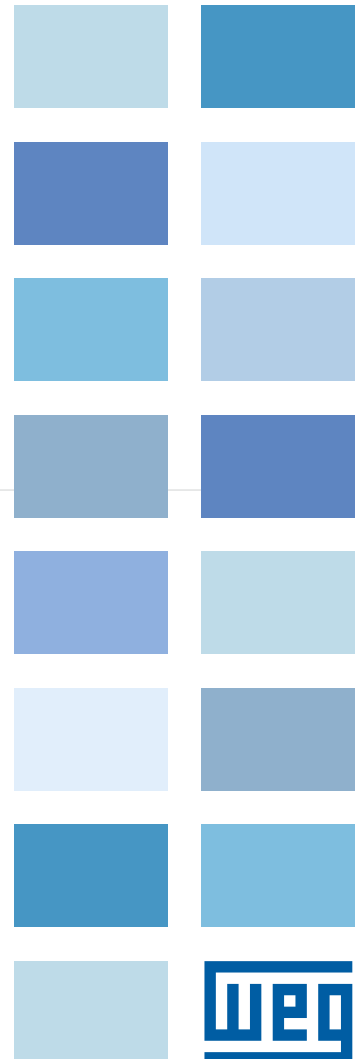
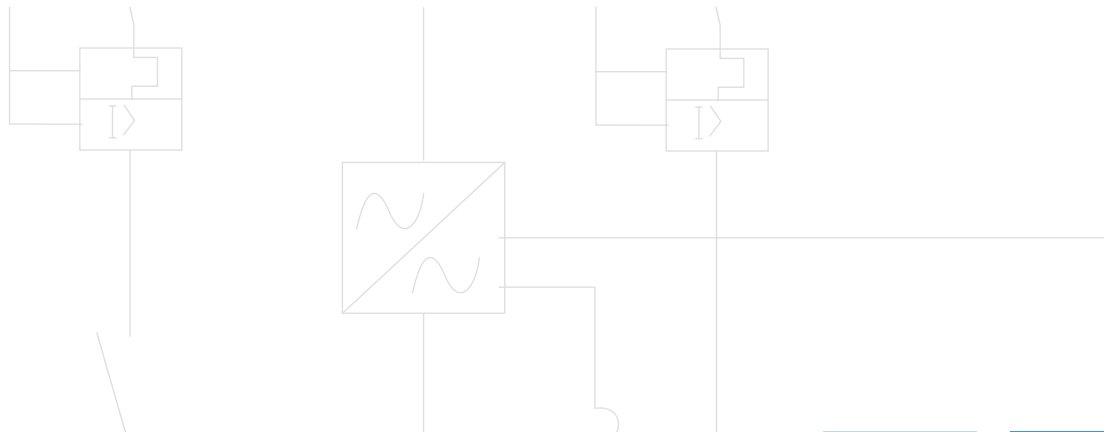


Automation

Soft-Starters



Soft-Starters



Soft-Starters are static starters that accelerate, decelerate, and protect three-phase induction motors. The control of the voltage applied to the motor by means of adjustments to the firing angle of thyristors, allows the soft-starter to start and stop an electric motor smoothly. With adequate adjustments of the variables, the torque produced is adjusted to the needs of the load, so that the required current is going to be the lowest possible for the starting procedure.

WEG Soft-Starters are micro processed, fully digital, state-of-the-art technology products designed to ensure the best starting and stopping performance of induction motors, presenting itself as a complete and low-cost solution. The human-machine interface allows easy adjustment of the parameters which helps set up and operation.

