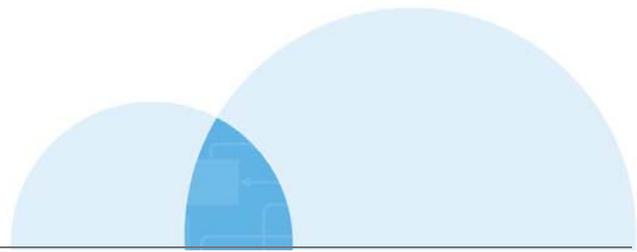


Flowsheet:

# Reforming

(auto-thermal reformer)



Johnson Matthey's **DAVY™** reforming technologies transform natural gas into synthesis gas (syngas, predominantly CO, CO<sub>2</sub> and H<sub>2</sub>). Syngas is a feedstock for the gas-to-liquids (GTL) and methanol processes.

We offer different reforming technologies to fit various operating conditions, creating syngas by the reaction of hydrocarbon feeds with water, CO<sub>2</sub> or via combustion. It is possible to combine **DAVY** reformers to optimize output, depending on process requirements.

## Process description

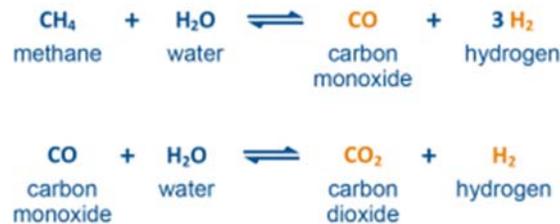
The reforming process takes place in a single radiant box. Prior to entering the steam reformer, the natural gas feed undergoes saturation with steam and pre-heating.

The reformer is an insulated rectangular draught-fired furnace containing rows of vertical, catalyst-filled tubes. Alternating with these reactor tubes are downward-firing burners situated in the roof of the reformer.

The unit operates co-currently, with the gas and steam flowing downwards through the tubes and the burners providing the heat for the endothermic reaction.

The gas and steam react over the catalyst to form a mixture of syngas (CO, CO<sub>2</sub> and H<sub>2</sub>), residual methane and water in the form of steam.

This process may be summarized as follows:



The hot flue gasses collect at the bottom of the radiant box and discharge to a waste heat recovery system, returning heat to other parts of the process.

