LOW VOLTAGE

SOFT STARTERS

AND DC INJECTION BRAKES

SOLCON

Analogue

Solbrake
DC Injection Brake 10-390A



Solstart
Miniature Soft Starter 8-58A, with a built-in bypass

For Three Phase or Single Phase Motors



Solbrake

KW 400V	Brake Type Ampere	Dimensions (mm) W	H	D	Wt. (Kg)
5.0 *	Solbrake 10 *	90	75	105	0.5
7.5	Solbrake 17	65	190	114	1.3
15	Solbrake 31	65	190	114	1.3
30	Solbrake 58	65	190	114	1.3
55	Solbrake 105	154	280	168	5.0
90	Solbrake 170	154	280	168	5.0
110	Solbrake 210	154	280	168	5.4
160	Solbrake 310	224	384	222	12
200	Solbrake 390	224	384	222	12

* Note: 5.5KW at 415V

Solstart

KW 400V	Starter Type Ampere	Dimensions (mm) W	H	D	Wt. (Kg)
4	Solstart 8	45	75	110	0.4
7.5	Solstart 17	90	75	105	0.6
11	Solstart 22	90	75	105	0.6
15	Solstart 31	65	190	114	1.3
22	Solstart 44	65	190	114	1.3
30	Solstart 58	65	190	114	1.3

Advantages at a glance

The Solbrake Electronic Motor Brake provides fast, smooth & frictionless stopping of a three induction phase motor, by injecting controlled DC current to the motor windings, after the mains contactor opened.

- Preventing mechanical wear
- Reducing stopping time of high inertia loads
- Adjustable braking time
- Auto stop - DC Injection stops when motor stops
- DIN Rail mounting (Standard 10A, option 17-58A)
- Easy installation & operation

Standard ratings

- Voltages: 230, 400, 460 & 600V (105-390A are available up to 690V)

Settings

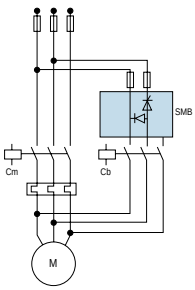
- Braking Torque - Determines the DC current level injected to the motor windings
- Two operation modes
  - Auto Mode: DC Injection stops automatically when motor stops.
  - Manual Mode: DC Injection stops after the pre-adjusted braking time. This mode can be used to "hold" the load at stand still.

Displays (LEDs)

- Mains voltage connected
- Braking Contactor Closed
- DC Injection On

Applications

- Circular and band (flywheel) saws
- Machine tools
- Fast stopping of high inertia loads
- Safety brakes (as long as mains supply remains on)



Advantages at a glance

- Soft start & Soft stop
- Built-in bypass
- Start / Stop by voltage free contact
- End of Acceleration contact, one-N.O (31-58A only)
- Compact, small foot print
- Plastic case 8-22A, Aluminum case for 31-58A
- DIN Rail mounting (Standard 8-22A, option 31-58A)
- Cost effective

Option

- Single phase motor soft starters

Standard ratings

- Voltages: 230, 400, 440, 460 & 600V
- 50 and 60 Hz

Starter Protection

- SCR protection by Metal Oxide Varistors

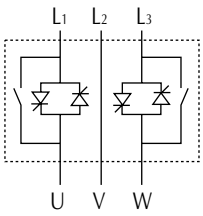
Displays (LEDs)

- On - mains voltage connected
- Ramp - voltage is ramping up / down
- Run - motor is running

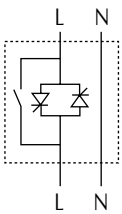
Applications

- Appliances
- Machine tools
- Electrically driven gates
- Light duty motors in commercial applications
- Small conveyors (post office, supermarkets, etc.)

Three phase motors



Single phase motors



Contact us for quantity discount and / or special design features

Inner Picture (Fluminense FPSO) - Courtesy Jurong Shipyard

Solstart Plus
Analogue Soft Starter 17-170A, with a built-in bypass



RVS-AX
Analogue Soft Starter 8-170A, with a built-in bypass

Line or Inside Delta connection


Solstart Plus

	KW 400V	Starter Type Ampere	Dimensions (mm) W	H	D	Wt. (Kg)
Future Option	7.5	Solstart Plus 17	90	75	105	0.6 [1]
Future Option	11	Solstart Plus 22	90	75	105	0.6
	15	Solstart Plus 31	65	190	114	1.4
	22	Solstart Plus 44	65	190	114	1.4
	30	Solstart Plus 58	120	265	124	3.5
	37	Solstart Plus 72	120	265	124	3.5
	45	Solstart Plus 85	120	265	124	3.5
	55	Solstart Plus 105	120	265	124	3.5
	75	Solstart Plus 145	129	275	182	6.5
	90	Solstart Plus 170	129	275	182	6.5