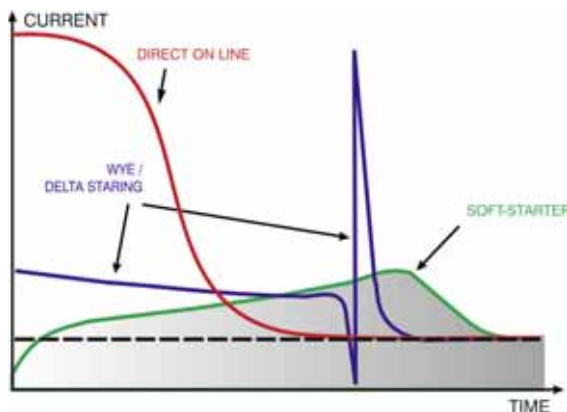
The soft-starter line is top-notch in motor starting and stopping with features that allow the starting, stopping and protection of electric motors in an easy and efficient manner.



Applications

- Centrifugal Pumps / Alternatives (Sanitation / Irrigation / Petroleum)
- Fans / Exhausts / Blowers
- Air Compressors / Refrigeration (Screw / Piston)
- Refineries
- Centrifuges
- Dryers
- Mixers / Aerators
- Injectors
- Agitators
- Wire drawing
- Rotating kilns
- Crushers and grinders
- Dosing
- Wood chippers
- Pulp and paper
- Saws and planers (wood)
- Mills
- Transportation: conveyors / belts / chains
- Roller conveyors
- Monorails / hoists
- Escalators
- Baggage conveyors (Airports)
- Bottling

Comparison of Electric motor start-up methods



SSW-05

Built-in By-pass



Characteristics

- Power: 0.75 to 75 HP;
- Voltage: 220 to 575 V;
- Compact;
- Programmable relay output;
- Programmable digital input;
- Digital DSP (Digital Signal Processor);
- Easy operation;
- High efficiency;
- Built-in motor protection;
- Built-in electronic thermal relay;
- Serial remote MMI (optional);
- Possible with use of serial communication or remote MMI.
- PCB's Conformal Coating (standard).



Remote Interface

Adjustments and indications



Specification Table

SUPPLY VOLTAGE	MICRO SOFT-STARTER SSW-05 Plus		MAXIMUM RATED MOTOR POWER			DIMENSIONS			Weight (kg)				
	Model	I nom.	Voltage (V)	Power rating		(mm)							
		(A)		cv	kw	H	W	D					
220/230/380/400/415/440/460 V	SSW-05.03	3	220 V	0,75	0,55	130	59	145	0,74				
	SSW-05.10	10		3	2,2								
	SSW-05.16	16		5	3,7								
	SSW-05.23	23		7,5	5,5								
	SSW-05.30	30		10	7,5								
	SSW-05.45	45		15	11					185	79	172	1,67
	SSW-05.60	60	20	15									
	SSW-05.85	85	30	22									
	SSW-05.03	3	380 V	1,5	1,1	130	59	145	0,74				
	SSW-05.10	10		6	4,5								
	SSW-05.16	16		10	7,5								
	SSW-05.23	23		15	11								
	SSW-05.30	30		20	15								
	SSW-05.45	45		30	22					185	79	175	1,67
	SSW-05.60	60	40	30									
	SSW-05.85	85	60	45									
	460/480/500/525/575 V	SSW-05.03	3	440 V	2	1,5	130	59	145	0,74			
		SSW-05.10	10		7,5	5,5							
SSW-05.16		16	12,5		9,2								
SSW-05.23		23	15		11								
SSW-05.30		30	20		15								
SSW-05.45		45	30		22	185					79	175	1,67
SSW-05.60		60	40	30									
SSW-05.85		85	60	45									
460/480/500/525/575 V		SSW-05.03	3	575 V	2	1,5	130	59	145	0,74			
		SSW-05.10	10		7,5	5,5							
		SSW-05.16	16		10	7,5							
		SSW-05.23	23		20	15							
	SSW-05.30	30	25		18,5								
	SSW-05.45	45	40		30	185					79	172	1,67
	SSW-05.60	60	50		37								
	SSW-05.85	85	70		55								

Note: HP and kW indicated on the table are based on low-starting torque loads, such as centrifugal pumps and compressors, and WEG IV pole / 50 Hz motors.



