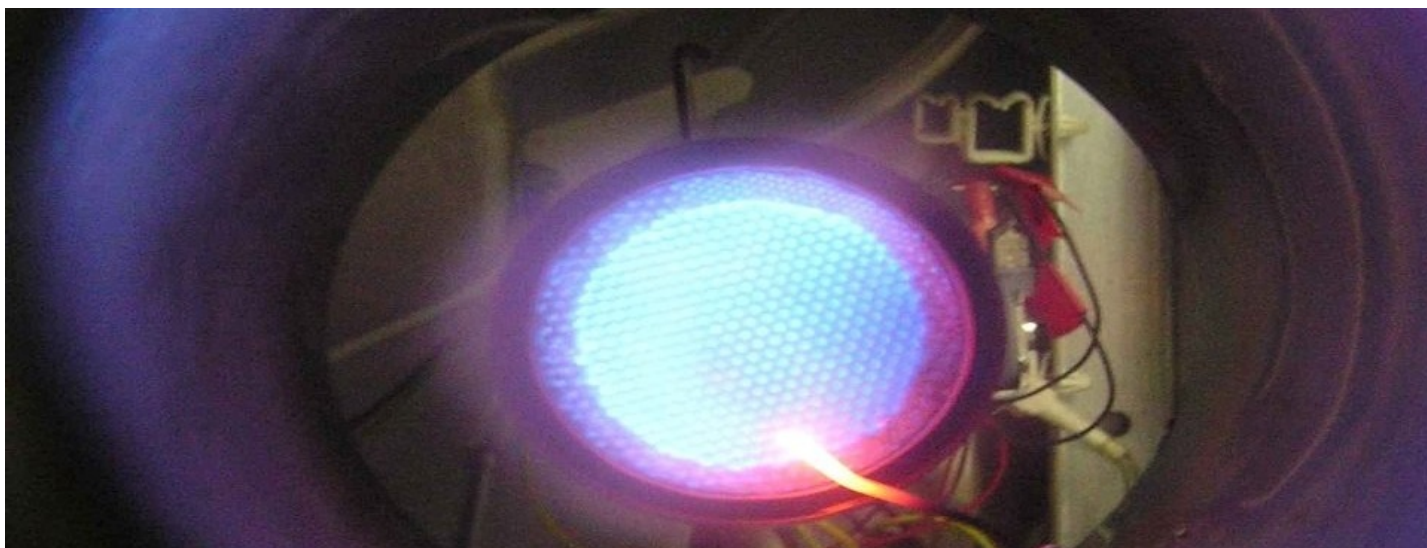


## Heat Pump Tumble dryer



**Kiwa Technology has carried out a feasibility study for a manufacturer concerning the possibilities of a tumble dryer powered by a heat pump. We compared the greenhouse effect (TEWI) of CO<sub>2</sub> as a cooling agent with conventional products such as R410a and R134a. If CO<sub>2</sub> is used as a cooling agent, an air temperature of 90 °C and an overall COP of 3 can be achieved.**

The heat pump tumble dryer is a concept in which energy consumption is minimised, despite using electricity as the primary energy source. Air is circulated through a drying system by a fan.

Dry air flows through the condenser or gas cooler, where it is heated up to enable it support the maximum possible humidity level. Subsequently, the air is transported to the drum, where it dries wet clothes. In the following step, the air is blown through an evaporator, where it is cooled to below the saturation point. The water condenses and is collected in a container or fed to a discharge pipe. In the condenser, the dry air is reheated, using the heat produced by the water condensing in the evaporator. Because it only requires external energy (the use of the compressor) for transporting the heat, the system is more efficient than conventional tumble dryers. The same power input results in a higher drying capacity. A modulating compressor, driven by an inverter, is used to adapt the power to the respective phase of the drying process.

### Target Group

Manufacturers of tumble dryers powered by a heat pump.