[1] Consult factory for final dimensions

RVS-AX

KW 400V	Starter Type Ampere	Dimensions (mm) W	H	D	Wt. (Kg)
4	RVS-AX 8	120	232	105	2.6
7.5	RVS-AX 17	120	232	105	2.6
15	RVS-AX 31	120	232	105	2.6
22	RVS-AX 44	120	232	105	2.6
30	RVS-AX 58	129	275	185	5.0
37	RVS-AX 72	129	275	185	5.0
45	RVS-AX 85	129	380	185	8.4
55	RVS-AX 105	129	380	185	8.4
75	RVS-AX 145	172	380	195	11.8
90	RVS-AX 170	172	380	195	11.8

Advantages at a glance
- Two phase control
- Soft start & Soft stop
- Current Limit
- Built-in motor Protection
- Built-in bypass
- End of Acceleration Relay
- Fault Relay (58-170A)
- Compact, small foot print
- Aluminum case
- DIN Rail mounting (option for 31-44A)
- Cost effective

Standard ratings
- Voltages: 208, 230, 400, 440, & 600V
- 50 and 60 Hz

Motor & Starter Protection
- Electronic overload
- Starter over-temperature
- SCR protection by Metal Oxide Varistors

Displays (LEDs)
- On - mains voltage connected
- Ramp Up / Down
- Run
- Overload
- Fault

Applications
- Pumps, Fans, Compressors
- Conveyors & Monorail systems
- Machine tools

Advantages at a glance
- Soft start & Soft stop
- Current Limit
- Built-in motor Protection
- Built-in bypass (31-170A only)
- Start / Stop by voltage free contact
- Compact, small foot print
- Aluminum case

Standard ratings
- Voltages: 230, 400, 440, 460 & 600V 50 and 60 Hz

Motor & Starter Protection
- Electronic overload
- Phase loss
- Starter over-temperature
- SCR protection by Metal Oxide Varistors

Displays (LEDs)
- On - mains voltage connected
- Ramp Up / Down
- Run
- Overload
- Phase Loss
- Over Temperature

Auxiliary Relays
- End of Acceleration Relay, one-N.O contact
- Fault Relay, one-N.O contact

Applications
- Pumps
- Compressors
- Fans & Blowers
- Conveyors & Monorail systems
- Starting from weak power supplies (diesel generators, long supply lines, etc.).

Contact us for quantity discount and / or special design features

HCC
Horizontal Crane Controller


SEM-N
Naval & Military applictions


RVS-EX
8-3500A, 208-1000V
RVS-DN for Explosion Proof motors

RVS-DN
8-3500A, 1000V applications
Stainless Steel and Copper construction
for severe mining environments

RVS-TX
Digital Transformer Starter
8-3000A, 220-1000V
Eliminating the magnetizing inrush current of transformers in either low or medium voltage

Digital

INSULATION ALARM
1.2 Mohm

On
Start
Run
S.Stop
Stop
E.Save / Slow
D.Adj. / Rev.
Fault




RVS-DX
Digital Soft Starter 8-1100A, with a built-in bypass

Line or Inside Delta connection

RVS-DN
Digital Soft Starter 8-3000A, Heavy Duty, Fully featured

Line or Inside Delta connection

[1]

RVS-DX

KW 400V	Starter Type Ampere	Dimensions (mm) W	H	D	Wt. (Kg)	
4	RVS-DX 8	120	232	122	3.1	
7.5	RVS-DX 17	120	232	122	3.1	
15	RVS-DX 31	120	232	122	3.1	
22	RVS-DX 44	120	232	122	3.1	
30	RVS-DX 58	129	275	182	5.2	
37	RVS-DX 72	129	275	182	5.2	
45	RVS-DX 85	129	380	182	8.5	
55	RVS-DX 105	129	380	182	8.5	
75	RVS-DX 145	172	380	192	11.7	
90	RVS-DX 170	172	380	192	11.7	
110	RVS-DX 210	310	521	300	30.2	[1]
160	RVS-DX 310	310	521	300	30.2	
200	RVS-DX 390	310	521	300	55	
250	RVS-DX 460	455	683	328	65	
315	RVS-DX 580	455	683	328	75	
400	RVS-DX 650	455	683	328	80	
450	RVS-DX 820	455	683	328	90	
550	RVS-DX 950	515	833	341	100	
630	RVS-DX 1100	515	833	341	100	