SSW-06

Built-in By-pass



Characteristics

- The most advanced soft-starter on the market
- Power: 30 to 2500 HP
- Voltage: 220 to 575 V
- Detachable dual-display (LED / LCD) MMI
- Programmable start / stop methods: Voltage Ramp, Current Limit, Current Ramp, Pump
- Current and Torque Control
- "Kick-Start" function for loads with elevated static friction
- "Pump Control" for intelligent control of pumping systems
- Fully Digital / 32-bit RISC microcontroller
- Programmable motor and soft-starter protection
- Input for Motor PTC
- The only one with Voltage Protection
- PCB's Conformal Coating (standard)

WEG Soft-Starter Sizing Software

Some of the software available to WEG customers:



SDW

This software helps in the sizing and selection of WEG soft-starter.

Software Main Features and Advantages:

- Uses WEG motor database for ease in data input
- Contains as a sizing option, the main applications and their respective specifications, for ease in data input
- It facilitates the sizing of the Soft-Starter considering the most diverse starting conditions.
- Its output indicates besides the model, a list of basic parameters to assist in the Soft-Starter start-up.



SUPERDRIVE

PC programming software for setting and monitoring WEG frequency inverters, soft-starters and Servoconvertors.

Available at: www.weg.net

Specification Table

SOFT-STARTER SSW-06		MAXIMUM MOTOR OUTPUT				Size		
Model	I-nom (A)	Voltage (V)	Standard Connection (3 Leads)		Internal Delta Connection (6 Leads)			
(Auxillary Circuit: 94-253Vac) (fan: 110/220) (2) (3)	Ta=0...55° C (4)		Ta=0...55° C (4)		Ta=0...55° C (4)			
		cv	KW	cv	KW			
SSW-06 0085 T 2257 P S	85	220	30	22	60	45	2	
SSW-06 060130 T 2257 P S	130		50	37	75	55	2	
SSW-06 0170 T 2257 P S	170		60	45	125	90	3	
SSW-06 0205 T 2257 P S	205		75	55	150	110	3	
SSW-06 0255 T 2257 P S	255		100	75	175	130	4	
SSW-06 0312 T 2257 P S	312		125	90	200	150	4	
SSW-06 0365 T 2257 P S	365		150	110	250	185	4	
SSW-06 0412 T2257 P S	412		150	110	250	185	5	
SSW-06 0480 T2257 P S	480		200	150	350	260		
SSW-06 0604 T2257 P S	604		250	185	450	330	6	
SSW-06 0670 T2257 P S	670		250	185	500	370		
SSW-06 0820 T2257 P S	820		350	260	600	450	6	
SSW-06 0950 T2257 P S	950		400	300	700	520	7	
