



SYEMCO®

www.syemco.com

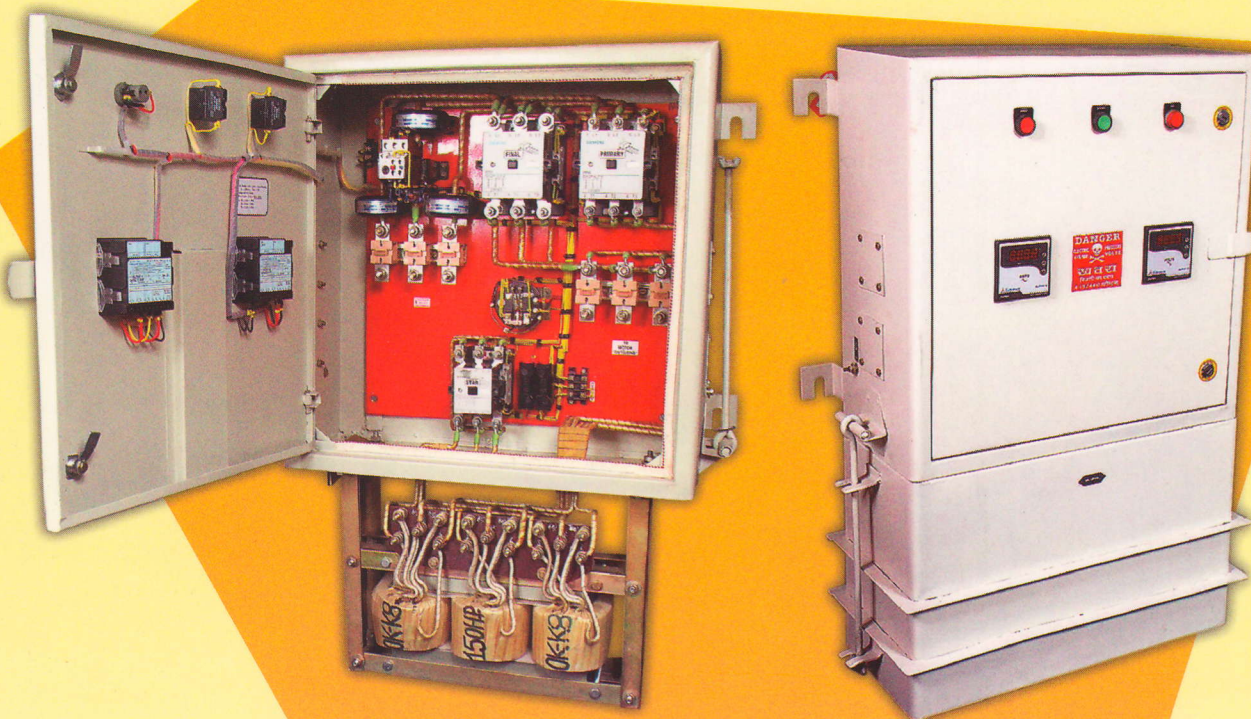
Power Saving
Electrical Controls
for
11 KW to 750 KW Motors

SYEMCO™ IMPEX

We work on the theory of COMSENEERING
Common Sense Engineering !

Reduced Voltage Auto-Transformer Based Motor Starters and Controllers for Squirrel Cage Induction Motors

WALL MOUNTED REDUCED VOLTAGE AUTO-TRANSFORMER BASED STARTERS WITH CORE-TYPE, OIL-IMMERSED AUTO-TRANSFORMER



We have applied KORNDORFER Closed Transition Technology, advanced with Primary-Off Logic to all our Reduced Voltage Auto-transformer Starters.

Multiple motors can be handled with our panels, which are made as per the IEC/NEMA standards, incorporating the need for multiple starters as per the customer's requirements. We use RITTAL enclosures for our Air-Cooled Reduced Voltage Auto-transformer Starters.

Our Oil-Cooled Reduced Voltage Auto-transformer Starters, are also made as per the IEC/NEMA Standards, have transformers based on the CORE type technology. These oil-immersed reduced voltage auto-transformer starter enclosures are made as per our specifications, under strict QA systems.

- Power Savings as compared to Star Delta Starters .
- Reduces initial capital cost; requires one cable to run the motor .
- Eliminates Transients / reduces dip in Electrical Installation .
- Avoids motors burning; Motor is connected in Delta at the time of starting.
- Withstands high initial starting torques with MD Control.
- Reduces Electrical and Mechanical Stresses to the machines.
- Ideally suitable for high friction and torque applications : loads connected to DG/Turbine power supplies.
- Can be Designed as per the customer's requirements.