## Flowsheet

Figure 1

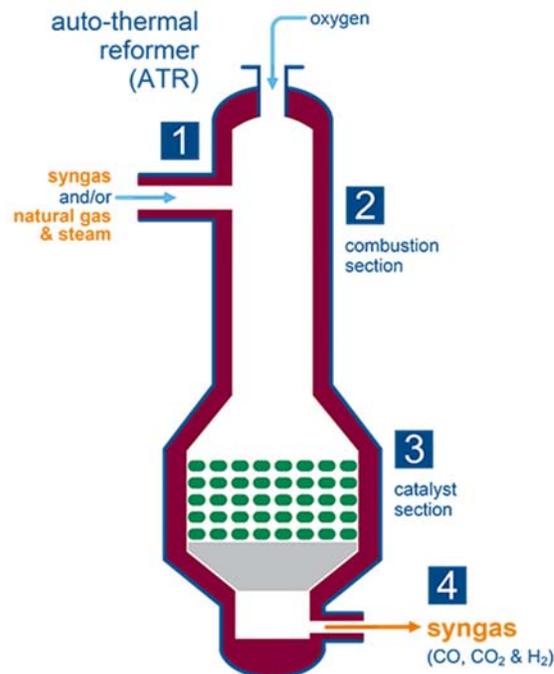


Figure 2

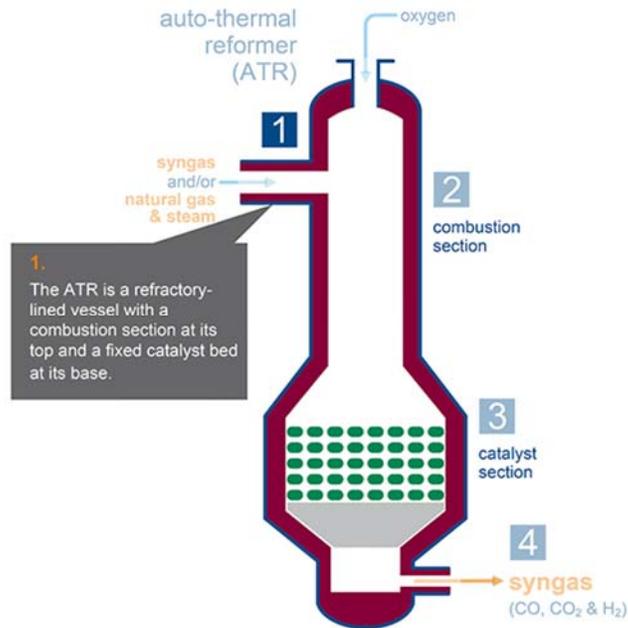


Figure 3

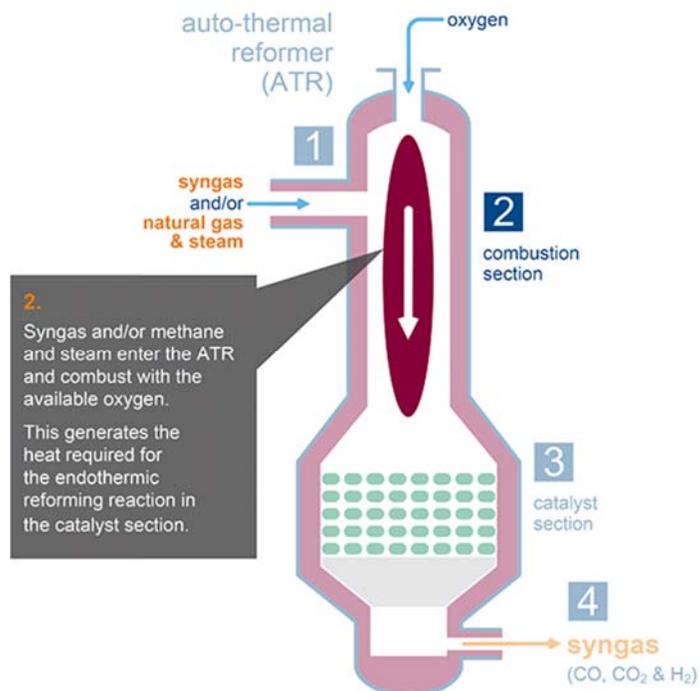


Figure 4

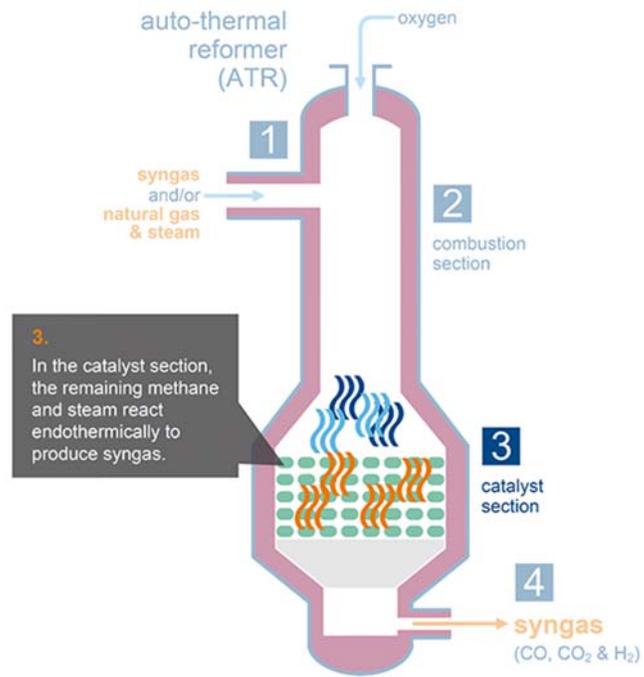
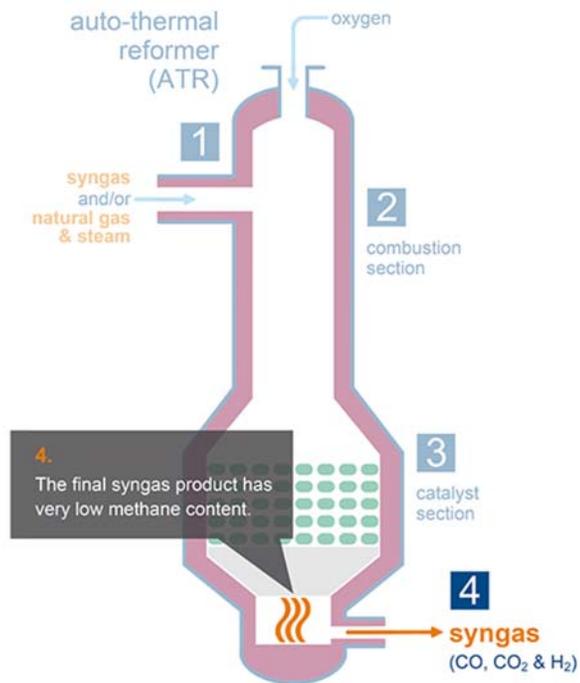


Figure 5



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