SILCOSTART

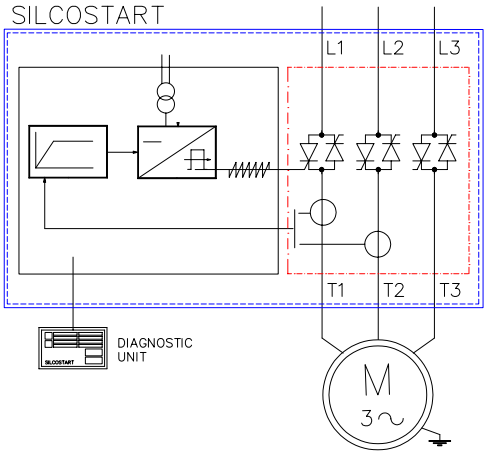
Static Motor Softstarter

Solving Starting Problems

STAT

7,5 - 1000kW

380 - 690V



High starting currents and high starting torques occur when an induction motor is started directly onto the network.

Starting currents can be five to eight times the nominal value and starting torques can be up to twice the rated value.

As a result, the supply network can absorb high currents, causing problems to the driven equipment or to the network.

High acceleration currents cause mechanical stress to the motor structure and to the transmission gears.

By reducing voltage at start-up, the Silcostart softstarter minimizes and often times eliminates all problems associated with direct online starting (DOL).

Applications

- Compressors, pumps, fans
- Conveyor belts, translators
- Escalators
- Textile machines
- Clutch and joint replacements
- Belt and chain drawing
- Any starting procedure with a long starting time

SILCOSTART

Silcostart Features

- High reliability
- Acceleration current and voltage drop reduction
- Removal of mechanical stress
- Continuous and soft acceleration
- Removal of gear switching transients
- Compact and light
- Prolonged motor life
- Reduced maintenance Starting Methods

The Silcostart provides three different starting methods which are dependant on the application and load features:

- Constant current (fig. 1)

The motor is supplied by an AC voltage, with a gradual reduction of value, depending upon the increase of the load and the set current (up to three times the rated current).

This starting procedure is commonly used for single-motor applications. For applications with variable profile resisting torque, the function generator incorporated into the Silcostart provides the required acceleration current to match the profile of the resisting torque.

- Voltage ramp (fig. 2)

A gradually rising AC voltage supplies the motor from zero to the maximum value, depending on the selected starting time. Motor acceleration depends on the torque load requirements. This configuration is particularly suitable for multiple sequential starting of motors, even when the motors have different ratings.

- Constant acceleration (fig. 3)

When the power increases, the current set-point adapts to the programmed speed ramp. This starting method usually requires motor speed control through tachogenerator feedback. Softstarters are not used for applications with high starting torques.

Fig.1

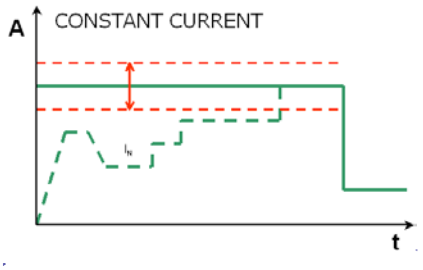


Fig.2

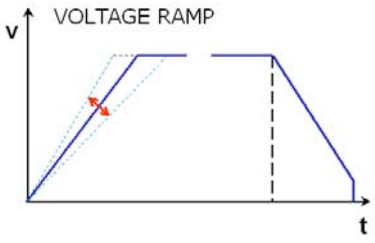
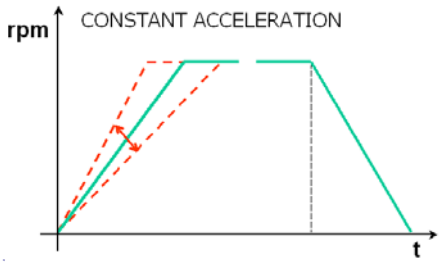
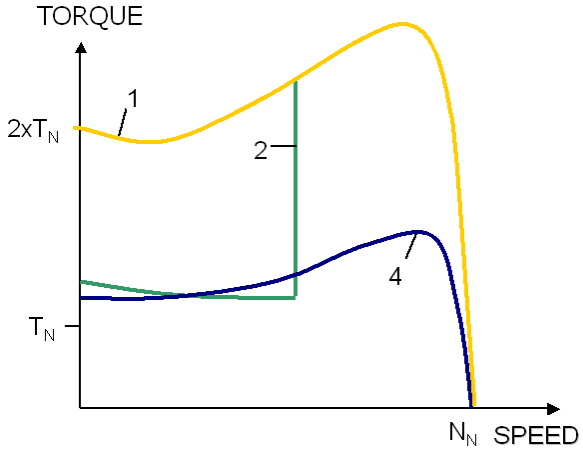
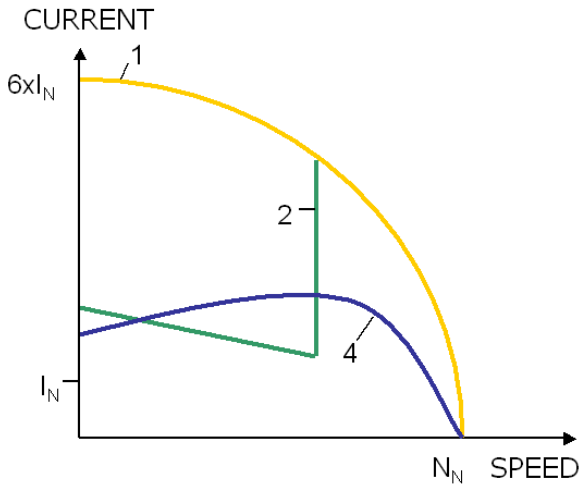


