IKN AFC: 100% Alternative Fuel, Lower Costs & Emissions

The IKN AFC technology offers the possibility of replacing primary fuels (oil, coal, natural gas) at the main burner with high-grade alternative fuels. The AFC converts the alternative fuels into a high calorific pressurized syngas to be used at the main burner without the need for an additional fan. With this pioneering technology, up to 100% alternative fuel rates are possible. This will reduce costs dramatically. The integration of the AFC into the plant fuel concept helps to reduce the cost of primary fuels and to minimize the carbon footprint of the combustion process.

Benefits for the process in comparison to coal as primary fuel:

- **More stable flame**
- **Less reducing conditions**
- **Better combustion**
- **Higher energy density**

AFC technology in brief

The AFC combines the advantages of gasifcation and pyrolysis. Advanced process control, using two coordinated reaction chambers, makes it possible to convert alternative fuels into high-grade syngas without any signifcant carbon residues in the ash. The higher the quality of the used AF, the higher the quality of the produced syngas. The high calorifc syngas can be used at the main burner of the rotary kiln.

As the syngas enters the burner under pressure, a proper flame shape will be ensured. An additional blower or compressor in the syngas line is not necessary. All main components of the equipment are installed on ground level and only the gas pipe leads to the kiln. This simplifes feeding of the material. The compact design allows location in a free space in the vicinity of the kiln.

Technical data AFC (Alternative Fuel Converter)

Alternative fuel specifications

+ 2D material: max. size 30 x 30 mm
+ 3D material: up to 10 %, max. size 10 x 10 x 10 mm
+ Free of metals and minerals e.g. concrete, stones, glass
+ Chlorine content (dry): < 1,0 %
+ LHV target value (as received): 25 MJ/kg
+ Water content: max. 10 %
+ Ash content: max. 15 %
+ Ready for mechanical transport

Burner lance requirements

+ One free channel with a diameter of not less than 150 mm

Technical data

(based on above fuel specification)

+ Capacity: up to 5 t/h of alternative fuel
+ Control range: 1:3
+ LHV of produced syngas: up to 23 MJ/Nm³
+ Rated syngas energy output @ 5t/h: ~ 35 MW
+ Installed electrical power: 250 kW

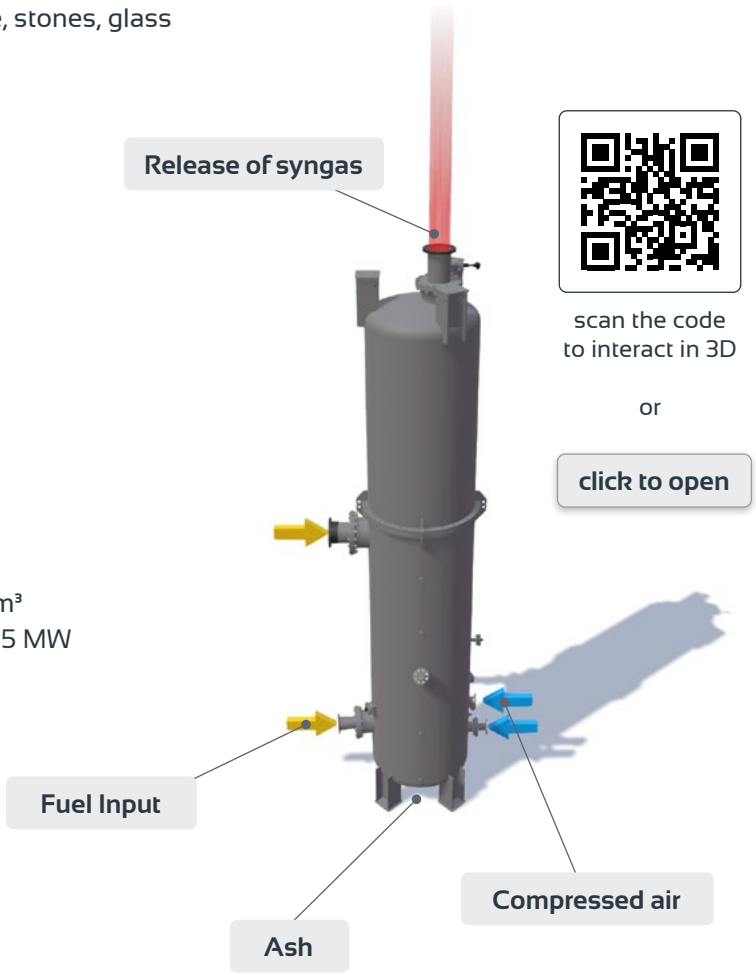
Dimensions

(including stairs and platforms)

+ Height: 12 m
+ Diameter: 1,5 m
+ Weight: ~ 20 t

Other

+ Propane, butane or natural gas for start-up procedure
+ Nitrogen for inertisation during shutdown (gas bottles)



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