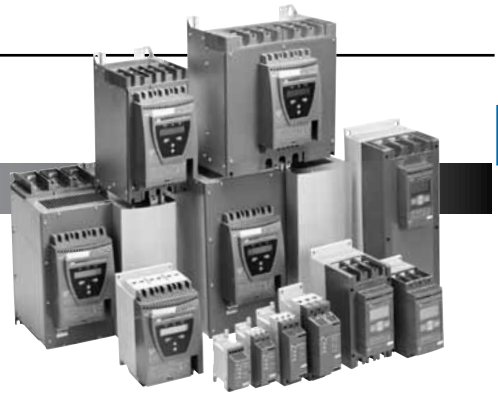
Softstarters
Index



5

5 - Softstarters

Notes

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

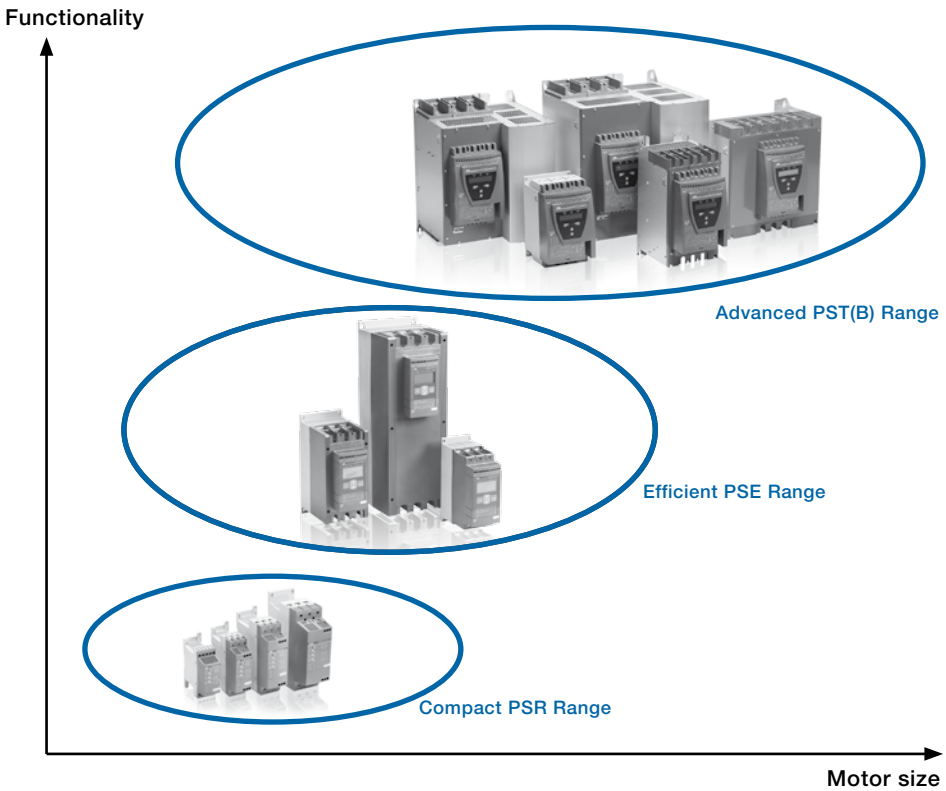
Softstarters
Type PSR, PSE, PST
General information

The complete range of Softstarters

The ABB softstarter portfolio now consists of 3 different ranges making it possible to find a suitable softstarter for almost all possible applications and motor sizes all the way up to 1800A. The softstarter family consists of the Compact PSR, the Efficient PSE and the Advanced PST(B) range.

Efficient PSE Range – World's first compact softstarter with Torque control

The latest addition to the ABB softstarter family is the efficient PSE range. This softstarter has been equipped with all the most important features making it a very efficient choice. During the development process, great focus has been put into making sure that both the softstarter and the process are even more reliable. Further more, the softstarter has been equipped with built-in by-pass to reduce the wiring and a back-lit display to provide easy set-up and monitoring.



Type PSR, PSE & PST Softstarters

Softstarter overview

From the moment the first electrical motors were developed, engineers have been searching for a way to avoid electrical and mechanical problems that usually occur when starting the motor. These problems include high inrush current and current spikes as well as excessive mechanical wear. One traditional way to avoid this is to use a star delta starter. This starting method in many applications is insufficient, as problems with current spikes and torque peaks will remain. In addition, it does not provide any way to perform a soft stop. A softstarter on the other hand will provide far better performance during the start and also the possibility to soft stop the motor.

