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OILSEED PROCESSING – CONDITIONING & DRYING

In recent years, the oilseed processing industry has greatly expanded globally. The growing need for vegetable oils and biofuels is due to increase in global oil consumption and increasing awareness of environmental and sustainable alternative energies.

In this article, we will explore some of the major types and uses of oilseeds along with conditioning and drying technologies in oilseed processing industry.

What are oilseeds?

Oilseeds are seeds in which oil can be extracted from. The seeds are crushed to obtain oil for human consumption, biodiesel/fuel production and the remainder is processed into meal which is used as high protein livestock and poultry feed.

Types of oilseeds

- Rapeseed (Canola)
- Soybean
- Sunflower
- Corn
- Cottonseed
- Flaxseed
- Peanut
- Palm
- Coconut

Rapeseed (Canola)

Canola is developed from Rapeseed for its nutritional values. Each Canola seed is about 40% oil. The seeds are crushed to obtain canola oil for human consumption and the remainder is processed into canola meal which is used as a high protein livestock and poultry feed.

Soybeans

Soybeans are primarily grown for their meal while oil is a secondary product. Today Soybean provides the vast majority of world's protein meal supply.

Oilseed processing

The processing steps differ greatly based on type of Oilseed:

Soy Bean

- SOYBEAN CLEANING
- CRACKING
- DEHULLING
- **CONDITIONING**
- FLAKING
- EXPANDERS
- EXTRACTION

Sunflower

- SUNSEED CLEANING
- CRACKING W/O DEHULLING
- **CONDITIONING**
- PRESSING
- EXPANDERS
- EXTRACTION

Canola / Rapeseed

- RAPESEED CLEANING
- CRACKING
- **PREHEATING**
- FLAKING
- **CONDITIONING**
- PRESSING
- EXPANDERS
- EXTRACTION

Conditioning and drying of oilseeds

One of the most important steps in the oilseed processing is the conditioning & drying step. After the seeds are harvested and cleaned, they require conditioning and drying. Proper Conditioning and moisture removal of seeds, improve the quality of flaking and oil extraction from seeds.

The Solex heat exchanger

Unlike conventional drying and conditioning technologies, SOLEX Plug Flow Plate heat exchanger does not use hot blowing air to heat or remove moisture. The SOLEX heat exchanger increases heating efficiency up to 90% by limiting stack losses.

