



# Induction Barrel Heating: Cut Molding Costs and Improve Quality

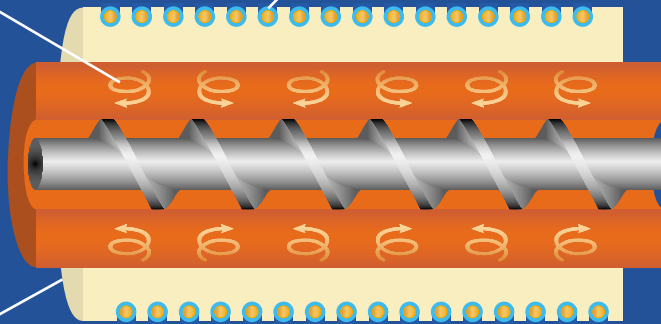
U.S. patents pending

Induced Eddy currents generate powerful resistive heating directly within the barrel wall

Helical Litz windings form a "tunnel coil" geometry that produces extremely efficient electromagnetic coupling

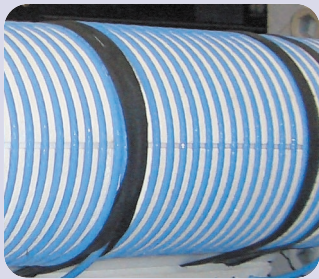
## Advantages

- Energy savings
- Faster heat-up
- Increased heating capacity
- Faster, tighter temperature control
- Process higher temperature materials



Vacuum-formed insulating sleeve & winding template virtually eliminates barrel heat losses and keeps the Litz windings cool

**nXheat™ Induction Barrel Heating.** Now there's a better way to heat the barrel of injection molding machines. Xaloy nXheat™ induction barrel heating (patent pending) sharply cuts energy costs and improves temperature control compared with conventional heater bands. The nXheat™ barrel heating system uses a high-frequency power supply and helical induction coils to generate heat directly within the barrel wall. A thermal insulating layer is interposed between the coils and barrel to virtually eliminate heat losses, increase efficiency and improve control response.



nXheat™ insulating sleeves are made of vacuum-formed bio-soluble Superwool™ material that with-stands temperatures up to 1000°C (1832°F). High-temperature, Teflon-coated Litz cabling is then wound around the sleeves to form high-efficiency induction "tunnel-coils".

## Xaloy nXheat™, the new non-contact heating system, delivers:

- Energy savings of up to 70%: efficiency of 95% vs. 30-70% for heater bands;
- Additional energy savings – up to 35% more – due to reduced air conditioning load;
- Additional energy cost reduction from reduced peak power demand;
- Quicker heat-up – 2X or more – to boost productivity;
- Eliminate heater failures – cut downtime and maintenance costs;
- Immediate cooling and heating response to improve quality and reduce scrap;
- More heating capacity – typically 3X higher wattage into barrel – eliminate bottleneck;
- Higher processing temperatures to mold high-temperature polymers, and even metals,
- Cool-to-touch exposed surfaces for safety, operator comfort.

[www.xaloy.com](http://www.xaloy.com)



