

Induction Side-Seam Pre-Cure System

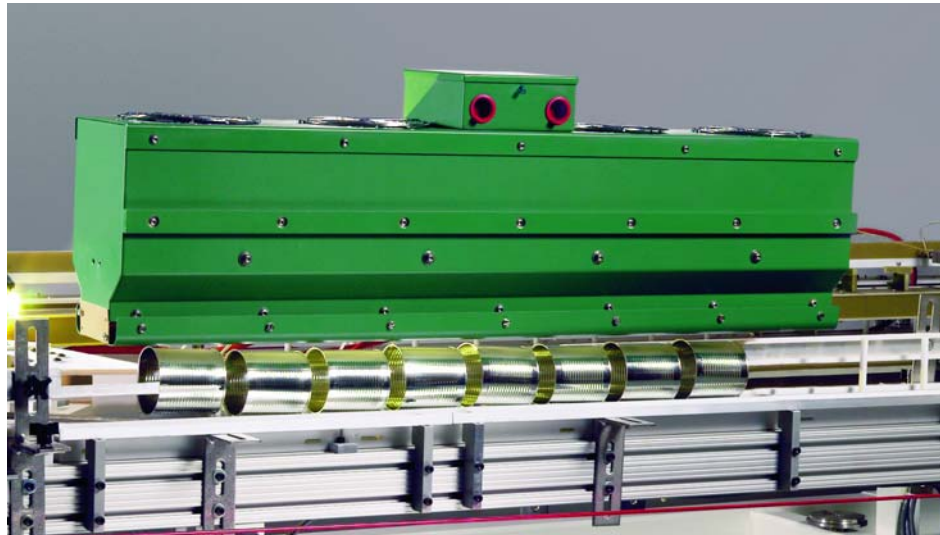


Induction heater for improved curing of side-seam coatings on metal can production lines.

Three-piece can welding line speeds are often limited by the size and capabilities of existing side-seam coating ovens. The patented induction side-seam pre-cure system from Nordson preheats weld seams prior to entering an existing oven, improving curing without increasing space. This enables faster welding line speeds without increasing existing oven capacity.

The system provides the additional heating necessary to set and cure powders in combination with existing ovens. For liquid coatings, the system improves the cure by increasing the time cans are at cure temperature. Since the induction heater induces heat directly within the can body, effectively heating coatings from the metal side out, blistering or skinning of coatings is virtually eliminated, and cans can be heated very quickly.

The medium-frequency induction heating system uses solid-state components to provide energy efficient, safe, even heating. The induction heating system is so energy efficient that no water cooling is required. The pre-cure units can be added to almost any three-piece line with little or no modifications.



The side-seam pre-cure system from Nordson preheats weld seams prior to entering and existing oven. The system allows faster line speeds without modifications to the existing ovens.

System Components

The system features a medium-frequency power generator, induction coil assembly, and a control panel.

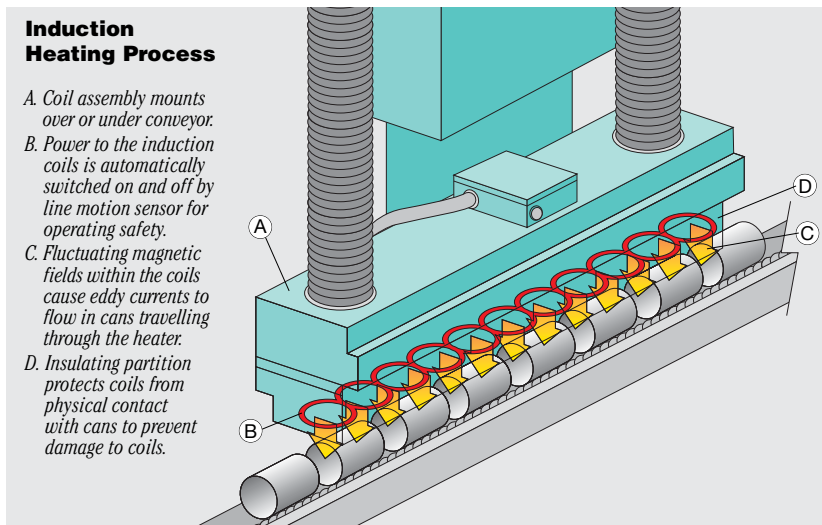
System Operation

Cans are transported single file on an existing conveyor out of the weld arm. The induction coil assembly is mounted next to the weld seam as cans travel on the conveyor. Power output is controlled by adjusting the power level or distance of the coil assembly from the can bodies.

