

BEST

QUALITY PRODUCTS

Eltech Engineering



Advanced Technology and quality go hand in hand at Eltech Engineering. We are a Manufacturer, Exporter and Supplier of Electrical Equipment such as FCMA Soft Starter and Automatic Rotor Resistance Starter. Our electrical equipment is efficient and safe to use. We continually strive to prove to our clients that they are our company's greatest asset. As per their requirement, we work in coordination with customers to design and develop the products and deploy optimum solutions. Further, we also test our electrical items on well-defined parameters in order to avoid any discrepancy at customer's end.

ABOUT US

Located in Pune (Maharashtra), Eltech Engineering deals in Electrical Equipment. It has been working on enhancing its system reliability to garner more clientele. Our solutions are tailor-made to minimize the risk period. Our products are highly precision engineered and have been designed by a team of experts.

Vision and Mission :

To serve our customer with safe, secure and state-of-the-art technology

Major Areas of Operation :

Our products are on high demand in the following industries :

- Textiles industry

- Steel Industry
- Sugar Industry
- Paper industry
- Water supply Board
- Automobile industry
- Rubber industry

Network :

We provide our products to the customers spread across the globe. With the aid of modern communication technology and efficient distribution system, we have been able to serve our clientele within the stipulated time frame. We provide the best technological solution at the most economical price range.

OUR PRODUCTS

FCMA SOFT STARTER

Product Details:

Technology : **FCMA {Flux Compensated Magnetic Amplifier}**

Range : **0.415 KV, 3.3 KV, 6.6KV, 11KV, with 0.5KW to 15MW**

Application : **For induction and Synchronous motors driven applications.**

Starting current range : **1.15IFL to 3.5IFL**

Milestones of ELTECH ENGINEERING:

- 2011- ELTECH ENGINEERING established and started manufacturing of FCMA soft starters independently.
- 2013 Feb – Commissioned 820KW,11KV ,QTY-2 of FCMA Neutral starter for compressor motor.
- 2014 June –Commissioned 2.85MW ,11KV FCMA Neutral soft starter for Pump motor .
- 2014 July – Commissioned 1.2MW ,11KV FCMA ER Model soft starter for Compressor motor .
- 2014 December–Commissioned 1.3MW,11KV FCMA neutral soft starter for compressor motor .
- 2015 April - Commissioned 675KW,6.6KV,FCMA neutral soft starter for compressor motor in steel industry.
- 2015 May – Commissioning of 16MW,11KV ,FCMA Soft Starter for CV Pump

The above list is of major milestones achieved by ELTECH, please refer attached reference list for complete installation. As on date we have already commissioned 2.85MW, 11KV soft starter and have capability to manufacture up to 15MW. Already we have demonstrated starting current of 1.1IFL with LV soft starter and 1.9IFL for HT Motors.

ELTECH soft starter was considered by MECON Bangalore for JSW project for 675KW,6.6KV compressor application

Value we add to our Customers:-

- One roof solution for complete starting system both Breaker and Soft starters panels.
- Tailored made solution to suite the requirements and individual customers priorities.
- Experienced design team in design and manufacturing of FCMA Soft Starters.
- Guaranteed minimum possible lead time.
- Assured support for commissioning and after sales services.
- AMC services offered upon request to have preventive measures.
- Retrofitting solutions for type of starters with our FCMA Soft starters.



TECHNICAL DATA

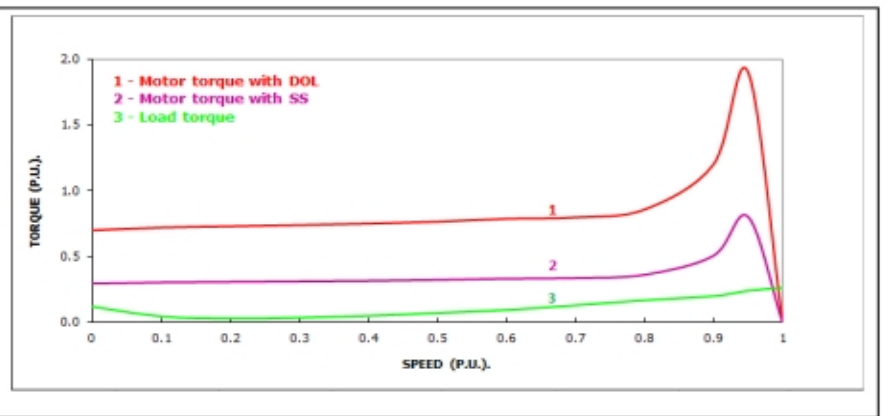
Technical Data sheet of FCMA Soft Starter

