

Selecting the right technology for a continuous process conveyor oven requires analysis and expertise

As more and more companies seek to automate their processes and facilities, a conveyor oven is a small, yet important cog in the wheel of product manufacturing. While batch processing will always have its place, continuous process conveyor ovens are in high demand as manufacturers strive to maximize efficiencies in their production processes.

There are a wide variety of conveyor types to choose from:

- Belt conveyors
- Chain conveyors
- Roller conveyors (powered, gravity)
- Screw/Auger
- Elevators/Elevating conveyors
- Feed systems (vibratory, centrifugal, etc.)
- Pneumatic conveyors
- Vacuum conveyors

However, many of these conveyor types are not viable solutions in the presence of heat. High process temperatures limit conveyance material options and eventually force drive components (ie: bearings, drive chain and motors) outside the heated zone completely. There are four types of conveyors that are commonly used in heat processing applications; flat wire, woven belt, chain and roller.

Flat Wire Belt Conveyors

Of the four types described above, flat wire mesh belts are the most popular. Flat wire belts can be used for a wide range of process temperatures and applications, and offer the following advantages:

- High strength-to-weight ratio
- Wide range of belt widths for a wide variety of product sizes
- Easy to clean
- Vibration and shock absorbent
- High open area – preferred in convection applications
- Configurable with attachments (flights, lane dividers, edge guards, etc.)
- Inexpensive

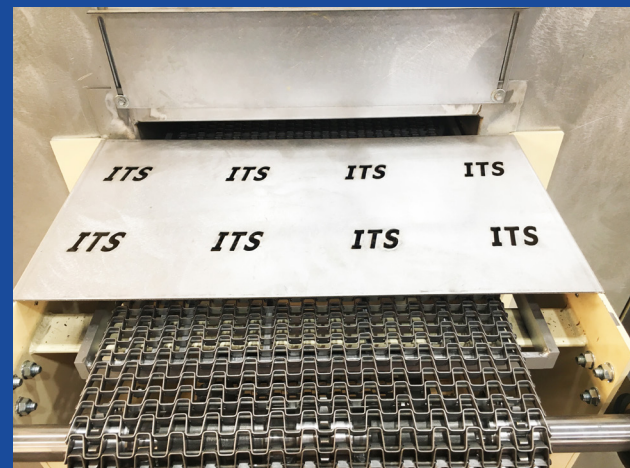
With an appropriate material selection, flat wire belt (shown in P1) conveyors are operable to 1,000°F and beyond.

ITS TECH TALK

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The Best Conveyor Options for Heat Processing Applications:

- Flat Wire Conveyors
- Woven Mesh Belt Conveyors
- Chain Conveyors
- Roller Conveyors



Flat Wire Conveyor (P1)

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Woven Wire Belt Conveyors

A woven wire belt offers many of the same advantages as a flat wire belt, but woven wire belts are able to handle higher load capacities than flat wire, are available in more configurations (mesh shapes and sizes), are customizable, and offer increased surface area for conveyance of smaller parts.

Disadvantages include:

- Higher cost
- Lower open area reduces airflow
- Sometimes requires belt tracking

Woven wire belts (shown in image P2) are commonly used to move small parts including nuts, bolts, nails and even granular material.

Chain Conveyors

Chain conveyors are typically employed in heavy load applications. Chain conveyors can be designed as a rolling or sliding chain configuration. Chain type selection is highly dependent on temperature, connection type, material selection and lubrication.

There are hundreds of chain styles, many designed specifically for a single industry or application. Attachment-style chains allow for attachment of customized part fixtures.

Advantages of chain conveyors include:

- Ease of maintenance and replacement
- Durability
- Many available styles
- Customizable

Chain conveyors are a good choice for heavy loads and specialty part sizes. The conveyor oven in image P3 is used to cure various-sized molded elastomeric couplings. A full cure takes 8-10 hours at 230°F.

Roller Conveyors

Depending on processing temperature, roller conveyors will often be designed with shaft bearings mounted on the outside of the oven/furnace to protect power transmission components (chain, bearings, motors).

Roller conveyors (shown in P4) are used in heavy loading applications, and offer flexibility in motion, and accumulation of product. Products are often loaded on a pallet or frame when roller conveyors are utilized.



Woven Wire Belt (P2)



Chain Conveyor Oven (P3)



Roller Conveyor Oven (P4)

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Selecting the Right Type of Conveyor Starts with Selecting the Right Oven Manufacturer

Because there are many different variables that need to be considered when configuring the right conveyor type for your industrial oven, connecting with a partner that understands heat processing is vital to a successful project. ITS has been designing ovens for over 50 years with thousands of installations across the globe.

Our team will start by asking about your process, including variables like:

- Product weight, geometry
- Process requirements including parts per hour required
- Floorspace requirements
- Control and communication requirements
- How much flexibility are you looking for in terms of processing other products/different rates, future expectations?

As you research manufacturers, be sure to ask for job profiles of completed projects that are similar to your application. Examples of past work and customer testimonials are a great tool to help select the best manufacturer for your project.

To determine the conveyor style that is best for your application, contact ITS sales at 414.672.7700 or sales@itsllcusa.com.

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Parts Rack on Chain Conveyor



Flat Wire Belt Conveyor Oven



Roller Conveyor for Transformers