



**thomas conveyor
company®**

HEAT TRANSFER SCREW CONVEYOR

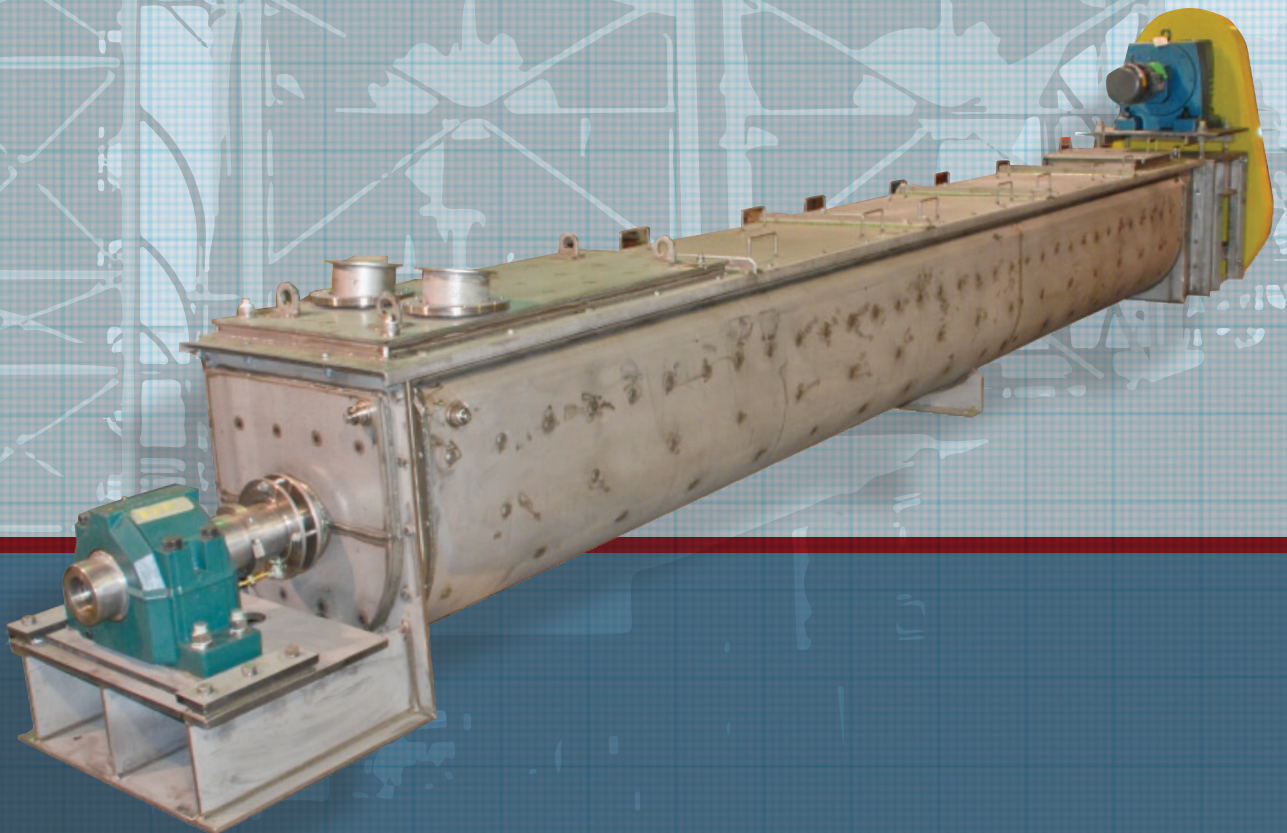
CORE-BUSTER DESIGN

HOLLOW FLIGHT DESIGN

DIE FORMED FLIGHTS

UP TO 27' LENGTH

UP TO 30" DIAMETER



Screw conveyors are commonly used to transfer bulk material solids. However, a screw may also be used to heat or cool a product as it is being conveyed. **thomson** offers a wide range of Heat Transfer Screws to accomplish this task.

The type of screw depends on the application. **thomson** manufactures a "Core-Buster" design (hollow pipe only) for small amounts of heat transfer as well as complete hollow-flight screws when larger amounts of heat transfer are required.

thomson Heat Transfer Screws are constructed of mild steel, standard 300 series Stainless Steel (304SS or 316SS) or heat resistant Stainless Steel (309SS, 310SS or 330SS) depending on the temperatures involved. **thomson**'s engineers have extensive heat transfer experience and expertise. The units are sized and designed to ensure proper heat transfer per each application.

