



Waste Heat Recovery & Recycling Technology

Product Range -  
Exhaust Gas Waste Heat Recovery  
Air Pre-Heaters



## Exhaust Gas to Air Pre-Heater Range

Econotherm exhaust gas waste heat recovery units are widely used to deliver significant running cost and corresponding CO2 reductions on many types of furnaces, ovens, boilers and process applications. The units utilise at their core our thermal super conductor heat pipes. This differentiates them from traditional heat exchanger types in many ways which directly contributes to a significantly lower cost of ownership to the client.

**“Reduce fuel consumption and CO2 emissions by up to 25%”.**

- **Pre-heating of burner combustion air** - Furnaces, Boilers, Ovens, Kilns
  - **Heated Process Air** - Paper Dryers, Laundry Dryers
  - **Gas Stream Cooling/Re-Heating** - Pre/Post scrubber gas processing in Pharmaceutical and chemical applications
- **Premises Heating** - Use spare heat to provide free, zero emission heating for industrial and commercial premises



**“Thermal Super Conductor Core Delivers Proven Performance & Reliability”**

# Technical Advantages



## Superior Reliability

### Multiple Redundancy

Each heat pipe operates independently which gives the unit the ability to continue in the event of damage to individual heat pipes. This is a unique feature of heat pipe technology and differentiates from conventional tubular units which are vulnerable to individual tube or joint failure.

### Isothermal Operation

A unique feature of heat pipes is their Isothermal operation. This eliminates cold corners where condensation may occur and is often the cause of failure in conventional heat recovery equipment.



## Extended Operating Life

### Thermal Stress Elimination

The heat pipes within an Econotherm recuperator are supported from a single point only. This allows them to expand and contract thermally without transferring any stress to the units casing or joints. This eliminates one of the primary failure modes in conventional recuperators. It also allows the units to operate in high thermal cycling environments without confidence and eliminates the need for costly pre-heating systems.

### High Particulate Exhaust Tolerance

Econotherm heat pipe units can be designed with a very low fouling factor but in addition can be provided with a number of features that make them ideal for high particulate environments. These features include -

- Access Panels - These can be opened up without uninstalling the unit to facilitate full access to the pipe bundle for cleaning and inspection.
- Inter-row gaps which provide space between pipe rows to allow full access to jet and suction cleaning apparatus from the side of the unit.
- Integrated cleaning systems - These include sonic horns, moving plate pipe cleaner coupled with aero-dynamic trap dust collection systems.



## Superior Performance

### Low Pressure Drop

The heat pipes can be configured to deliver a lower pressure drop relative to conventional heat recovery equipment. This can eliminate the need for exhaust fans or where unavoidable allow for smaller and cheaper fans with consequential reduced parasitic load.

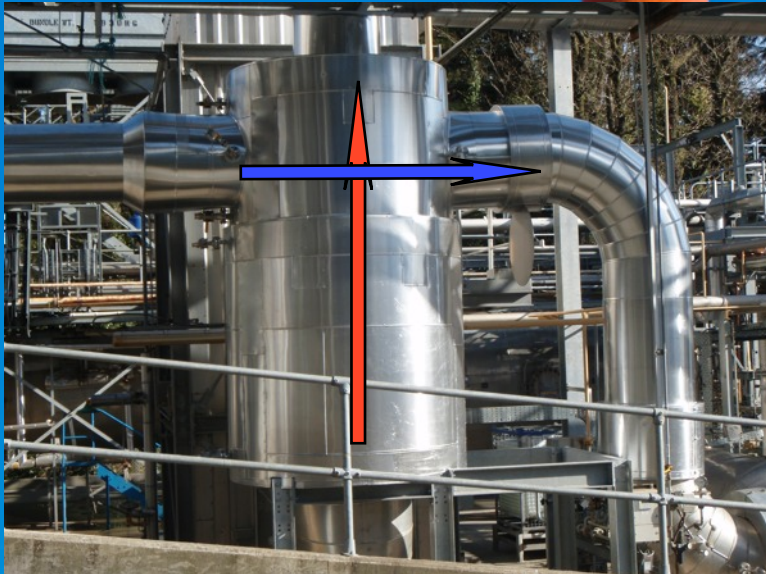
### Higher Recovery

Often the limiting factor in a heat recovery system is the condensation point within the recuperator. In conventional units where the mediums come into direct thermal contact with each other the exhaust temperature must be kept elevated to avoid contact condensation. The Isothermal operation of the pipes allows more heat to be extracted from the primary flow whilst still avoiding problematic condensation in the unit.

# Maximum Flexibility

Model Types  
To Suit

Econotherm gas to air recuperators are available in 2 distinct design styles to support simplified installation. The cross flow style is suitable where a horizontal exhaust flow through the unit is preferred. Alternately our patent pending throughflow design can be selected where a vertical flow is preferred. Both styles are shown in the images below -



Econotherm Crossflow unit installed on an aluminium melting furnace. Ideal for a horizontally orientated exhaust gas stream.

Econotherm Through-flow unit installed on a pharmaceutical gas system. Ideal for a vertically orientated exhaust gas stream.



# Scaleable Range

Econotherm Gas to Air recuperators are available in a range of standard models or can be readily designed to fit a specific client requirement.

Model	GA 200	GA 400	GA 600	GA 800	GA 1000	GA 1250	GA 1500	GA 2000	GA 2500
Duty [KW]	100 - 300	200 - 500	400 - 700	600 - 800	700 - 1100	1000 - 1400	1200 - 1700	1600 - 2200	2000 - 3000
Max Inlet Temp [C]	500	500	500	500	500	500	500	500	500
Max Outlet Temp [C]	300	300	300	300	300	300	300	300	300

**Styles** - All sizes are available in Throughflow and Crossflow configurations to suit the installation.

**Materials** - Mild Steel, SS 304, SS 316

**Pipe types** - Pipes can be provided in plain or extended finned surface

**Available Options** -

*Removeable Access Panels* - To facilitate simple in situ cleaning

*Dust Collectors* - to allow dust build up to drop out the underside of the unit

*Cleaning Systems* - ranging from sonic horns to compressed air or liquid spray systems.

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