

# Green fuel: Körting as a partner for the construction of bio-ethanol plants.



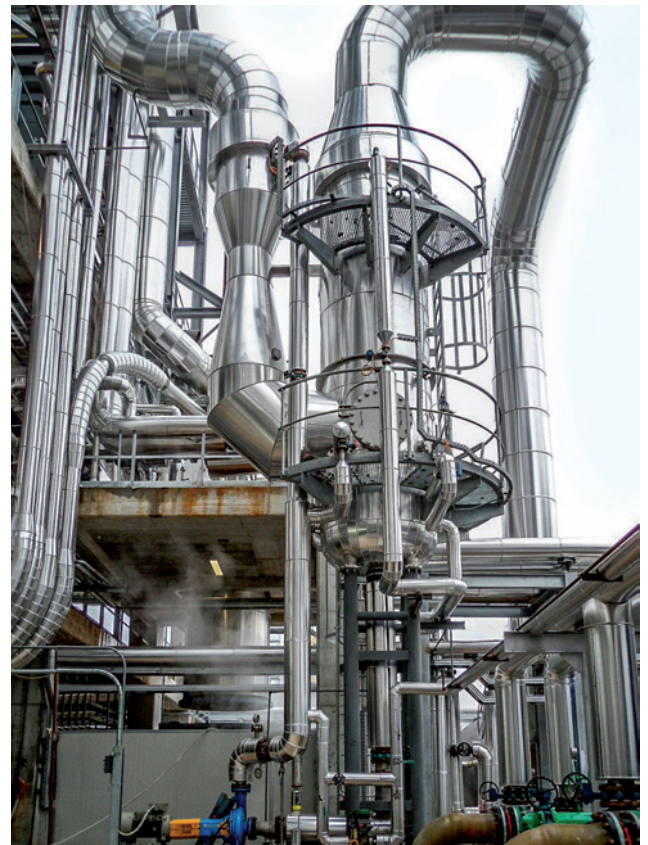
Supported by Körting, Beta Renewables in Crescentino, Italy, belonging to the Mossi & Ghisolfi consortium, is in the process of constructing its first large-scale industrial plant for the production of bio-ethanol from agricultural waste. More and more companies are profiting internationally from the advantages which these plants of the „second generation“ for the special manufacturing of environmentally friendly energy carriers can offer.

Worldwide escalating oil prices are the cause of increasing interest in alternative fuels such as bio-ethanol. During production of this environmentally friendly energy carrier companies have, above all, one thing in focus: to increase production at a constant quality and low costs. Beta Renewables therefore places its emphasis on a newly developed process in which Körting Venturi scrubbers play an important role.

## Venturi scrubbers in full action

The process in which the Venturi scrubbers are applied at Beta Renewables is called Proesa™. „With this innovative technology, fermented sugar is gained from agricultural waste which is then used to produce bio-ethanol or other bio-chemicals“, explained Dipl.-Ing. Arnd Rötz, head of the Waste Gas Cleaning Dept. at Körting Hannover AG. At the time being, plants belonging to the „first generation“ are still in operation. In these plants raw materials, used also as food or feeding stuffs, are utilised. Now source materials from bio-mass can be employed to generate bio-fuels belonging to the „second generation“ which – such as e.g., straw or waste wood – are counted as organic waste or which grow on substandard soils inappropriate for agricultural use. This distinguishes the Proesa™ process. Waste from agricultural production processes unused until now can be applied, amongst others, for the generation of bio-ethanol.

To increase energy efficiency the water vapour originating in the process and polluted with organic dusts would have to be cleaned. This is where the Körting Venturi scrubber comes into operation. „Gas is conveyed through the scrubber with the aid of a



The new high-grade steel plant at Beta Renewables.

blower and accelerated. Microfine droplets come into being through the shearing forces acting on the injected scrubbing liquid and which are encircled by gas at high speed“, reported Arnd Rötz. Due to the mass inertia of the particles they cannot follow the gas flow lines anymore, they impact on the liquid droplets and so are captured and discharged (highway effect).

„The one interesting matter about a Venturi plant is, in this case, the application of hot condensate at a temperature of 100 °C, so the steam no longer condensers on contact with the rinsing liquid but

instead can be conducted to a further energetic utilisation“, explained Arnd Rötz. The condensate is subsequently separated from the steam flow in a separator tank. Clean steam leaves the Venturi plant via a Körting swirl droplet separator (DTA) and is subjected to further treatment in the downstream connected process stages (heat recovery). In addition to this, Körting nozzle mixers are employed to prevent deposits of the separated dust in the separator tank and these contribute quite considerably towards plant

availability. This high-grade steel plant for applications with volume flows of up to around 40.000 Nm<sup>3</sup>/h is fully operational in the meantime. With regard to the collaboration between the two companies, Beta Renewables expressed themselves very positively: „Körting is a reliable and important company for us. The delivery of the Venturi scrubber took place within the designated time and start-up went according to plan and without the occurrence of any problems.“



Körting testing field for optimisation.

### Decisive advantages in a competitive environment

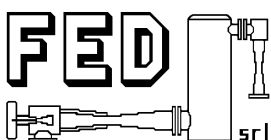
„For the construction of new plants, manufacturers face particular challenges“, so Arnd Rötz. „With our special know-how, our experience and our products we advise and support companies worldwide so that production costs and risks are minimised“, he added. A quick installation and start-up as well as, in connection to this, a reduction in project realisation time are decisive factors which Körting can influence. „At Körting, service does not end with the plant’s start-up. Our global support assists our customers – also on site – round the clock on 365 days a year so that production can take place smoothly“, explained Arnd Rötz. Körting’s technical and innovative solutions can be integrated at any time in existing systems so that the power to compete is maintained.

### At a glance

Application:	Venturi scrubbers for dedusting process gases
System components:	Venturi scrubbers, separator tanks, swirl droplet separators (DTA), nozzle mixers
Gas flow:	40.000 Nm <sup>3</sup> /h water vapour at 102 °C
Rinsing liquid:	Condensate at 100 °C
Dedusting degree:	more than 99%



Körting Venturi scrubber at work.



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