

*Flue gas recovery systems have been used around the world for over 20 years.*

## CONDENSATE

Condensation of water vapor from the flue gases results when the water outlet temperature is below the dewpoint of the flue gas. When the temperature of the waste flue gas is lowered beyond 133F condensation occurs. Naturally the lower the flue gases can be cooled, the higher the performing efficiency of the waste heat recovery unit.

The waste heat recovery unit is designed for **natural gas** or **propane fired** equipment only. When the heating unit is required to operate on oil the flue gases will have to be bypassed from the waste heat recovery unit.

The vertical construction of the SRU waste heat recovery unit provides for the best possible use of available space. This design also allows the condensate to flow down from the top rows of tubes in the recovery unit, providing a self-cleaning action of the aluminum fin tubes.

## HEATING TUBES

The SRU waste heat recovery unit has a large gas-side heat transfer surface of aluminum fin tubes, with the fins and the tubes formed as one piece. Pure aluminum is a very good heat conductor; is it also exceedingly resistant to the mildly acidic flue gas condensate. The aluminum fin tubes are fitted around a stainless steel tube. Stainless steel is used to prevent corrosion on the waterside surface. Compared to other materials, stainless steel will not allow the build-up of iron particles, which would act as an insulator on the tube surface.

*Sidel Systems has become an expert in energy efficiency long before gas prices increased.*

## FLUE GAS RESISTANCE

Because of the high conducting properties of aluminum, the fins on the heating tubes are very thin. This allows more room for the flue gases to pass through. The result is an optimal ratio of the flue gas flow with respect to the fin surface area, which keeps the resistance of the flue gas heated side low. Because there is only a small increase in back pressure, in most cases the heating unit is still capable of using its existing blower fan.

## CAPACITY

Standard sizes are available for equipment with inputs from 2.1 to 42 million BTU per hour. Larger sizes are also available utilizing multiple recovery units. All units are constructed in accordance with the ASME codes.

## BENEFITS

- Increased system efficiency (typically 90-95%)
- Cost savings (typically 10-15%)
- Short payback
- Easy installation, low maintenance
- Reduced particulate, water vapor and noxious gas emissions
- Reduced stack noise emission
- Operates over a broad range of equipment conditions
- Computer-aided design (to ensure optimum sizing)
- Computer-aided investment analysis
- 7- year limited guarantee

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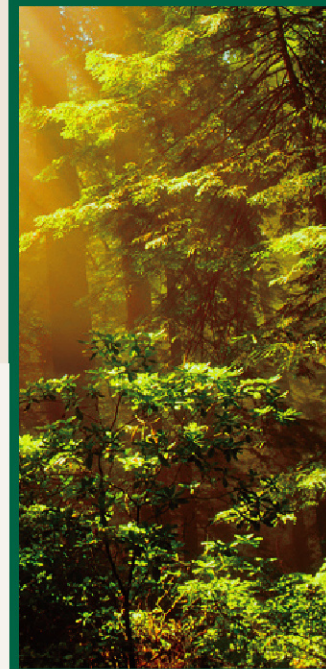
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**I D E L**  
**S Y S T E M S U.S.A. INC.**

THE ENERGY SAVING COMPANY



**Sidel SRU Series  
Condensing Flue Gas  
Heat Recovery Units**



[sidelsystems.com](http://sidelsystems.com)



## OUR COMPANY

Sidel Systems has been in operation in Canada since 1978, in the United States the company was incorporated in 1992. Sidel Systems has specialized in the design and installation of hot water heating systems for commercial greenhouses. Greenhouse structures have a very high heat loss factor, which is why it is important to design for maximum fuel efficiency.

For that reason Sidel Systems has become an expert in energy efficiency long before gas prices increased.

The Sidel SRU flue gas condensers have been in operation for more than 20 years. In most applications **savings of 12-15%** are realized, a substantial savings considering the high cost of natural gas.

