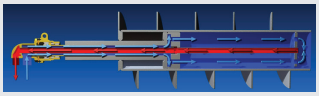

Thermal Pipe

# KWS Thermal Pipe

The KWS Thermal Pipe design adds additional heating or cooling surface area to a KWS Thermal Processor. As the screw rotates, the heat transfer surfaces of the KWS Thermal Pipe are always in full contact with the bulk material transferring heat to or from the material. The KWS Thermal Pipe uses an innovative design with internal baffles that allow the pipe to transfer heat to or from the material by means of a heating/cooling media. At the completion of the heating/cooling cycle, the internal pipe, known as a syphon tube, takes the lost or gained energy back into the heat exchange system for recirculation, ensuring constant heat transfer in the process.

Trough jackets provide limited heat transfer surface area and are not the most efficient means to cool or heat bulk materials. Since there is a gap between the outside diameter of the screw and inside diameter of the trough housing, material forms a static layer along the bottom of the jacketed trough and acts as an insulator reducing the efficiency of the thermal transfer process.

## Features

**Wide Variety of Construction Materials –** The KWS Thermal Pipe design is available in many different construction materials. For cooling or heating temperatures below 700-degrees F, carbon steel construction is sufficient. High temperature applications above 700-degrees F, corrosive, or food-grade applications typically required 304, 316, high-nickel alloy or duplex stainless steels.

**Rotary Union –** A rotary union, also referred to as a rotary joint or rotating union provides a mechanical seal between the syphon tube and the rotating thermal pipe to permit the flow of heat transfer media into and out of the thermal processor. Heat transfer media typically used with rotary unions includes steam, water, thermal oil or glycol coolant.

**Thermal Pipe Design –** Unique design utilizes outer pipe and syphon tube to create a path for the flow of heat transfer media. Heat transfer media is forced down the syphon tube to the discharge end of the thermal processor and the returned down the outer pipe to the inlet end. The heat transfer media always runs counter flow to the bulk material being cooled or heated for greatest efficiency.

**Wide Variety of Construction Materials –** KWS Hollow Flight Screw Processors are available in many different materials of construction. Standard industrial applications with operating temperatures below 700-degrees F are typically constructed from carbon steel. 304, 316, Inconel, or duplex stainless steels are available for high temperature, corrosive, or food-grade applications.

## Benefits

**Processor Size and Cost –** The additional surface area provided by the thermal pipe can reduce the size of the thermal processor needed and help reduce cost.

**Thermal Efficiency –** The additional surface area of the thermal pipe provides more efficient heat transfer because the conveyed bulk material is always in full contact with the thermal pipe and does not form a static layer, causing a loss in efficiency. The thermal pipe design can be enhanced by using the flights as a heat transfer surface area; this is known as a hollow flight screw processor.

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