SSW-06 1100 T2257 P S	1100		450	330	800	600	8	
SSW-06 1400 T2257 P S	1400		550	410	1050	775		
SSW-06 0085 T 2257 P S	85		380	60	45	100	75	2
SSW-06 0130 T 2257 P S	130			75	55	150	110	2
SSW-06 0170 T 2257 P S	170			125	90	200	150	3
SSW-06 0205 T 2257 P S	205			150	110	250	185	3
SSW-06 0255 T 2257 P S	255			175	130	300	220	4
SSW-06 0312 T 2257 P S	312	200		150	350	260	4	
SSW-06 0365 T 2257 P S	365	250		185	450	330	4	
SSW-06 0412 T 2257 P S	412	300		220	500	370	5	
SSW-06 0480 T 2257 P S	480	350		260	600	450		
SSW-06 0604 T 2257 P S	604	450		330	750	550	6	
SSW-06 0670 T 2257 P S	670	500		370	850	630		
SSW-06 0820 T 2257 P S	820	550		410	1000	750	6	
SSW-06 0950 T 2257 P S	950	750		550	1200	900	7	
SSW-06 1100 T 2257 P S	1100	800		600	1400	1030	8	
SSW-06 1400 T 2257 P S	1400	1000		750	1750	1290		
SSW-06 0085 T 2257 P S	85	440		60	45	125	90	2
SSW-06 0130 T 2257 P S	130			100	75	175	130	
SSW-06 0170 T 2257 P S	170			125	90	200	150	3
SSW-06 0205 T 2257 P S	205			150	110	300	220	
SSW-06 0255 T 2257 P S	255			200	150	350	260	4
SSW-06 0312 T 2257 P S	312		250	185	450	330		
SSW-06 0365 T 2257 P S	365		300	220	500	370	5	
SSW-06 0412 T 2257 P S	412		350	260	600	450		
SSW-06 0480 T 2257 P S	480		400	300	700	520	6	
SSW-06 0604 T 2257 P S	604		500	370	850	630		
SSW-06 0670 T 2257 P S	670		550	410	950	700	6	
SSW-06 0820 T 2257 P S	820		700	520	1200	900	7	
SSW-06 0950 T 2257 P S	950		800	600	1400	1030		
SSW-06 1100 T 2257 P S	1100		900	670	1600	1175	8	
SSW-06 1400 T 2257 P S	1400		1200	900	2000	1475		
SSW-06 0085 T 2257 P S	85		575	75	55	150	110	2
SSW-06 0130 T 2257 P S	130			125	90	250	185	
SSW-06 0170 T 2257 P S	170			175	130	300	220	3
SSW-06 0205 T 2257 P S	205			200	150	350	260	
SSW-06 0255 T 2257 P S	255			250	185	450	330	4
SSW-06 0312 T 2257 P S	312	300		220	550	400		
SSW-06 0365 T 2257 P S	365	400		300	650	475	5	
SSW-06 0412 T 2257 P S	412	450		330	800	600		
SSW-06 0480 T 2257 P S	480	500		370	900	670	6	
SSW-06 0604 T 2257 P S	604	650		475	1150	820		
SSW-06 0670 T 2257 P S	670	750		520	1250	920	6	
SSW-06 0820 T 2257 P S	820	850		630	1550	1140	7	
SSW-06 0950 T 2257 P S	950	1050		775	1800	1325		
SSW-06 1100 T 2257 P S	1100	1200		900	2100	1550	8	
SSW-06 1400 T 2257 P S	1400	1500		1100	2650	1950		