[1] Consult factory for final dimensions and standards

RVS-DN

KW 400V	Starter Type Ampere	Dimensions (mm) W		H		D		Wt. (Kg)	
4	RVS-DN 8	153		310		170		4.5	
7.5	RVS-DN 17	153		310		170		4.5	
15	RVS-DN 31	153		310		170		6.0	
22	RVS-DN 44	153		310		217		7.4	
30	RVS-DN 58	153		310		217		7.4	
37	RVS-DN 72	153		310		217		7.4	
45	RVS-DN 85	274		385		238		15	
55	RVS-DN 105	274		385		238		15	
75	RVS-DN 145	274		385		238		15	
90	RVS-DN 170	274	[1]	385	[1]	238	[1]	15	[1]
110	RVS-DN 210	380	590	455	500	292	290	31	44.8
160	RVS-DN 310	380	590	455	500	292	290	31	44.8
200	RVS-DN 390	380	590	455	500	292	290	31	44.8
250	RVS-DN 460	380	623	555	660 [2]	292	290	55	65
315	RVS-DN 580	470	623	655	660 [2]	302	290	55	65
400	RVS-DN 650	470		715		302		65	
450	RVS-DN 820	470	623	715	660 [2]	302	290	65	65
550	RVS-DN 950	623		660 [2]		290		83.5	
630	RVS-DN 1100	723		1100		370		155	
800	RVS-DN 1400	723		1100		370		155	
950	RVS-DN 1800	723		1100		370		155	
1250	RVS-DN 2150	750		1300		392		240	
1400	RVS-DN 2400	900		1300		472		314	
1550	RVS-DN 2700	900		1300		472		314	

[1] Previous version

[2] When using bypass contactor, add 160mm for bus-bar extensions.

[3] Type test

Advantages at a glance

- Small footprint
- Complete line 8-1100A, 220-600V
- Third generation microprocessor based design circuitry
- Normal duty, fully rated design including built in bypass
- Aluminum case (8-170A)
- Superior starting & stopping characteristics
- Comprehensive Motor Protection
- RS 485 Modbus Communications
- Frequency autotracking 45-65Hz
- User friendly
- Line or Inside Delta connection
- Analogue output

Standard ratings

- Voltages: 230, 400, 440, 460 & 600V

Starting & Stopping

- Soft start & soft stop
- Current Limit
- Pump Control Program (See description)
- Torque and Current Control
- Dual Adjustment
- Pulse start
- Slow speed forward and reverse

Options (contact us):

- Fan control for severe duty cycle
- DOL Starting via external contact

Motor & Starter Protection

- Too many starts
- Long start time (Stall)
- Shear-pin (Electronic Fuse for start & run)
- Electronic overload (with selectable curves)
- Under Current
- Phase loss & Phase Sequence
- Under, Over and No voltage
- Load loss (motor not connected)
- Shorted SCR
- Starter over-temperature
- External Fault (Programmable input)
- SCR protection (by Metal Oxide Varistors)

Displays

- LCD - Two lines of 16 characters each
- Multilingual - English, German, French & Spanish
- Four LEDs - On, Run, Ramp Up/Down, & Fault
- Statistical Data - Start, Stop & Fault parameters
- Full description parameter settings

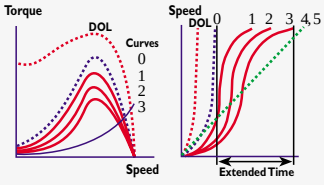
Controls

- Opto isolated inputs
- Auxiliary relays: Fault, End Of Acceleration or Immediate (programmable)
- Local and Remote reset
- RS 485 Modbus Communications for full control, display and programming (Profibus-contact us)

Pump Control (common for RVS-DN, RVS-DX & HRVS-DN)

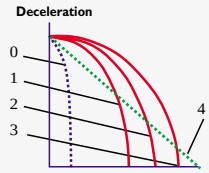
Start Curves

The RVS-DN (DX) incorporates an Intelligent Pump Control Program that allows selection between three special dynamic voltage ramp-up curves, and Torque or Current curves each further reducing peak torque thus extending acceleration time.



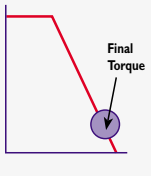
Stop Curves

When pumping to a higher elevation and motor is soft stopped, motor torque may quickly fall below load torque causing abrupt stalling instead of smoothly decreasing speed to zero. This will create a Water Hammer phenomenon resulting in a loud noise and damage to the pipe system. The Pump Control enables selection between 3 dynamic voltage ramp-down or Torque curves to prevent a stall condition and eliminate Water Hammer.



Final Torque

Prior to concluding the deceleration process, motor torque reaches a level where the load torque is higher than motor's torque and the valve closes. The motor continues to run against a closed valve (no load) until it stops. The Final Torque feature enables setting a point where the motor stops when the valve closes.



HRVS-DN
60-2700A, 1500-15000V
Digital, Medium Voltage Soft Starter
Heavy Duty, Fully featured

Please inquire for our latest catalogue.