The Sidel SRU series waste heat recovery units are built in North America in accordance with the ASME codes. An SRU flue gas waste heat recovery system can be installed with any natural gas or LPG fired power burner boiler or heating unit.



Waste Heat Recovery Unit

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## SRU SERIES WASTE HEAT RECOVERY UNITS

Natural gas fired equipment such as boilers, water heaters, dryers and furnaces **exhaust 15-20%** or more of the original energy in the fuel consumed.

The SRU waste heat recovery unit is designed to reduce the operating costs of force draft type equipment by recovering much of this heat normally lost to the atmosphere. When this recovered heat is used together with the heating equipment requirements, **savings of 10-15%** in energy and cost are typical and sometimes even more is realized.

### *Have you ever seen natural gas irrigate the lawn and flower beds?*

Green or LEED projects can use this "Condensing Flue Gas Heat Recovery" technology to gain extra recognition or points by utilizing the condensate that is created when this waste energy is recovered, to irrigate the lawns and flower beds.

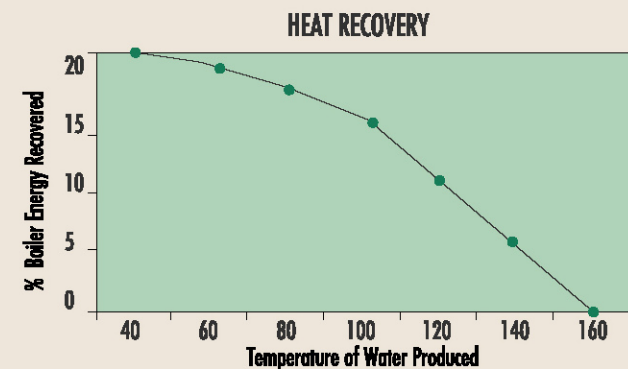
Reducing greenhouse gas emissions is becoming an important factor around the world. By increasing your energy efficiency you are not only increasing your profit margin, but also **doing your part to reduce greenhouse gas emissions.**

## PRINCIPLE

The Sidel SRU flue gas heat recovery unit is designed to recover almost all of this waste heat into usable heat. The waste flue gases from the heating unit are redirected to the recovery unit, which is placed beside the heating unit or alongside the unit's chimney. The Sidel SRU flue gas condenser unit cools the flue gases to the point where the sensible as well as the latent heat is recovered. The hot waste flue gas is diverted into the SRU bottom receiver, which then flows upwards across and through a series of specially designed finned tubes. The water that is being heated flows on the inside of these tubes. The Sidel SRU series is designed so that the flue gas temperatures can be lowered well below the dewpoint temperature of 58 C or 136 F.

## POTENTIAL SAVINGS TO YOU

For a typical 250 HP natural gas fired boiler operating with an exhaust gas temperature of 410F and 15% excess combustion air the efficiency is approximately 80%. The fuel input is approximately 10.5 million BTU/hr, and 20% of the fuel's total energy is available for recovery. By incorporating a SRU waste heat recovery system to produce 104F water, about **15% of the fuel's original energy can be recovered.** If the boiler operates for an equivalent of 6,000 full load hours per year, and natural gas costs \$.70 therm, the annual savings realized from a SRU waste heat recovery system would be: **10.5M BTU/hr x 15% x 6,000 hrs/yr x \$7.00/M BTU\* = \$66,150**  
 \*1 M BTU = 10 therm



## APPLICATIONS

### *Why is this boiler here?*

Is steam from this boiler going to a heat exchanger to heat water for domestic or process requirements? "This is the water we want to preheat!!!" No or little condensate return. We can heat this boiler "make up" water.

### *Potential applications include:*

Food Processing  
 Hospitals and Health Centers  
 Schools and Universities  
 Government Buildings  
 Commercial Laundries

Prisons  
 Breweries  
 Hotels  
 Wineries  
 Swimming pools