SSW-07

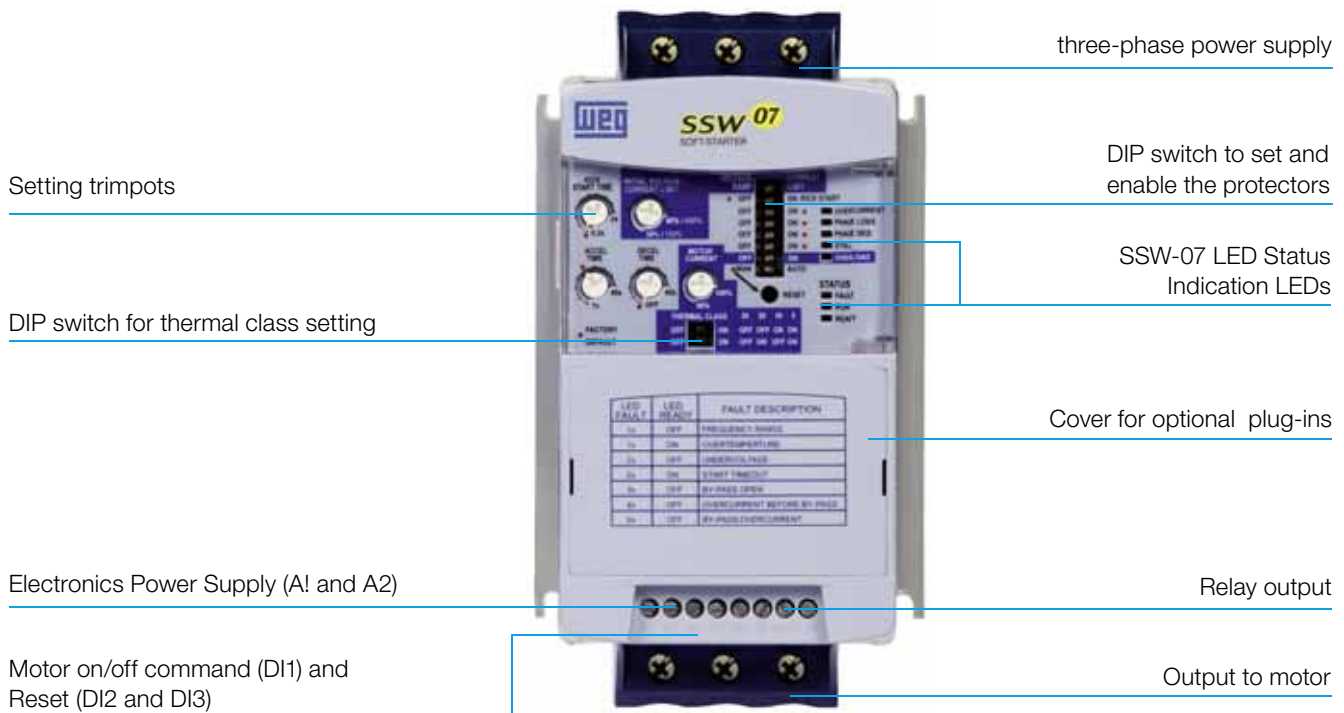
Built-in By-pass



Characteristics

- Power: 6 to 200 HP
- Voltage: 220 to 575 V
- Simple electric wiring
- Built-in bypass
- "Kick-Start" function for loads with elevated static friction
- Digital Signal Processor (DSP)
- Complete control of all three phases
- High-Starting Duty Cycles
- Motor and soft-starter protections
- Easy operation, setting, and maintenance
- Built-in electronic thermal relay
- MMI (Man Machine Interface) - Optional
- PCB's Conformal Coating (standard)

Adjustments and indications



Specification Table

Model	Current SSW - 07	Voltage	Power	
			(cv)	(kw)
SSW - 07	(A)	(v)		
SSW- 070017	17	220	6	4.5
SSW- 070024	24		7.5	5.5
SSW- 070030	30		10	7.5
SSW- 070045	45		15	11
SSW- 070061	61		20	15
SSW- 070085	85		30	22
SSW- 070130	130		50	37
SSW- 070171	171		60	45
SSW- 070200	200		75	55
SSW- 070017	17		380	10
SSW- 070024	24	15		11
SSW- 070030	30	15		11
SSW- 070045	45	30		22
SSW- 070061	61	40		30
SSW- 070085	85	60		40
SSW- 070130	130	75		56
SSW- 070171	171	125		90
SSW- 070200	200	125		90
SSW- 070017	17	440		12.5
SSW- 070024	24		15	11
SSW- 070030	30		20	15
SSW- 070045	45		30	22
SSW- 070061	61		50	37
SSW- 070085	85		60	45
SSW- 070130	130		100	75
SSW- 070171	171		125	90
SSW- 070200	200		150	110
SSW- 070017	17		575	15
SSW- 070024	24	20		15
SSW- 070030	30	30		22
SSW- 070045	45	40		30
SSW- 070061	61	60		45
SSW- 070085	85	75		55
SSW- 070130	130	125		90
SSW- 070171	171	175		132
SSW- 070200	200	200		150

NOTAS: The above maximum motor powers, were calculated based on WEG models, 4 poles, IP55, standard,