The hollow-flight design consists of die formed "cupped" flights for a large internal surface area. This allows for increased heat transfer, due to increased surface area.



FEATURE	FUNCTION	BENEFIT
"Core-Buster" Design	Creates turbulent flow of heat transfer medium inside the pipe	Produces higher overall heat transfer coefficient
Die Formed Flights	Allows more fluid flow inside the flights	Increased surface area
Large Pipe Size Trough Housing	Minimizes screw deflection and maximizes surface area	Prevents screw from rubbing on trough housing
Sizes 9" to 30"	Handles a wide range of applications	Provides the size needed based on space and cost requirements
Slow Operating Speeds	Provides retention time for heat transfer to occur	Ensures proper heat transfer and minimizes wear
Quality Engineering and Manufacturing	Adherence to precise manufacturing specifications and procedures	Ensures quality equipment
PB Bearing and Chain Drive Arrangement	Isolates drive components from material	Protects the drive from temperature
Lengths up to 27' in Single Piece Screw	Allows for no intermediate hanger bearing	Eliminates a restriction point to the material flow
Bolted Flange Covers	Seals equipment making it dust and weather tight	Eliminates environmental or product contamination and minimizes heat loss
Jacketed Trough	Provides additional surface area	Additional heat transfer
Rotary Unions purchased with the Equipment	Ensures proper fit-up between the union and the screw	To ensure proper siphon pipe arrangement, unions are installed prior to shipment

WARNING AND SAFETY REMINDER

LOCK OUT POWER

Before removing covers, guards or before servicing. Exposed moving parts can cause severe injury.

HEAT TRANSFER AREA BY DIAMETER

NOMINAL SCREW DIAMETER	HEAT TRANSFER AREA / FT. OF LENGTH (FT ² /FT)	
	CORE-BUSTER	HOLLOW-FLIGHT
9"	1.7	3.0
12"	2.3	4.2
18"	3.3	7.2
24"	4.7	11.8
30"	6.3	17.1

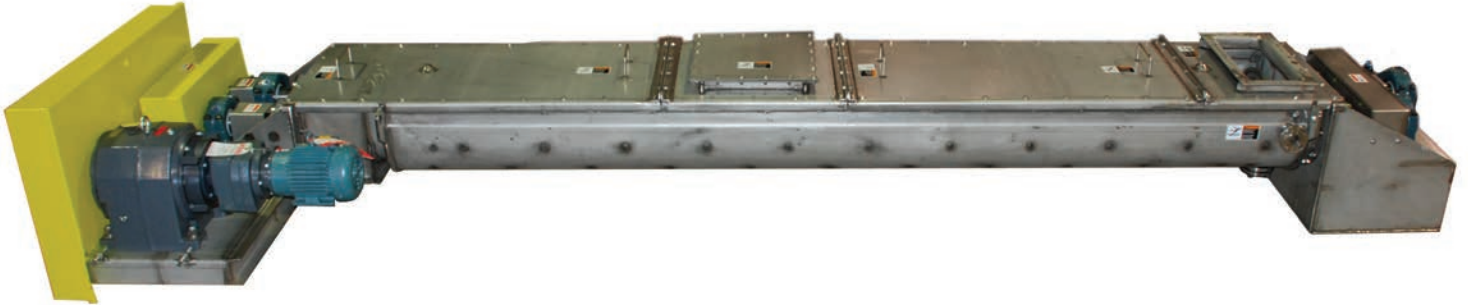
Notes:

1. Areas in chart are based on single rotor. Additional area may be achieved by using twin, triple or quad rotor.
2. Figures in chart are provided for approximation purposes. Please consult **thomson** for recommended sizing for your specific application.

