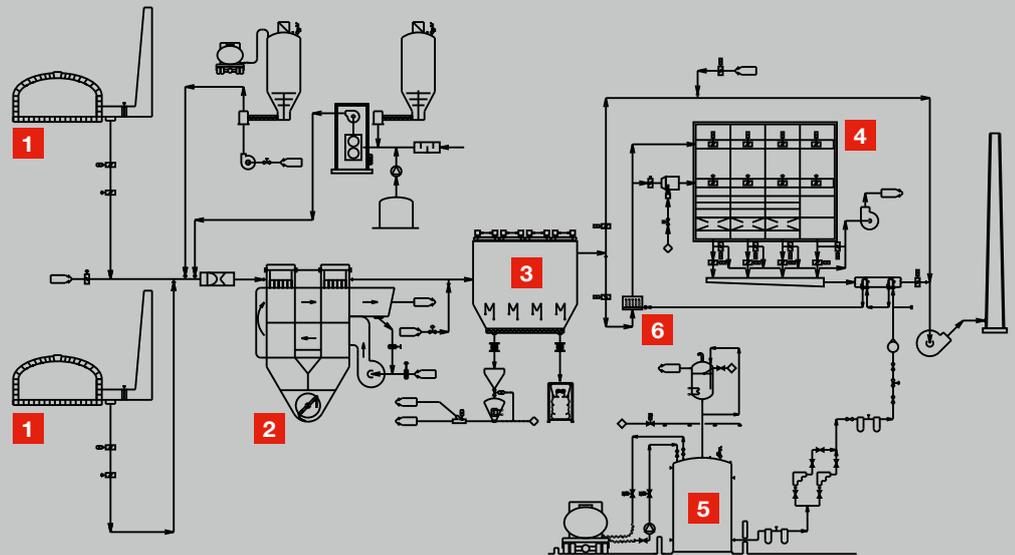
- 1 Glass furnace
- 2 Reactor
- 3 ESP
- 4 SCR deNOx
- 5 Ammonia storage
- 6 Ammonia injection



The SCR can easily operate around 350°C; therefore, it can be installed downstream an ESP. At lower temperatures, the catalyst could be affected by several problems; to avoid them, Area Impianti has developed a solution that enables NOx reduction also at 180-200 °C, for instance after a bag filter. Another important aspect optimized through Area Impianti's experience is the fluid dynamic design, allowing a good distribution of the reagent.

Moreover, Area Impianti has developed and patented a specific casing for the SCR. The particular studied construction offers two important advantages:

- it allows easier maintenance, also on-line
- it gives the opportunity to use different kinds of catalyst present in the market, so that the final customer is free to negotiate at the moment of replacement.



- 1 Glass furnace
- 2 Heat exchanger
- 3 Bag filter
- 4 SCR deNOx
- 5 Ammonia storage
- 6 Ammonia injection



SCR deNOx plants

A strong know-how for the most stringent needs

The nitrogen oxide treatment in the glass industry is more and more needed to comply with strong emission limits in Europe and worldwide. To treat NOx, plants that are already equipped with a flue gas treatment have to face the challenge to improve and modify their existing system with both an injection of reduction reagent (urea or ammonia) and an SCR (Selective Catalytic Reduction). Area Impianti's experience with these systems begun in 2002: since then, more than 18 SCR have been successfully installed, using different catalyst suppliers and operating conditions, acquiring a deep knowledge of the system and its possible applications.

Heat recovery and power generation

Energy from your waste gases

The increasing costs of energy and a global overview of environment protection require a new approach to the management of heat sources like flue gases.

Area Impianti's expertise in the heat exchange, its strategic partnership with boiler manufacturers and its practice to supply turnkey plants give the opportunity to offer solutions that maximize waste gas energy exploitation.

The integration of thermal recovery while designing a flue gas treatment line is the best solution.



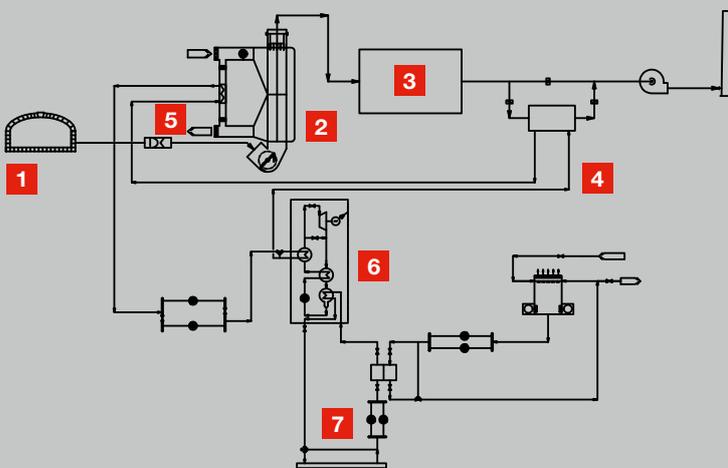
Area Impianti's solutions covers a wide range of systems, such as air heating through fumes/air heat exchangers and steam generation with boilers. Steam is then used for process needs and/or electricity production in a turbine. When the fumes temperatures is below 600°C, an interesting alternative

is represented by fumes/oil heat exchanger and electricity production with Organic Rankine Cycle – ORC.

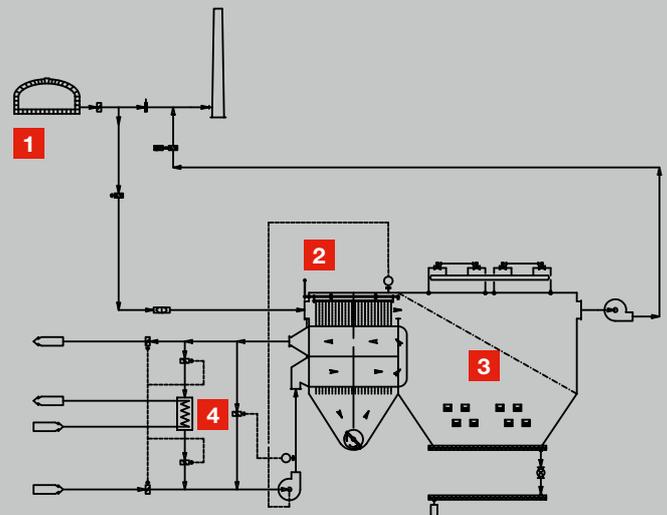
Heat recovery can be used in the flue gas treatment line as a cooling stage in order to keep the temperature profile as required by the different technical solutions.

For instance a two stage boiler can be installed

upstream and downstream of an ESP, with the first stage with output at 400°C, and the second stage recovering final heat content of fumes. For a bag filter application, a heat exchanger can reduce the temperature to 200°C, limiting also the consumptions due to a cooling system to the only period when the boiler is by-passed.



- 1 Furnace
- 2 Flue gas cooler/Air heater
- 3 ESP + SCR
- 4 Gas/Oil Heat Exchanger
- 5 Air/Oil Heat Exchanger
- 6 ORC module
- 7 Water Heating



- 1 Furnace
- 2 Flue gas cooler/Air heater
- 3 Bag Filter
- 4 Air/Water or Air/Oil Heat Exchanger