WEG Soft-Starter Comparison

		SSW-05	SSW-07	SSW06
Voltage power supply		220 a 460 V 460 a 575 V (-15% a +10%)	220 a 575 V (-15% a +10%)	220 a 575 V (-15% a +10%)
Electronics power supply		90 a 250 Vac Switching Power Supply	110 a 240 Vac (-15% a +10%)	110 a 230 Vac (-15% a +10%)
Frequency		50 / 60 Hz	50 / 60 Hz (+/-10%)	50 / 60 Hz (+/-10%)
Power	HP	0,75 a 75	6 a 200	30 a 2.650
	kW	0,55 a 55	4,5 a 150	22 a 1.950
	Current (A)	3 a 85	17 a 200	85 a 1.400
Enclosure		IP00	IP20 (with 130 to 200A option)	Standard - IP00 *Optional - IP20 (* 85 a 365 A)
Internal Delta Connection (6 leads)		No	No	Yes
Control Type	Voltage Ramp	Yes	Yes	Yes
	Current Limit	No	Yes	Yes
	Current Limit Ramp	No	No	Yes
	Pump Control	No	No	Yes
	Torque Control (1, 2, and 3 points)	No	No	Yes
Starting Duty Cycle	Number of starts per hour	4	10 ⁽³⁾	10 (85 a 820 A) 5 (950 a 1.400 A)
	Normal Thermal Capacity	300% - 10 seg.	300% - 30 seg.	300% - 30 sec. (Standard Connection) 300% - 25 sec. (Delta Connection)
	Heavy Thermal Capacity*	-	450% - 30 seg.	450% - 30 sec. (Standard Connection) 450% - 25 sec. (Delta Connection)
Inputs	Digital	2	3	5
	PTC input	No	Yes (1)	Yes
Outputs	Relay	2	2	3
	0-10 V Analog	No	No	1
	Analog (0-20 mA) (4-20 mA)	No	No	1
Features / Functions	Built-in Bypass	Yes	Yes	Yes
	Kick-Start	No	Yes	Yes
	DC Braking	No	No	Yes
	Optimail Braking	No	No	Yes
	Jog	No	No	Yes
	Copy MMI	Yes	Yes (1)	Yes

(*) with current derating.

(1) Optional

(2) Available soon

(3) With 45 to 200 A ventilation kit

(4) Up to 820 A

WEG Soft-Starter Comparison

		SSW-05	SSW-07	SW-06
Protection	Over / Under Voltage	No	No	Yes
	Voltage Unbalance	No	No	Yes
	Over / Under Current	Yes (1)	Yes	Yes
	Current Unbalance	No	Yes (1)	Yes
	Thyristor overheating	No	Yes	Yes
	Motor overload	Yes	Yes	Yes
	Inverted phase sequence	Yes	Yes	Yes
	External fault	Yes	Yes (1)	Yes
	Thyristor overload	Yes	No	No
	Power Supply phase loss	Yes	Yes	Yes
	Motor phase loss	Yes	Yes	Yes
	Frequency out of range	Yes	Yes	Yes
Standard Setting	Trim pots and Dipswitch	Yes	Yes	No
	MMI	Yes (1)	Yes (1)	Yes
	SUPERDRIVE	Yes	No (2)	No
Communication	Serial RS-232	Sim	Yes (1)	Yes
	RTU Modbus	Yes (via MFW)	Yes (1)	Yes (built-in)
	Profibus DP	Yes (via MFW)	Yes (1) (2) Via MFW	Yes (built-in)
	DeviceNet	Yes (via MFW)	Yes (1) (2) Via MFW	Yes (built-in)
Ambient Conditions	Temperature	0°C to 55°C Nominal Current (In)	0°C to 55°C Nominal Current (In)	0°C to 55°C Nominal Current (85 to 820 A) 40°C to 55°C with Nomi- nal Current reduction (950 to 1.400A)
	Humidity	0...90% without condensation	5...90% without condensation	5...90% without condensa- tion
	Altitude	0 to 1.000 m: nominal conditions 1.000 to 4.000 m: with 10% current reduction for each 1.000m above 1.000m		
Certifications	UL / cUL	Yes	No (2)	Yes
	CE	Yes	No (2)	Yes
	IRAM	Yes	No (2)	Yes
	C-TICK	Yes	No (2)	Yes

(1) Optional.

(2) Available soon.



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