Fig.3







Technical Highlights

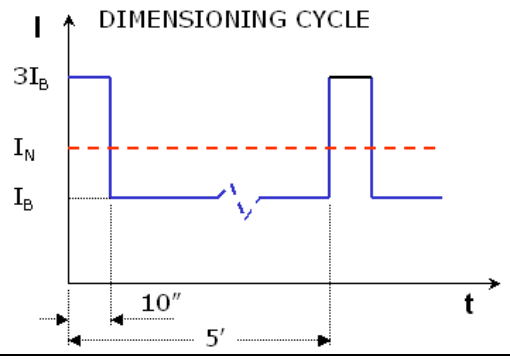
Model STAT	Size	Output Current		Motor Power kW (@4 poles)				Power supply voltage			Fan	Dimensions			Weight
		I_B	I_N					G	H	K		L	W	H	
		A	A	400V	500V	600V	690V	380-500V	600V	690V		mm	mm	mm	Kg
STAT015X	I	15	23	7,5	9	11	NA	A	A	NA		230	168	320	4
STAT030X	I	31	46	15	18,5	22	NA	A	A	NA		230	220	320	7
STAT037X	I	37	60	18,5	22	30	NA	A	A	NA		230	220	320	7
STAT050X	I	51	83	22	30	40	NA	A	A	NA		230	220	320	10
STAT060X	II	60	120	30	37	45	NA	A	A	NA	N.2:	230	240	420	13
STAT070X	II	70	150	37	45	55	NA	A	A	NA	230V single phase	230	240	420	13
STAT100X	II	103	195	55	55	75	NA	A	A	NA	50/60 Hz,0,1A	230	240	420	13
STAT140X	II	141	263	75	90	110	NA	A	A	NA		230	240	420	14
STAT160X	III	157	338	80	110	132	NA	A	A	NA	230V single phase	230	262	570	18
STAT180X	III	185	375	NA	NA	NA	160	NA	NA	A	50/60 Hz, 0,35A	230	262	570	21
STAT220X	III	223	450	110	132	160	NA	A	A	NA		230	262	570	21
STAT310X	IIIL	312	638	160	200	250	NA	A	A	NA	230V single phase	230	350	875	43
STAT430X	IIIL	424	713	220	300	355	NA	A	A	NA	50/60 Hz, 0,88A	230	350	875	43
STAT600X	IV	600	1130	NA	NA	NA	560	NA	NA	A	400V- 50 Hz,	484	420	1100*	95
STAT650X	IV	650	1240	355	450	NA	NA	A	A	NA	440V- 60 Hz	484	420	1100*	95
STAT700X	IV	714	1280	NA	NA	NA	630	NA	NA	A	Three-phase 2,2A	484	420	1100*	95
STAT880X	IV	880	1580	500	630	NA	NA	A	A	NA		484	420	1100**	95
STAT1K0X	V	1000	1800	560	700	NA	940	A	NA	A	400V- 50 Hz- 1,7A,	560	563	875**	150
STAT1K5X	V	1500	2700	800	1000	NA	1200	A	NA	A	440V- 60 Hz, 2,0A, three-phase	560	563	875**	230

* add 212 mm for fan

** add 355 mm for fan

Abbreviations and notes

A =	Available
NA =	Not available
I_N=	Continuous output current Class 1 (no overcharge)
I_B =	Basic output current with 300% overcharge (3IB) for 10 sec. every 5 minutes



SILCOSTART

STANDARDS	MOUNTING
IEC 146.2	Vertical
NETWORK CONNECTIONS	**INPUT**
Voltage: Vin Power ±10% Control: 380 V ±15% (30 VA)	Start/Stop
Frequency: 50/60 Hz ±4% (selectable through jumpers)	External current limit
ENVIRONMENTAL CONDITIONS	External protection/alarm
Operating temperature: 0°C - +40°C. Decrease rated current	Reset of protections
by 1,2% every °C between 40°C and 65°C	**OUTPUT**
Storage temperature: -20°C ÷ +40°C	NO contact K1 relay DRIVE OK/end of deceleration
Relative humidity: 95% (without condensation)	NO contact K2 relay BYPASS OK
Altitude: 1000 meter above sea level. Decrease rated current	Motor speed (0-10 V)
by 1% every 100 meter up to 2000 meter	Motor current (0-10V)
IP20 (protection against accidental contact)	**LED INSTRUCTIONS**
Forced-air ventilation	POWER (Auxiliary supply)
TECHNICAL AND FUNCTIONAL CHARACTERISTICS	ENABLED
Functions selectable through jumpers	DRIVE OK
REGULATIONS	BYPASS OK
Acceleration/Deceleration time	CUSTOMIZATION BOARD 
Starting current limit	
Starting current function generator	
Tachogenerator feedback	
PROTECTION FEATURES	
Thyristor over temperature	
Instantaneous over current (IOC)	
Phase loss	
External protection	
Thermal protection of the starter	

DIAGNOSTICS PANEL (Optional, mounted on the converter or remote)

FUNCTION KEYS

- POWER (Auxiliary supply)
- ENABLED
- I MAX (Instantaneous over current)
- DRIVE OK
- ITH TIME
- OVER-TEMP (Over temperature)
- BYPASS OK
- PHASE LOSS
- EXT. FAULT (External Protection/Alarm)
- CURRENT ON
- RESET
- LED TEST

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