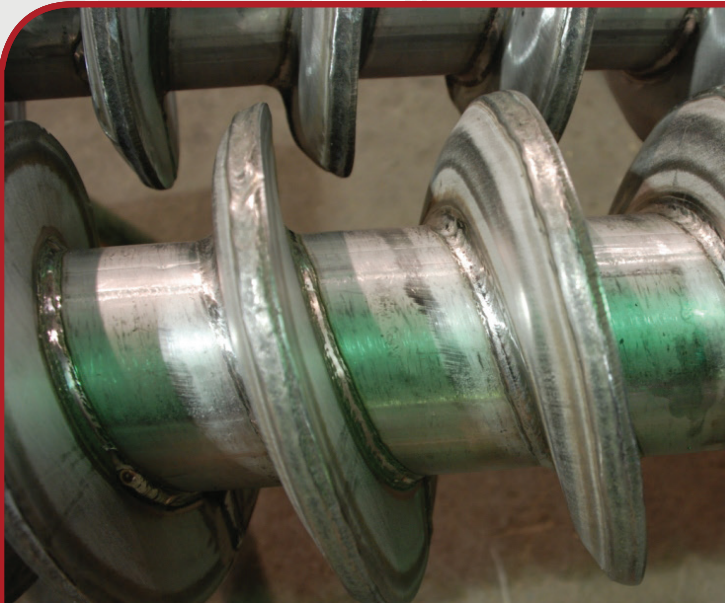
Heat Transfer Screw



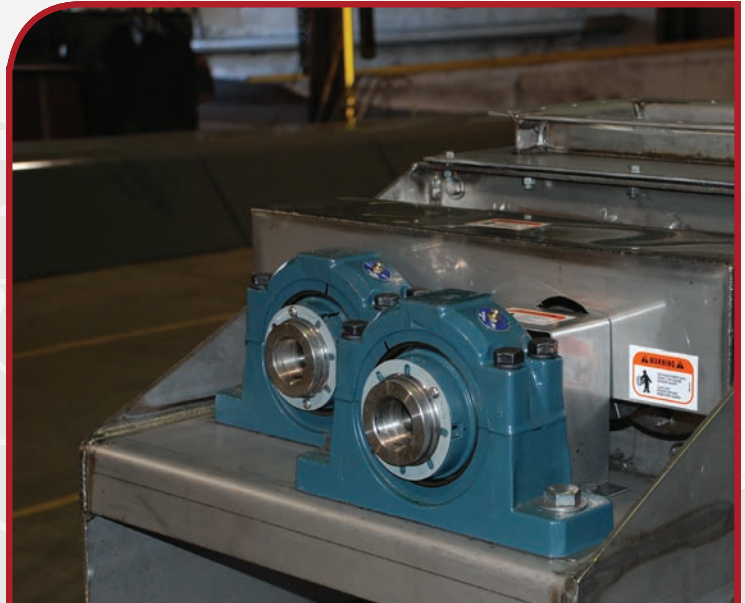
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9" Twin Assembly



9" Hollow-Flight Screw



9" Twin Pedestals



Rotary Union Connection

Success Stories

In any industry, the ability to perform multiple operations with one piece of equipment can be beneficial. The combination of the heating or the cooling process with basic material handling can be accomplished using a Heat Transfer Screw. Please consult **thomas** if you have any questions concerning your application.

Waste Water Sludge

The customer had 750 lb/hr of dried municipal sludge that needed to be cooled from 250°F to 125°F. We designed and sold a 14" diameter "Core-Buster" 304LSS conveyor to cool the dried sludge. The heat transfer medium used to accomplish this was 68°F plant water.

Ammonium Paratungstate (APT) Crystals

A 9" diameter single rotor 304LSS hollow-flight screw conveyor was designed to heat and dry 500 lb/hr of APT crystals weighting 206 lb/ft³. APT crystal was to be heated from ambient temperature to 212°F and to remove moisture from 10% to 5%. Hot oil at 356°F was to be used for this application due to the limitations of the APT crystals. APT crystals decomposes at high temperature.

Granulated Carbon

A particular plant required 3000 lb/hr of granulated carbon weighing 40-45 lb/ft³ to be conveyed and cooled. The customer specified that the material be cooled from 1900°F. to 540°F using 103°F plant water. We designed a 24" diameter "Core-Buster" 304LSS conveyor to cool and convey the product.

Powder Activating Carbon

A 9" diameter twin rotor hollow-flight 304LSS conveyor was designed to cool and convey 366 lb/hr of powdered activated carbon, weighing 15-35 lb/ft³. The activated carbon was to be cooled from 1022°F to 80°F Due to the low target outlet temperature of the product being cooled, plant water could not be used. In this case, a 59°F 50% glycol water mixture was used as the cooling medium.



MANUFACTURERS • DESIGNERS • ENGINEERS



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