

# FCMA

## SOFT STARTER



Our SOFT STARTERS  
are tested at **CPRI**



MOTOR STARTING SOLUTION FOR EVERY APPLICATION



**fcma** **SOFTSTART**<sup>®</sup>  
TECHNOLOGY  
flux compensated magnetic amplifier



## LOW STARTING CURRENT - ENERGY EFFICIENT - HARMONICS FREE

Pioneers in LT & HT customized motor starting solution since 1975. FCMA SOFT STARTER the concept of a pure electrical solutions for Harmonics Free motor soft starter for Asynchronous & Synchronous motors. An indigenous solution by one of the most trusted brands in India for control & automation product installed world wide, the products are branded and promoted with trademark FCMA SOFT STARTER ranging from 10 KW - 380 Volts to 35 MW, 13.8 KV systems voltage. Starting current – 1.5 FLC for special models, Standard models will be 2.5 to 3.6 FLC. Motors are work horses of every industry and major consumer of energy. FCMA SOFT STARTER is the most desired solution for reliability and long life of motors.

FCMA Soft starter function is to limit the motor starting nonlinear torque, reduce the system energy consumption during starting, reduce the mechanical vibrations and noise, reduce electrical burden on the system, FCMA Soft starter works to DE STRESS the supply system and the mechanical pressures on the rotating machine

Soft starter performance is measured by the electrical parameters controlled/delivered. and design of the soft starter is primarily based upon the motor, load characteristics and data is required to see the impact of the load on the motor. **Harmonics free, non resonating system performance effective up to 1.2 X motor full load current.**

### FCMA SOFT STARTER

**fcma SOFTSTART®** is an indigenous flux compensated magnetic amplifier technology which is harmonic free rugged magnetic soft start for motor starting. Flux compensation is a system where two sinusoid fluxes are imposed on a core leading to a net sinusoidal flux which controls the impedance of the winding. When connected in series with the motor the fcma SOFTSTART module reduces the starting current to a low value. The impedance of fcma SOFTSTART module decreases with increasing motor speed by flux compensation thereby increasing the motor voltage without lag to keep the current constant till motor reaches pullout torque (90% speed). The motor voltage increment shall be from 50% at start to 95% at full speed gradually. The fcma SOFTSTART module is further bypassed by a proper contactor so that the motor runs at line voltage.

LT & HT harmonic free FCMA Soft starters are designed, manufactured in line with relevant clauses of IEC/ IS standards the applicable standards are per IEC 60289/ 60076-6 for reducing motor starting current. Our Soft Starter is step less start works on a 'dynamic' impedance" principle which ensures a constant low starting current, incremental voltage and torque to the motor to get smooth start. As the motor speed increases, the controller impedance decreases due to counter emf feed back to achieve constant incremental voltage

torque for motor. This achieves very soft and smooth starting of load to Crusher, Compressor, Pumps, Centrifugal fan etc. This also helps in optimizing the power source of transformer or generator capacity. Optimized power system also gives savings in capital, cost savings and revenue expenditure due to higher efficiency. **Lowest starting current achieved for a Compressor application is 1.25 X motor FLC.**

We also provide “The customized solution as per clients technical requirements”.

Our company has always focused on perpetual improvement- implementing latest technology for the smooth functioning of its facility and providing extremely good customer service. Proven past record makes Sakthi Power Innovatives a leader in the field of Soft Starters.

The Company has acquired Goodwill in every corner of market for its sturdy construction, international quality and all-round performance. Our highly satisfied clients fulfill the purpose of our existence.

#### **Salient Features of FCMA SOFT STARTER**

- Harmonic Free - No Harmonic generation
- Starting current limited to I.P.U
- Starting of motor with limited KVA
- Complete motor starting engineering solution as a part of pre-sales service to customer
- Extremely rugged in construction . Suitable for extreme weather conditions like dust and desert environment

- Low starting Current with amplitude control. Starting current can be designed from 1.5 / 2.5 / 3.5 ifl with different models.
- Starting of motor in gensets.
- Built in bypass for full voltage during running.
- No forced cooling required.
- Sinusoidal wave form built in bypass for full voltage.
- Virtually no maintenance.
- Amplitude control.
- Easy to install and operate.

#### **FCMA SOFT STARTER Application for Soft Starting of Motors**

While line contactor closes & motor starts at low current **fcma** SOFTSTART® module controls starting current and accelerates motor to full speed. Keeping current constant motor voltage increases from 50% to 95%. Running contactor closes in normal load condition. Attenuated sinusoidal wave form to motor reduces stator magnetic field resulting in stress free rotor and elimination of unwanted starting torque The **fcma** SOFTSTART module will improve the energy consumption during starting as well as running of fixed speed of motor. The maximum demand shall be reduced to 67% and running energy savings shall be achieved up to 22%. **FCMA SOFT STARTER®** controls the active and reactive component switching & currents and delivers a harmonics free, non resonating system performance effective up to 1.5 x motor full load current it balance KVA and power quality



consumption by monitoring system parameters and also help to maintain the PF during starting and running of the motor.

### PRODUCT RANGE

**Type of AC Motors:** Line side, Neutral side soft starter for squirrel cage & synchronous motors.

Rotor side soft starter for slip ring motor.

**Power** : 10KW to 35 MW

**Voltage** : 415V/3300V/6600V/11000V

### APPLICABLE INDUSTRIES

Water board, Irrigation Department, Sewage treatment plant Paper industry, Textile industry, Mining industry, Cement industry etc.

### SPECIFICATION STANDARDS

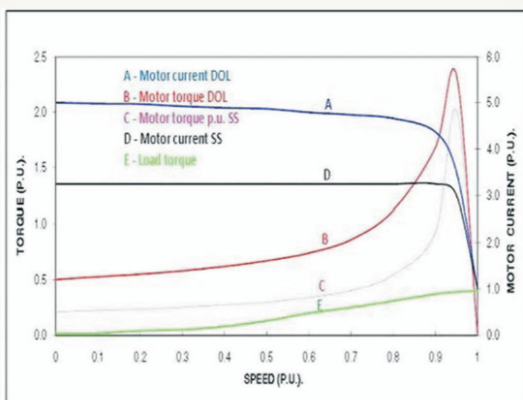
**Operating voltage** : 415V/3300V/6600V/11000V, 50/60Hz

**Control voltage** : 110V AC/DC/240VAC.50Hz

**Auxiliary supply** : 240 V AC

**Insulation** : Class H/F

**Duty Cycle** : 2 start from cold and 1 hot start or 4 equal spaced start/hour. Please refer to our works for more duty cycle.



**Method of cooling:** Natural air cooled

**Enclosure** : Floor mounting cubicle with Bottom/Top cable entry suitable for indoor & outdoor application.

**Finish** : Epoxy powder coated

### DATA REQUIRED FOR CUSTOMIZATION

- The motor output in Kw, rated voltage, full load current, speed, power factor.
- Motor/load  $GD^2$ .
- The motor torque speed characteristic.
- The load torque speed characteristic.
- Transformer / Generator set capacity.
- The inertia of motor rotor as well as machine rotating parts.
- Control supply voltage, Auxiliary supply voltage.



Mfr. by : **SAKTHI POWER INNOVATIVES**

**ISO 9001 : 2015 COMPANY**

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