

FURNACE DUTY TRANSFORMERS – INDUCTION / MELT-SHOP / UP TO 66 KV

Furnace transformer spectrum & selection guide

Induction furnace and melt-shop duty transformers engineered for elevated thermal cycling, harmonic-rich loading and high secondary currents. Oil-immersed CRGO designs with reinforced windings, ONAN / ONAF (or directed oil) cooling and project tapping. Built to IS / IEC process-duty practice.

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1. kVA / MVA ratings

Compact furnace
Up to 1,000 kVA

Small induction and heat-treatment furnaces — robust windings and cooling for cyclic melt / hold duty.

Medium furnace
1 MVA – 5 MVA

Foundry and mid-size melt shops — ONAF headroom, special tapping and high secondary current designs.

Large furnace
5 MVA – 15 MVA+

Heavy induction / arc-adjacent process loads — custom impedance, directed cooling and reinforced leads.

2. Technical specifications by tier

Parameter	Compact (≤1 MVA)	Medium (1–5 MVA)	Large (5–15 MVA+)
Primary / secondary	MV / LV furnace voltages as specified	MV to low-voltage high-current secondary	Project HV / LV · multi-secondary options
Cooling	ONAN / ONAF	ONAN / ONAF	ONAF / directed oil as required
Efficiency	Process-duty loss design	Optimised for cyclic loading	Custom losses · capitalisation as specified
Impedance	Furnace-study %Uk	Custom %Uk for arc / induction stability	Custom %Uk · harmonic studies
Core	Low-loss CRGO	CRGO reinforced for harmonics	High-grade CRGO · process duty
Windings	Cu reinforced · high current	Cu · special insulation / leads	Heavy Cu · reinforced end turns
Tap changing	OCTC / project taps	Wide tap range for melt curves	OCTC / OLTC as process requires
Applications	Small induction · Heat treat	Foundry · Mid melt shop	Heavy melt · Continuous process
Standards	IS / IEC process-duty practice	IS / IEC · thermal / SC capable	IS / IEC · project witness tests

3. Why choose a furnace transformer?

Built for thermal cycling
Melt, hold and idle cycles stress insulation and oil far beyond steady distribution duty — furnace designs use reinforced thermal margins and cooling for that profile.

High secondary current
Induction furnaces demand very high LV currents and short leads — windings, bushings and tank geometry are laid out for current density and mechanical forces.

Harmonic-tolerant magnetics
Non-linear furnace loads inject harmonics; cores and windings are sized to limit heating and noise under distorted current waveforms.

Process-matched tapping
Wide tap ranges and optional OLTC track melt curves so power delivery stays stable from cold charge through refining.

4. Applications

Induction melting

Foundries and melt shops needing robust step-down with high secondary current and cyclic thermal headroom.

Heat treatment

Controlled heating lines where voltage and current profiles change with charge size and cycle stage.

Heavy process

Larger MVA furnace interfaces with custom %Uk, directed cooling and reinforced mechanical design.

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