Advantages at a glance

- Complete line 8-3500A, 220-1000V
- Heavy duty, fully rated design
- Robust construction
- Superior starting & stopping characteristics
- Comprehensive Motor Protection package
- User friendly
- Line or Inside Delta connection
- Maximum ambient temperature: 50°C
- Unique optional features including:
  - Motor Insulation Tester
  - RS 485 Comm. Modbus / Profibus / TCP-IP
  - Thermistor input / Analogue output

Starting & Stopping

- Soft start & soft stop
- Current Limit
- Pump Control Program
- Torque and Current Control for optimized Starting & Stopping process
- Dual Adjustments - Two Starting & Stopping Characteristics
- Slow speed with electronic reversing
- Pulse start
- Linear Acceleration (tacho feedback)
- Energy Save for improved Power Factor

Standard ratings

- 230V, 400V, 500V, 600V, 690V, 1000V

Motor & Starter Protection

- Too many starts
- Long start time (Stall)
- Shear-pin (Start+Run+Jam)
- Electronic overload with selectable curves
- Under Current with adjustable delays
- Phase loss & Phase Sequence
- Under, Over & No voltage
- Load loss (motor not connected)
- Shorted SCR
- Starter over-temperature

Displays LCD & LEDs

- LCD - 2 lines x 16 characters
- Selectable languages: English, German, French & Spanish (Russian - optional).
- Two display modes for basic & advanced applications
- Friendly operation with Default parameters
- Eight LEDs for quick operational status
- Statistical Data including:
  - Total run time
  - Total number of starts
  - Total number of trips
  - Last start current
  - Last start time
  - Last trip
  - Current at trip

Options

- RS 485 Communication (see details below)
- Analogue Output (see details below)
- Thermistor Input (see details below)
- Motor Insulation Test (see details below)
- Preparation for Bypass - to maintain protection when bypass is closed
- Special Anti-Corrosive Treatment - special coating for harsh environments
- Illuminated LCD
- Special Tacho Feedback Circuitry
- Remote Communication via Cellular, Internet and Satellite

Communication (option)

- MODBUS RTU - enables Setting, Control & Supervision
- PROFIBUS DP - enabling Control & Supervision
- TCP/IP - MODBUS/TCP via standard RJ 45 computer network connector

Analogue card (option)

Incorporates two functions:
- Thermistor input, PTC or NTC
- Analogue output, related to motor's current, programmable as 0-10VDC, 4-20mA, 0-20mA or inverse

Motor Insulation Tester (option)

A unique feature for submersible pumps, motors installed in harsh environments, etc. The system measures motor insulation when motor is not running. Two programmable levels are available:
- Alarm level, adjustable 0.2-5 MOhm
- Start Disable level, adjustable 0.2-5 MOhm, preventing starting when insulation is below acceptable levels

Auxiliary Relays

Programmable relays, one-C.O 8A, 220VAC
- Immediate with adjustable On and Off delays. Can be dedicated for Shear-pin (Jam) protection.
- End of Acceleration, with adjustable On delay
- Fault, programmable as Fault or Fault-fail-safe operation.
- Low Motor Insulation Alarm (option)

Applications

Industrial

- Pumps
- Hydraulic systems
- Fans & Blowers
- Compressors
- Conveyors

Marine & Offshore

- Complete line 8-3500A, 220-1000V
- Heavy duty, fully rated design
- Robust construction
- Generator ready - auto frequency tracking, sustains variations of 45-65Hz while starting
- User friendly operation
- Unique protection for corrosive environments

The RVS-DN has Lloyds Type Approval for ENV1, ENV2. As well as, Germaniche Lloyds & Rina. (Low Voltage to 1400A) ABS, DNV and BV are type tested.

1000V for Mining, Quarry & Mixers

Digital, fiber optically controlled Soft Starter for 20-1000A, Robust, Heavy Duty, Fully featured (stainless steel with copper heatsink is available below 100A as well).

Additional Products

Additional catalogues available from Solcon's product range

HRVS-DN
High Voltage Digital Soft-Starter
60-2700A, 1500-15000V

TPS
Thyristor Power Controller (Heaters)
Zero Crossing and Phase Control

MPS-3000
Motor Protection & Control Relay

MPS-6
Motor Protection & Control Relay

MPR-6/3
Motor Protection Relay

MPC-6
Motor Protection, Control & Supervision Relay

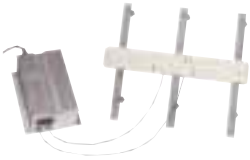
MPR-6-DGF
Motor Protection with Directional Ground Fault

TPR-6
Digital Temperature Protection Relay

MIP-6
Motor Insulation Protection Relay

IPNP-RMU
Remote Monitoring/Supervision Unit
Cellular, Internet, Satellite

EPT
Electronic Potential Transformer
2300-36000V



DGC-2000
Digital Generator Control & Protection

DPM-10
Digital Power Meter

PFC-10
Reactive Power Factor Controller

SU-124
Generator Control & Protection

HIU
Restart Relay

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