



Waste Heat to Energy

Clean Electrical Energy from Your Existing Industrial Processes

FEG are designing and installing systems which incorporate the patented Heliex Waste Heat to Energy technology which can be applied in any process that produces waste heat, including wet steam, from 150 up to 300 deg C and higher in certain circumstances. Applications for Heliex's systems exist in Electricity Generation, Petrochemical Industries, Glass & Refractories, Pharmaceuticals, Food, Brewing & Distilling, Paper Production, Biomass and Land Fill Gas Engines.

This is not an exhaustive list and industrial diesel engines and gas turbines, combined heat and power systems, geothermal power stations and processes utilising steam pressure reduction valves can all improve their energy economics through Heliex's screw expander sets comprising expanders with outputs from 70 to 500 kWe. The sets can be supplied in multiple installations for higher power outputs and as 2 stage installations for high pressure drops.

FEG sustainable energy and heat recovery solutions include:

- Heliex Waste Heat to Energy
- Waste to Energy Systems (Biomass & Anaerobic Digestion)
- Heat Recovery Systems
- Energy Efficiency and Reduction
- Process Design
- Heat Wheels & Absorption Technology
- Rankine Cycle
- Heat Stratification



Applications

Wherever there is waste heat generated the Heliex Waste Energy technology can often be applied to the process.

Heliex Open System

The Heliex device replaces the Pressure Reduction Valve in a process line or in the discharge line for waste steam. The Heliex generates electricity that can be used internally or sold back to the grid through the feed-in-tariff.

Heliex Closed System

A suitable waste heat source is used to generate steam in a dedicated boiler feeding the Heliex device that recovers the waste energy in the form of electricity.

- Clean Electricity From Wet Steam
- Waste Heat Recovery (WHR)
- Pressure Reduction Valve (PRV) Processes
- Process Steam
- Exhaust Gas Energy Recovery
- Biomass and Biogas Installations
- Diesel and Gas Engine Exhausts
- Concentrated Solar Power (CSP)
- Geothermal Power Sites

Clarity through simplicity

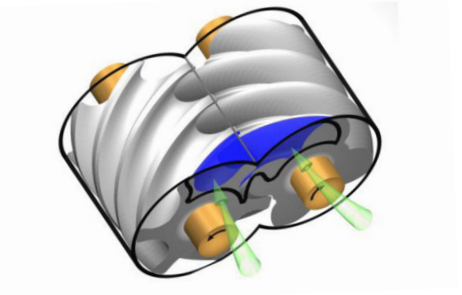
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Waste Heat to Energy

Heliex uses well proven rotate screw technology conventionally used in the production of compressed air which has been developed and patented for expansion.

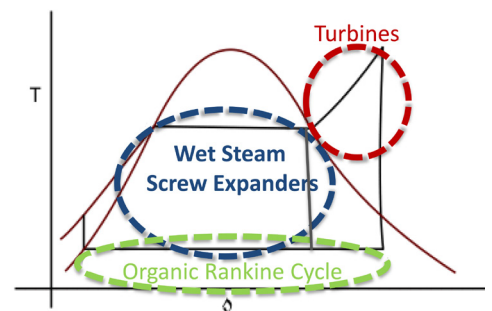
Using this twin rotary screw principle, Heliex Expanders can for instance use the pressure reduction step in steam distribution circuits to generate clean electricity.

Heliex Expanders work where turbines cannot because they can process wet steam and liquid water. Heliex's expanders eliminate timing gears and other costly components and generate electricity at 50 or 60Hz and do not use refrigerants.



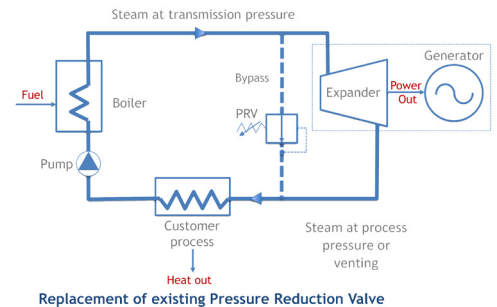
Benefits of Heliex Waste Heat to Energy:

- Well established technology (screw compressors), now developed for expansion
- Simpler and more robust than turbines – fewer parts, lower speeds, not sensitive to steam quality
- Rotors not damaged by wet steam or water
- Accepts fluctuating mass flow rates and pressures
- Low maintenance costs compared with existing technologies
- Stand-alone packaged sets from Heliex operate fully automatically



Your Incentive

- Clean electrical energy from wet steam and two-phase fluids
- Improves your environmental credentials
- Energy recovery from waste heat
- Packaged unit, ready to integrate into your process
- Minimum production interruption
- Highly reliable technology
- Very low maintenance requirement
- Low cost of ownership with attractive payback
- CO2 emission credit allowances & incentives where applicable



Model	Mass flow t/h	Power kWe*	Applications
HP145	3	60-160	PRV, WHR, boiler enhancement
HP204	8	180-500	PRV, WHR, boiler enhancement, geothermal

The most cost effective cogeneration system for wet steam and two-phase fluids .

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