ELTECH ENGINEERING

Motor KW	3800	Motor KV	6.6	Motor Full load current in Amps.	390	Motor rated speed RPM	994
Motor frame size	630-2240	Motor Make	Toshiba, Mitsubishi	Motor Inertia Kg-sqmt.	1632.8	Motor pf at 100%	0.88
Driven Equipment	Secondary De-dusting ID Fan	Driven Equip. make	Howden	Load Inertia Kg-sqmt.	15050	Total Inertia Kg-sqmt.	16682.8
Motor DOL Current in p.u.	6 (Guaranteed value)	Motor DOL Torque in p.u.	0.70	Motor rated torque Kg-m	3722	Motor Thermal Withstand Time in Sec.	22 / 35
Motor Starting Current in p.u. with SS-ER-DC	1.73	Motor Starting time in sec. with SS	63	Motor Starting Voltage in p.u. with SS	0.65		

Torque speed curves With DOL and With FCMA SS

Speed in p.u	Motor Current p.u.- DOL	Motor current p.u.- SS	Line current p.u.-SS-ER-DC	Acceleration time sec with SS SS-ER-DC
0	6.00	3.90	1.73	3.39
0.1	5.94	3.90	1.73	6.34
0.2	5.90	3.90	1.73	5.84
0.3	5.87	3.90	1.73	5.91
0.4	5.83	3.90	1.73	6.14
0.5	5.81	3.90	1.73	6.51
0.6	5.77	3.90	1.73	6.56
0.7	5.70	3.90	1.73	7.92
0.8	5.40	3.90	1.73	7.99
0.9	4.40	3.30	1.60	4.85
0.97	2.08	1.80	1.40	1.06
1	1.00	1.00	1.00	



Prepared :	RO	Eltech Reference :	ELTECH ENGINEERING, J-316, MIDC, Bhosari, Pune-411026
Checked By:			
Client		Consultant:	Project:

TECHNICAL DATA

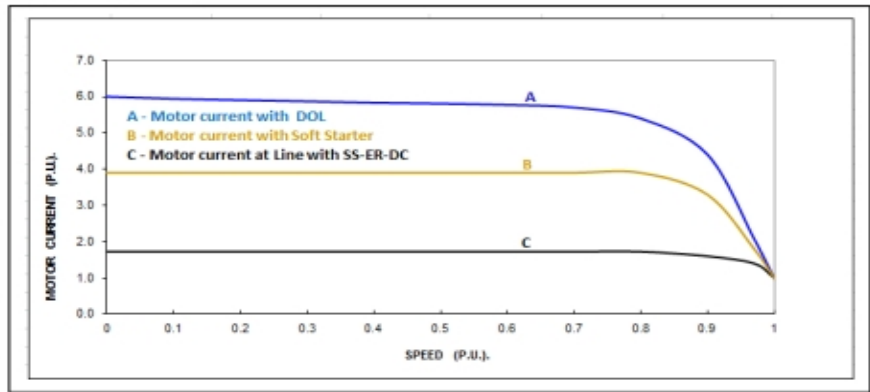
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Current speed curves With DOL and With FCMA SS and with FCMA ERDC

Speed in p.u	Motor Current p.u.- DOL	Motor current p.u.- SS	Line current p.u.-SS-ER-DC	Acceleration time sec with SS SS-ER-DC
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OUR PRODUCTS

AUTO SLIP REGULATORS AND ROTOR CONTROLLERS

Slipring Induction motors are having unique advantage of adjustable starting and operating torque positions, and have been chosen as one of the best choice from many designer for application typically, very high starting torque demands at comparatively lower starting current and continuously capricious torque (Kick loads) were foreseen. Applications like Fibrizor, Shredders, Chopper & Cutter (Cane preparation equipments in sugar plant), Wood Chopper (Paper Industry), Stone crusher (in case of mining) are selected with slip ring motors. By adding additional resistance in to Rotor circuit (Starting also Running incase required for) this typical demands can be met with Slipring Induction motors.

After selection of Slipring Induction Motors, every industry and every designers have to look for starting of Slipring Motor and Running of Slipring Motors, as standard everyone looks for conventional starters like LRS (Liqued Resistance Starter) for starting + GRR (Grid Rotor resistance) for Running . To improve starting torque LRS will be used and to have running torque demand GRR fixed 15% or 12% Buffer is used.

