



# PRE-DRYING BETTER GREEN COFFEE BEANS

INNOVATIVE TECHNOLOGY FOR ENERGY-EFFICIENT OPERATIONS



## Pre-drying green coffee beans for better roasting

Coffee is an agricultural product that varies from year to year, region to region, and farm to farm. The Flavor, aroma and net yield from roasting coffee beans are directly affected by the inconsistencies in temperature of green beans entering the roasting process.

Solex Thermal Science is a worldwide provider of customized heat transfer solutions for bulk solids to a wide range of industries.

## The Solex Advantage

The Solex heat exchanger technology provides a proven solution to uniformly heat and dry green coffee beans. The Solex ensures that all beans going to the roaster have a consistent prescribed drying rate, temperature and moisture. The mechanisms of drying are separated within the Solex to independently control the drying gas flow, drying gas temperature and indirect heat temperature. This enables the operator to “dial in” the optimal control parameters for each type of bean or recipe blend.

PATENTED\* TECHNOLOGY THAT MAXIMIZES ENERGY EFFICIENCY

## Waste heat utilization

The Solex heat exchanger is uniquely designed to every process condition which provides the largest heat transfer surface area compared to traditional technologies in a compact design. This innovative design can accommodate the utilization of low grade waste heat (when available).

## Small footprint and modular design

The vertical orientation of the Solex heat exchanger affords a small installation footprint, allowing it to easily retrofit into existing and new plants. Solex dryers, heaters and coolers may be configured with modular exchanger banks making it ideal for plant capacity increases as well as an easy installation.

## Operational flexibility

Water, steam or condensate are used as heat transfer mediums inside the Solex heat exchanger plates. These mediums can be used in combination with designated exchanger banks. Our proprietary thermal modeling software reports the bean to bean temperature profile, moisture profile and drying rate which is used for predicting the optimal control settings for specific beans.

## Low operating cost

The indirect heat transfer medium flowing inside the Solex heat exchanger plates is working with sensible heat to provide thermal efficiencies better than 90%. The drying air maintains heat from the plates to maximize the specific enthalpy, which correlates to much less air required to remove the moisture. The discharge device controlling the coffee bean flow requires very little power as it works with gravity.



Solex Thermal Science Inc.  
250, 4720 – 106 Ave. S.E.  
Calgary, AB, Canada, T2C 3G5  
Tel: +1 403 254 3500  
Fax: +1 403 254 3501  
[www.solexthermal.com](http://www.solexthermal.com)

\*[www.solexthermal.com/resources/patents](http://www.solexthermal.com/resources/patents)