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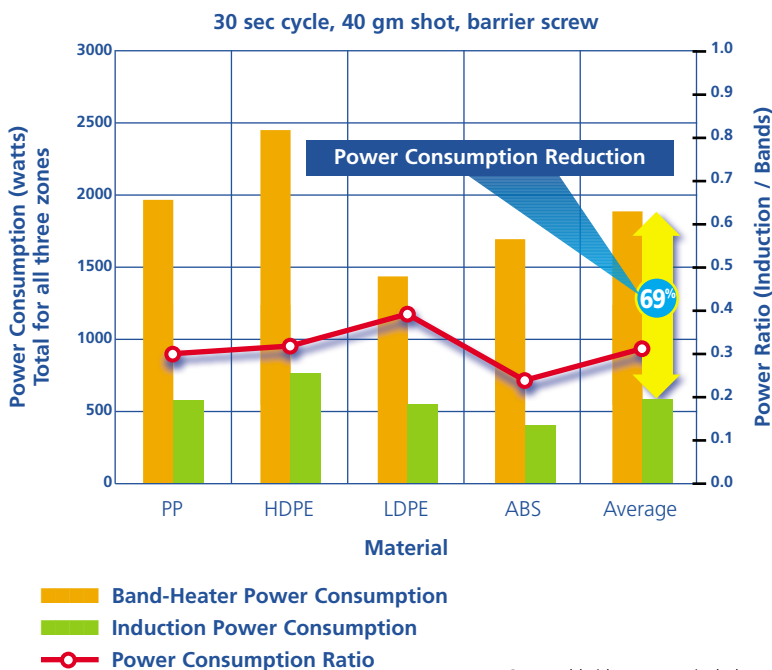
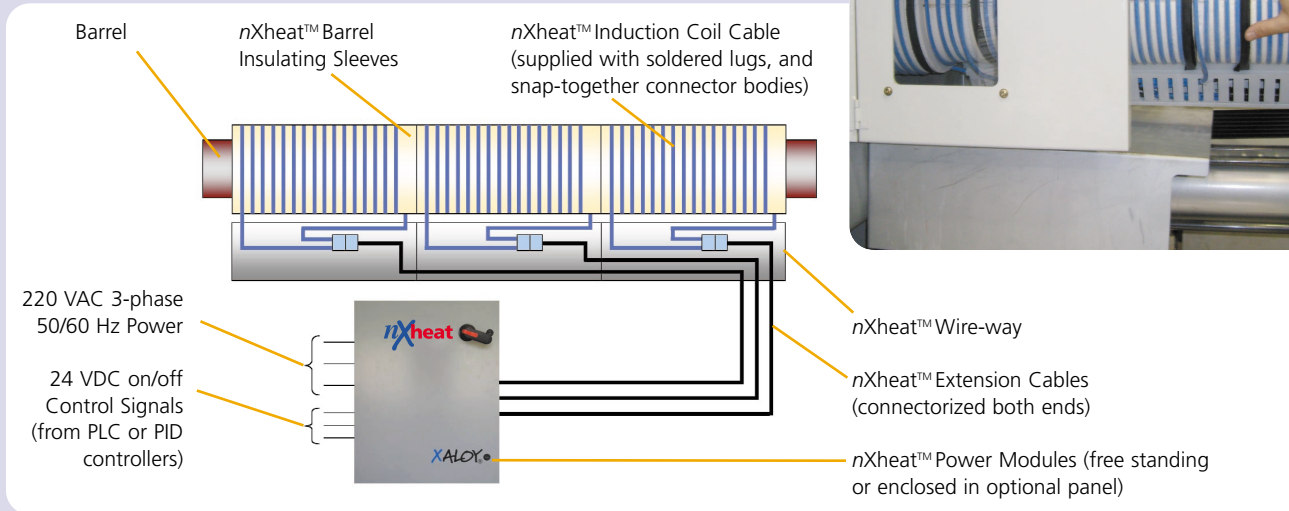
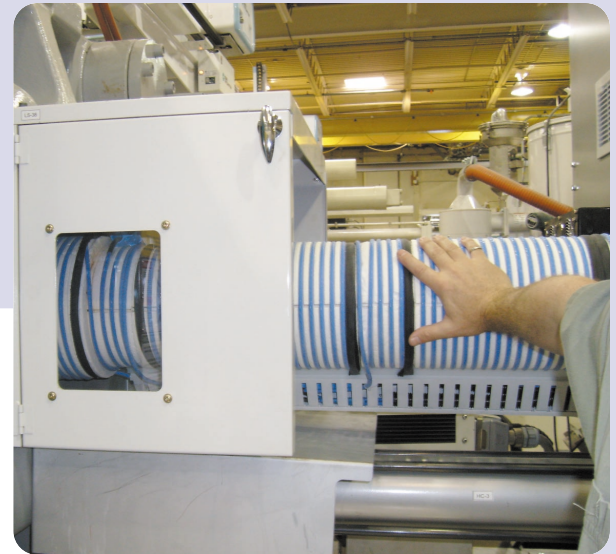
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## Integrated System with State-of-the-Art Induction Power Module

- Configurable up to 8 kW
- High-efficiency ( $\approx 95\%$ , vs 30-70% for band-heaters) high-frequency (10-30 kHz) AC induction
- On/off interface to existing machine controls acts like a band-heater (24 VDC input turns output on and off)
- Pulse-coded diagnostics (LEDs with matching contact output)



## Band-heaters Vs. Induction

### Band-heaters: Contact resistive heating

- Typically 30-70% efficiency
- Heat must conduct across contact resistance
- Heater's mass adds thermal inertia to the system
- Element operates hot so it has limited life

### Induction: Non-contact electromagnetic heating

- Typically 95% efficiency
  - Medium frequency (10-30 kHz) with Litz cabling reduces conductor losses to  $\approx 2\%$
  - Thermal insulation reduces ambient losses by  $\approx 98\%$
- Heater thermal inertia is virtually eliminated
- Heat is generated directly within the barrel wall
- Element operates cold so it has unlimited life

Our worldwide presence includes sales and service offices located in the United States, Europe, Thailand, Japan, China and India and a global network of agents geographically positioned to serve customers throughout the world.



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