An Alternative for conventional slipring startser is Auto Slip Regulator (ASR or ARSB). ARSB is Rotor resistance starter for slipring induction Motor , which offers continually variable resistance based on rotor frequency, range of variation is in between 1% to 15%, depending on the torque demand. With this replacement of fixed resistance with variable resistance , there is considerable elergy saving up to 8% of motor capacity.

A latest technological invention in starting of slipring motors , which operates in direct relation to the motor speed and have no external feedback mechanism , no moving parts no cut off contactors and have no liquid. The system so called as Automatic Rotor Starter or Auto Slip Regulator.

Automatic Rotor Starters with dynamic Buffer (ARSB):

ARS system is latest technology in slip ring starters. This technology will give relief to the customers from all issues pertained to maintenance and repairs faced with conventional LRS and other systems. With aim of simplifying slip ring motor starting, we have developed and adopted ARS system in such a way that it gives maintenance free operation and simplified construction. Due to the fact that the kick loads are instantaneous and are not continuous, the kick load demands high torque from motor and accordingly motor operating point need to shift to higher torque position (Maximum torque available at POT condition) accordingly the torque position should recover to its rated condition after kick load suppressed. With Dynamic Buffer we are achieving resistance variation which is directly proportional to the motor slip. At kick load higher operating slip will occur accordingly higher resistance introduced in rotor circuit and motor is able to change the operating point to higher torque position, after kick load suppressed the motor slip and associated resistance will become as low as 1% or still low depending on motor rated operating slip.

With this auto variation of resistance based on slip, we are able to replace fixed 15% buffer with a continuously variable nature ranging from 1% to 15%. By doing so, we could save the power losses occurring with fixed buffer (irrespective of load). The saving is amounted up to 10% of motor capacity.

Working of ARS:

ARS works on the principle of Slip dependent rotor resistance in motor rotor circuit which is proportional to the Motor rotor frequency (f_r), as our system connected to the rotor circuit of motor, the frequency seen by our ARS is only rotor frequency (f_r). At the time of starting, f_r is approximately equal to stator frequency, so the impedance offered by our ARS is maximum, in turn the motor will be able to deliver Max torque at starting at lower starting current. As motor speed increase rotor frequency starts decreasing, this reduces resistance in the same proportion.

The slip dependent resistance is our specialty and is proven in industry, already installed this technology starters up to 1.8MW, 11KV.

The Unique features of ARSB:

- Automatic resistance variation based on motor slip and speed as well –no moving parts, no external feedback mechanism.

OUR PRODUCTS

AUTO SLIP REGULATORS AND ROTOR CONTROLLERS

- Single unit is used for starting and running, changeover contactor is used for run mode.
- No liquid involved in the operation, hence all the issue related to prestart precautions will be avoided.
- Starting performance is independent of climatic conditions and pre-starting conditions. Same starting performance is achieved throughout the life time.
- Extremely rugged construction.
- Life of our ARS is as good as Motor life.
- Auto variation of buffer gives power loss reduction which was occurring in case of fixed buffer; this savings amounted up to 10% of motor power.
- Due to increase in motor operating speed (less or rated slip of motor is around 1 to 2%, but due to fixed buffer it was changed to 15%) motor cooling effect improved and also able to take higher kick loads.

Conventional Slipping Starter (LRS+GRR)

LRS: Liquid resistance starter is conventional type where, the resistance of rotor circuit varies based on the distance between fixed and moving electrodes and the concentration of liquid.

GRR (Fixed Buffer of 15%): During running in order to face the kick loads, external resistance of up to 15% is connected in rotor circuit. This external resistance is fixed in rotor circuit and is constant irrespective of load variation, due to the addition of this external resistance the operating point of slip ring motor shifted to 15% slip position (Normally POT occurs at 12 to 15% speeds for any motor.)

Practical Difficulties with Conventional LRS Systems:

- LRS system resistance to the motor circuit is depending on Liquid concentration, distance between electrodes (Moving and fixed) and the temperature of liquid. Any of these parameters will cause change in starting resistance and starting current.
- Moving mechanism for electrodes is arranged by using external auxiliary motor and the resistance cutoff is purely depends on the speed of this auxiliary motor. It is independent of main motor speed or current.
- Moving mechanism requires frequent maintenance; in case of dusty environment the dust may cause the jamming and impact the starting performance.
- The liquid concentration will change with time period and number of starts, and change of liquid is required after certain number of operations.
- Liquid container may cause rusting after certain life time.
- In case if motor starting is not successful and tripped due to some external reason, immediate restating is not recommended, due to the fact that the liquid temperate already reached at high level, in case if immediate starting taken the starting current will be high and resistance in the rotor circuit is comparatively low.



CONTACT US



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