

AUTO TRANSFORMERS – CLOSE-RATIO VOLTAGE CONVERSION

Auto transformer spectrum & selection guide

Shared-winding auto transformers for efficient close-ratio voltage conversion where galvanic isolation is not mandated. Compact and loss-efficient versus two-winding peers of similar throughput — oil-filled or as specified, CRGO cores, OCTC / fixed ratio. Built to IS / IEC practice.

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1. kVA ratings

Compact auto
Up to 250 kVA

Machine starting and small ratio matching — compact shared-winding units with low copper for close ratios.

Medium auto
250 kVA – 1,250 kVA

Utility and industrial close-ratio adaptation — efficient throughput with OCTC options.

Large auto
1,250 kVA – 5,000 kVA+

Substation and plant bus ratio matching — high throughput with custom taps and cooling.

2. Technical specifications by tier

Parameter	Compact (≤250 kVA)	Medium (250–1,250 kVA)	Large (1,250–5,000 kVA+)
Primary / secondary	Close-ratio LV / MV as specified	Close-ratio project voltages	Bus / feeder close-ratio matching
Cooling	ONAN / AN as built	ONAN / ONAF	ONAN / ONAF as required
Efficiency	High for close-ratio duty	Lower losses vs two-winding peer	TOC-favourable close-ratio design
Impedance	Project / starting study %Uk	Custom %Uk	Custom %Uk for bus studies
Core	Low-loss CRGO	CRGO CAD-optimised	High-grade CRGO
Windings	Shared Cu / Al winding	Cu / Al auto-connected	High-purity Cu / Al · reinforced
Tap changing	Fixed or OCTC	OCTC typical	OCTC / OLTC as specified
Applications	Starting · Small ratio match	Utility / industrial adaptation	Substation · Plant bus matching
Standards	IS / IEC	IS / IEC	IS / IEC · project tests

3. Why choose an auto transformer?

Efficient close-ratio conversion
Shared windings move only the difference power through the series path — smaller, lighter and lower-loss than a two-winding unit of the same throughput when ratios are close.

Compact footprint
Less active material means a smaller tank and pad — useful in retrofits and space-constrained plant rooms.

Starting & ratio matching
Ideal for motor starting and utility / industrial voltage adaptation where full galvanic isolation is not required by the scheme.

Custom taps
OCTC or fixed taps are set to the exact ratio band your system study needs — not a one-size catalogue compromise.

4. Applications

Motor starting

Reduced-voltage starting schemes where an auto-transformer provides the intermediate taps cleanly.

Utility ratio match

Close primary/secondary voltages on feeders and plant intakes — efficient shared-winding geometry.

Plant bus adaptation

Larger kVA auto units matching buses and process voltages without the bulk of isolation transformers.

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