

Small size Steam Turbine now available



On numerous plants Steam power is produced in large quantities. For transportation purposes it is eligible to use higher pressures, in order to eliminate transportation losses. By doing this, the size of the transportation tubes can be reduced massively. At the side of the end-user only a part of the pressure is used. Up till now the pressure reduction was done over a pressure valve. Innecs has developed a Steam Turbine which can execute the required pressure reduction AND generate electricity in the meantime This electricity production is very costs effective.

‘Turn costs into revenues’



Mister Ger Bloem
CCO Innecs Power Systems

Investment
€ 200.000

Savings
€ 4,500 p/m

Other benefits
Improved total CO₂ footprint
<http://www.innecs.com>

The SteamExpander makes money out of wasted power

When a company needs to reduce steam pressure for their manufacturing process the SteamExpander can be utilized to increase the efficiency of the overall boiler system . When reducing steam pressure energy is often wasted, the SteamExpander captures much of that energy and converts it to electricity. Provided the pressure drop is sufficient the SteamExpander can reach full power generation efficiency on steam inputs as low as 3 bar, making it suitable for most industrial boilers. In essence, a common industrial boiler can be made into a micro-cogeneration power plant with minimum work and cost.

Heat Recovery

This system can also be used in conjunction with a heat recovery boiler to generate significant amounts of electricity from high temperature waste heat (>250°C), usually vented through flue stacks or treated in flue gas cooling systems. The ability to affordably turn waste heat into power not only creates a new revenue stream for the company, but if the flue gas is cooled and treated before being released, the SteamExpander turns a cost stream into a revenue stream.

Minimal Emissions

In most instances, the energy loss from reducing the pressure of high pressure steam is not captured. The SteamExpander captures this energy

loss by acting like a common steam turbine, the difference is that it is able to run on:

- much lower pressure steam
- much lower steam flows and variable steam flows.

It does the work of a common pressure reduction valve as well as generating power in the process. The net result is that ‘free, emission-less power’ can be generated when steam entropy does not need to be maintained, or very cheap, low emission power when it does. The total energy and environmental footprint is improved significantly.

BEST PRACTICES FACTSHEET



Turbine with integrated high speed generator.

This SteamExpander, as well as our PowerBurner, utilizes the same innovative concept to use the turning turbine axle to propel the high speed generator. By integrating the parts into one seamless part, the total number of parts is vastly reduced, which makes the maintenance simple, compact and affordable. The SteamExpander design is laid out to produce 250 kW electric energy from around 4 tons of steam, and due to its modular design can be scaled up for clients with larger steam flows.

Interesting for combined usage

In many cases large amounts of steam is generated at a central location and at a high pressure in order to make transport efficient. The end user/process often requires a much lower pressure. On all these individual low pressure spots, a SteamExpander can reduce pressure and generate electricity•