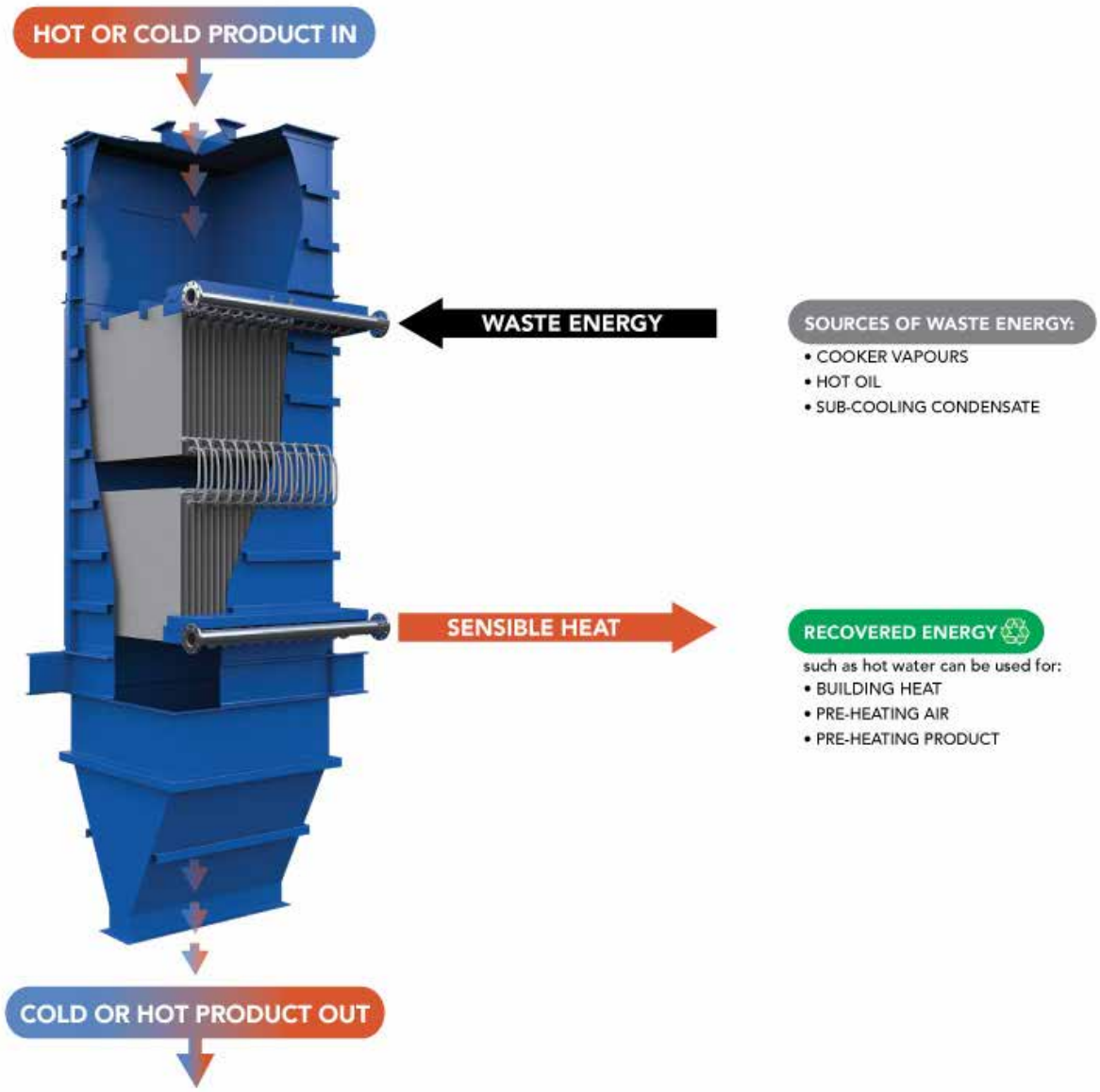
SOLEX technology heats oilseeds indirectly thorough conduction, significantly increasing the moisture-carrying capacity of the parallel air for precise temperature and moisture control (for Drying applications).

The SOLEX Plate Conditioner is more efficient than conventional methods in the following ways:

- Product moves at uniform velocity over full cross sectional
- Gentle product handling without abrasions
- Material flows smoothly without bridging due to staggered plates arrangement
- Reduction of air emissions, dust and odors
- Eliminates need for air handling equipment and fans
- Small installation footprint
- Lower maintenance costs