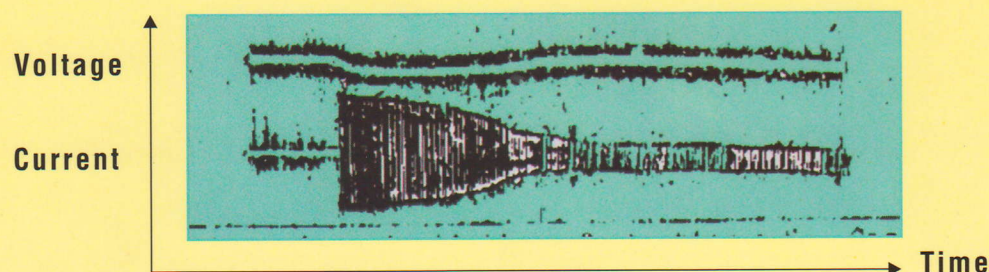
Starting Characteristics of Squirrel Cage Motors by Various Methods



Starting characteristics of a squirrel cage motor by a conventional fully automatic star-delta starter. Heavy current transients and distortion of the voltage curve is observed at the time of change over from STAR to DELTA.



Starting characteristics of a squirrel cage motor by a conventional fully automatic auto transformer starter (open transition). Current transients and voltage dips are produced at the time of change over from ATS to DOL.



Starting characteristics of a squirrel cage motor by **Syemco** make fully Automatic Auto Transformer Starter, with KORNDORFER Closed Transition Principle and Primary-off Logic. Practically no current transients or voltage distortions are observed at the time of change over from ATS to DOL.

Simple Maths for Power Saving !

Consider a 3-Phase, 55KW (75HP), 415V motor running at 98A load, with the resistance of the cable per phase = 0.3Ω

STAR DELTA STARTER			
PARAMETERS	FORMULA	CALCULATIONS	TOTAL
Phase Current	Line current / 1.732	$98 / 1.732$	56.6 Amp
Power consumption in 1 core of single cable	I^2R	$(56.6 \text{ Amp})^2 \times 0.3\Omega$	961.1 Watt
Power consumption for 6 cores (for 2 cables)		961×6	5766 Watt
Total Power Consumed			5766 Watt
SYEMCO MAKE REDUCED VOLTAGE AUTO-TRANSFORMER BASED STARTER			
PARAMETERS	FORMULA	CALCULATIONS	TOTAL
Line current	-	-	98 Amp
Reduced cable Resistance	-	$0.3/2$	0.15Ω
Power consumption for single core duly paralleled	I^2R	$(98 \text{ Amp})^2 \times 0.15\Omega$	1440.6 Watt
Power consumption for 3 cores	-	1440×3	4322 Watt
Total Power Consumed	-	-	4322 Watt

Power Savings !

- Net Power Savings = $5766 - 4322 = 1444 \text{ Watts} = 1.4 \text{ KW}$
- Assume the cost of 1KW of Power Rs. 6/-
- Savings per hour = $1.4 \times 6 = \text{Rs. } 8.40/-$
- Savings for 20 hours/day and 330 days/year = $8.40 \times 20 \times 330 = \text{Rs. } 55,440/-$
- % Power Savings = $1.4 \times 100/55 = 2.63\%$

The above calculations are based on assumptions and are to the best of our knowledge. They are for information purposes only. We do not undertake or guarantee any trade on behalf of the accuracy of the above figures.

FLOOR MOUNTED REDUCED VOLTAGE AUTO TRANSFORMER BASED STARTERS WITH CORE-TYPE, OIL-IMMERSED AUTO TRANSFORMER



Applications of Syemco Make Reduced Voltage Auto Transformer Based Starters :

- Pumsets** : Centrifugal, Vertical Turbine, Multi-Stage, Submersible, Reciprocating etc.
- Inertia loads** : Centrifugal Blowers, I. D. Fans, F. D. Fans, Pulverisers, Ball Mills, Cement Grinding Mills, Fly Wheel Loads, Rolling Mills, Stone Crushers, etc.
- Friction loads** : Expanders, Oil Expellers, Extruders, Dall Mills Rolls, Rubber Mixing Mills, Ammonia Compressors, Air Compressors, Cookers, Toasters, Hammer Mills, Disintegrators, Flour Mills, Cotton Ginning Press, Sigma Machines, Flakers etc.

All of our contactors and relays are sourced from Siemens/ABB/Schneider for easy interchangeability, in case spares are required. The control wiring is done as per IEC/NEMA standards, and the load wiring is carried out with Glass Insulated and Varnish Coated solid copper wires, which can withstand high temperatures and voltage, should any fault happen. Appropriate Fuses / MCB are provided ensuring no damages to the control wiring, in case of short circuit.

The Auto-transformer Starters can also be supplied with RS-232/485 Ports for online information and control of the running load.

We supply a varied range of Control and Mains Voltages as per the customer's requirements.



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