During operation, fluctuating magnetic fields within the induction coils cause eddy currents and resultant heating within the seam as cans travel under the coil assembly. Power to the induction coil is automatically switched on and off by a line motion sensor detecting movement of cans. Power turns off automatically during line stoppages to save energy and prevent overheating. An insulating partition protects the coils from physical contact with the cans.



The system heats almost instantaneously, requiring only 0.5 to 1 second under the heater to raise the temperature between 90° to 215°F (50° to 120°C). The deep heating effect of medium-frequency induction heating is focused uniformly on the weld of the can to pre-cure and/or set side-seam coatings, safely producing a consistent product.



Induction Side-Seam Pre-Cure System

Control Panel

The control panel includes start/stop controls and out-of-range alarms, as well as protection against over-temperature and over-voltage conditions. LED readouts on the medium-frequency generator provide quick diagnostics during operation. All components are designed for easy maintenance and replacement.

Power Generator

The 22-inch square, floor-mounted power generator contains all line filter and medium-frequency generating and controlling components. A base-mounted blower cools all electrical components and is exhausted through the coil assembly to cool the induction coil.

The control board auto-tunes to the optimal frequency between 5 KHz and 15 KHz, for best performance. MOVs (metal oxide varistors) and snubber circuits provide protection against electrical spikes. Zero-voltage power switching and pulse-by-pulse current monitoring for low EMI and RFI provide reliable operation.



The induction side-seam pre-cure system uses solid-state switching components to provide energy efficient, safe, even heating.

Induction Coil Assembly

The induction coil assembly mounts adjacent to the weld seam of cans travelling on the existing conveyor following the weld arm.

As the transfer conveyor operates at a uniform speed, each can receives the same energy input, producing a consistent product. The induction coil assembly houses focusing cores, capacitors and induction coils. These components are protected from physical contact with the cans by an

insulating partition. The insulating partition minimizes damage and heat transfer from the cans, and protects the coils from any coating vapor. The coil box measures one meter (40 inches) long, and can be easily installed in existing lines.

Features and Benefits

- **Accommodates faster welding lines** – without increasing floor space requirements.
- **Sets powder side-seam coatings** – prior to entering existing oven for ease of product handling.
- **Preheats side seams for 360° internal spray** – for improved coverage in seam area.
- **Provides longer dwell time at cure temperature with existing oven** – to improve cure.
- **Instant start/stop control** – saves energy and prevents overheating during line stoppages.
- **LED diagnostics on the power generator** – provide quick, simple troubleshooting and maintenance.
- **Minimal installation time** – easily mounts over existing conveyor with minimal line modification.

Specifications

Dimensions

Induction Coil Assembly

Length 40 in. (1000 mm)

Power Generator (overall)

22 in. (558.8 mm) x 22 in. (558.8 mm)

Control Panel (overall)

24 in. (609.6 mm) x 36 in. (914.4 mm)

Facility Requirements

27.5 KVA, 380/480V, 50/60 HZ, 3 phase

Nordson reserves the right to make design changes to products to improve their function. These changes may occur between printings.

For more information, talk with your Nordson representative or contact your Nordson regional headquarters office.

The Americas

Amherst, Ohio USA
Telephone: 440.985.4000

North America:

Facsimile: 440.985.5100
E-mail: container@nordson.com

www.nordson.com/container

South and Central America:

24-hour message service:
440.985.4797
Facsimile: 440.985.1096
E-mail: intcustomerservice@nordson.com

www.nordson.com

Europe

Erkrath, Germany
Telephone: 49.211.9205.0
Facsimile: 49.211.254658
E-mail: info@de.nordson.com

Japan

Tokyo, Japan
Telephone: 81.3.5762.2700
Facsimile: 81.3.5762.2701
E-mail: ppa.dm@nordson.co.jp

www.nordson.co.jp

Asia

Singapore
Telephone: 65.6.896.9630
Facsimile: 65.6.896.9631
E-mail: nea_service@nordson.com

Australia/New Zealand

Sydney, NSW Australia
Telephone: 61.2.8814.4695
Facsimile: 61.2.9838.7394
E-mail: cpeal@nordson.com



Nordson Corporation • 300 Nordson Drive • Amherst, Ohio 44001