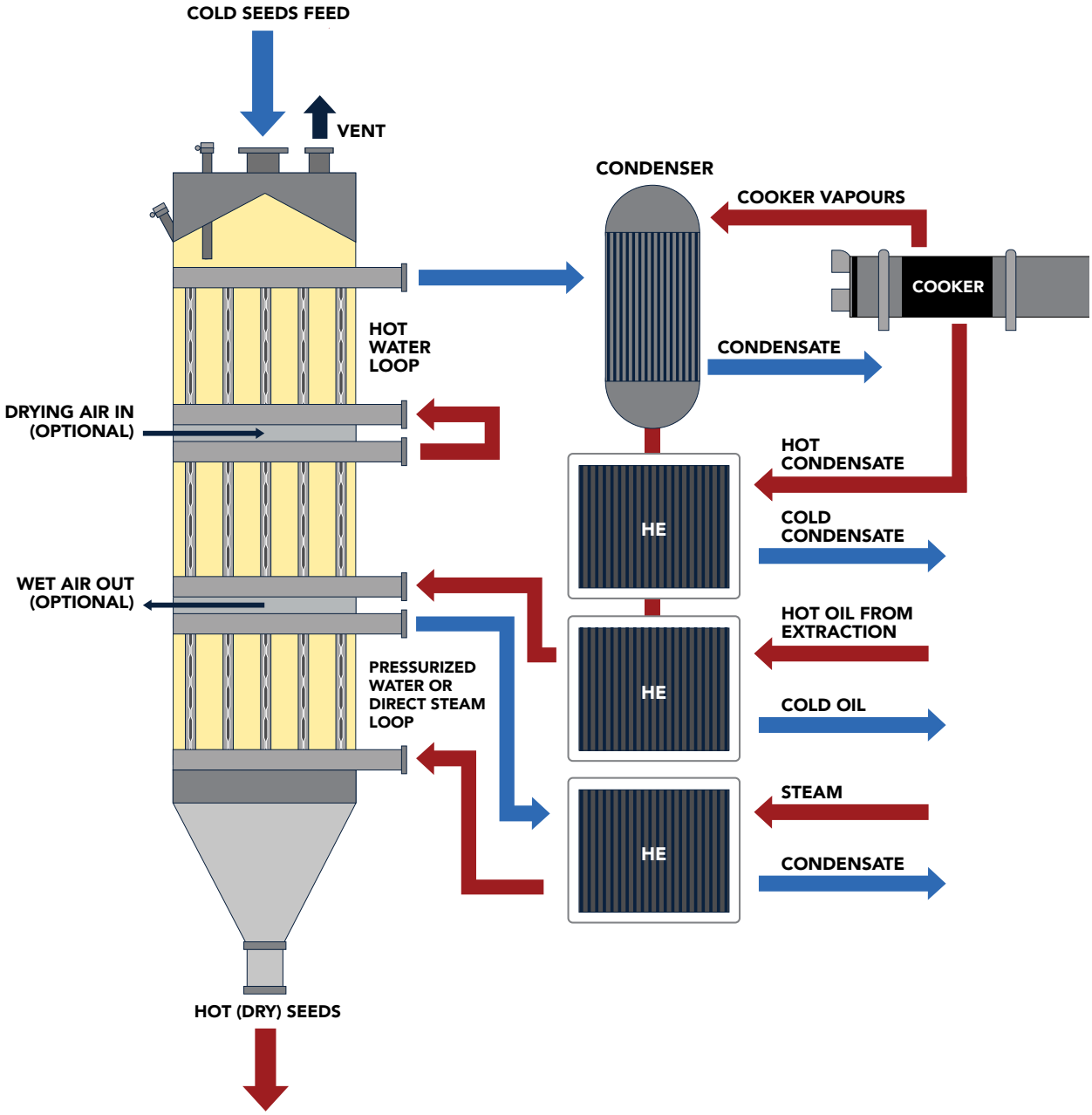
How does it work?

Oilseeds flow downward across a series of plate banks, while the heat recovery medium or steam flows in between welded plates to achieve the targeted heating. In the drying section: hot air moves in parallel direct to remove moisture. Processing Plants should expect an increase thermal performance due to the increased heat transfer area density than conventional technologies.



Waste heat recovery during oilseeds processing

Waste Heat Recovery opportunities are critical to end users as these help improve the profitability of processing plants. SOLEX Plate technology allow plants to economically utilize these opportunities such as Thermal Oil, Meal Pellets, Cooker Vapors, and Meal Dryer vapors to heat Water. This Hot Water or Condensate can be used as preheating medium in SOLEX Plate Conditioner thus reducing steam consumption of processing plant. Multiple media can be used for individual banks, which allows greater flexibility to processing plants.



*Solex's technologies are subject to patents and patent applications in various jurisdictions around the world.