

# QUENCHER – VENTURI SCRUBBER

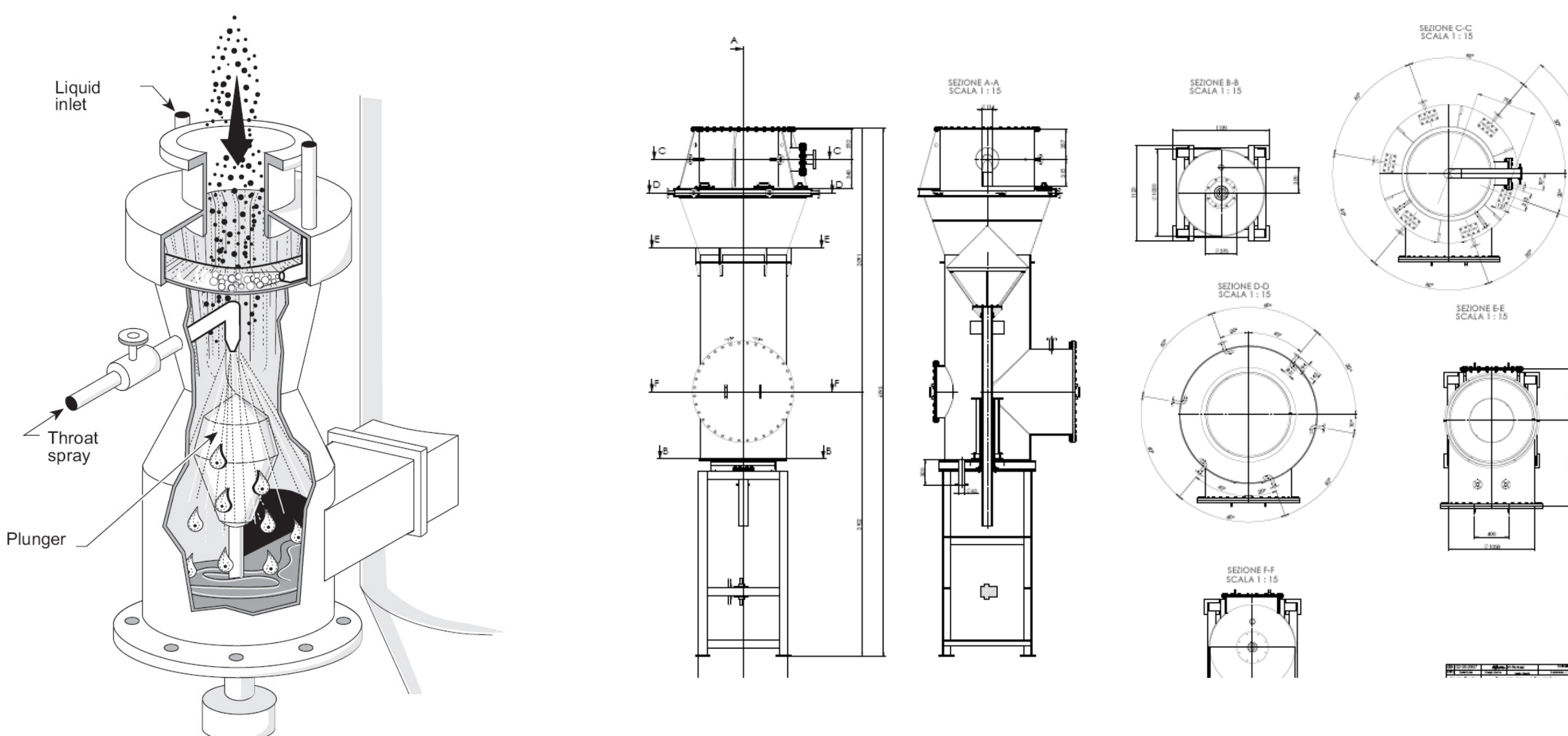
Venturi scrubber is designed to effectively use the energy from the inlet gas stream to atomize the liquid being used to scrub the gas stream.

A venturi scrubber consists of three sections: a converging section, a throat section, and a diverging section. The inlet gas stream enters the converging section and, as the area decreases, gas velocity increases. Liquid is introduced either at the throat or at the entrance to the converging section.

The inlet gas, forced to move at extremely high velocities in the small throat section, shears the liquid from its walls, producing an enormous number of very tiny droplets.

Particle and gas removal occur in the throat section as the inlet gas stream mixes with the fog of tiny liquid droplets. The inlet stream then exits through the diverging section, where it is forced to slow down.

The relatively high liquid-to-gas ratio, liquid atomization, and open internal design provide effective scrubbing of heavily contaminated gases with minimal maintenance and virtually unlimited turndown capabilities. Its ability to handle wide ranging conditions while removing both toxic gases and particulate matter makes the Venturi one of the most flexible designs available. It is often used as a first stage in a multi-stage pollution control system.



Venturi scrubbers can have the highest particle collection efficiencies (especially for very small particles) of any wet scrubbing system.

They are the most widely used scrubbers because their open construction enables them to remove most particles without plugging or scaling.

Venturi scrubbers have been designed to collect particles at very high collection efficiencies, sometimes exceeding 99%. The ability of venturis to handle large inlet volumes at high temperatures makes them very attractive to many industries; consequently, they are used to reduce particulate emissions in a number of industrial applications.

This ability is particularly desirable for cement kiln emission reduction and for control of emissions from basic oxygen furnace in the steel industry, where the inlet gas enters the scrubber at temperatures greater than 350 °C (660 °F).

Venturis are also used to control fly ash and sulphur dioxide emissions from industrial and utility boilers.