ABB has been producing softstarters since the beginning of the 1980's. The valuable experience gained since the early 80's has been incorporated into the design of today's product ranges. Matching modern power electronics with smart circuitry and software, the ABB softstarters offer superior control of the current and voltage during motor start-up and stop, in addition to several state of the art design features.

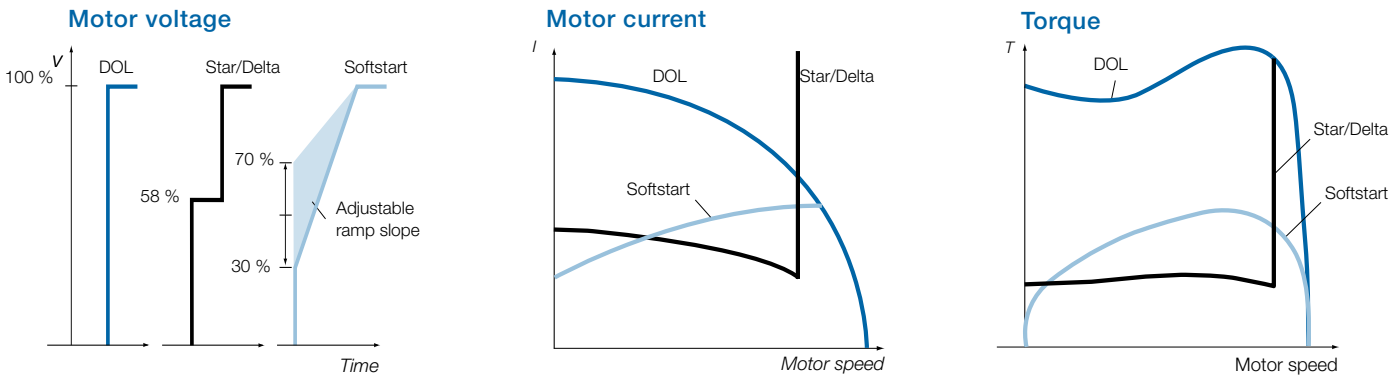
The solution to both mechanical and electrical problems

AC motors, "the workhorse of the industry", are used to drive fans, crushers, agitators, pumps, conveyors, etc. Depending on how it is installed, too often unnecessary and unwanted torque and current peaks are an everyday reality in production plants all over the world, causing damage in several ways. Among them are:

- Electrical problems due to voltage and current transients arising from Direct-On-Line or Star-Delta starts. Such transients may overload the local supply network and cause unacceptable voltage variations that interfere with other electrical equipment connected to the network.
- Mechanical problems that address the entire drive chain, from motor to driven equipment, causing a big need for service and repair as well as unwanted down time.
- Operational problems, such as damage to products on conveyor belts.
- Water hammering and pressure surges in pipe systems when starting and stopping pumps.

The financial consequences are considerable; every technical problem and every breakdown costs money in terms of repairs as well as lost production.

The easy solution to all of these problems is to install an ABB Softstarter type PSR, PSE or PST(B). With ABB Softstarters, it is possible to start and stop smoothly while keeping mechanical and electrical stresses to a minimum.



Graphs showing the basic differences between direct-on-line starting (DOL), star-delta starting and soft starting in terms of the motor voltage (V), motor current (I) and motor torque (T).

Softstarter overview
ABB softstarters – The complete range

ABB offers three different ranges of softstarters to cover every customer need for solutions for motor sizes up to 1800 A. This page describes the main characteristics of the different softstarter ranges

PSR — The compact range
The PSR softstarter is the most compact of all the softstarter ranges, thereby making it possible to design compact starting equipment. The system concept with Manual Motor Starters and the PSR provides a far more compact starting solution than for instance a star delta starter.

The built-in by-pass reduces the energy loss and makes the connection easier. With only three potentiometers, the set-up couldn't be any easier. Still, the optimized ramping characteristics will ensure a very smooth start and stop for all applications.

PSE — The efficient range
The PSE softstarter is the world's first compact softstarter with both built-in electronic overload for motor protection and torque control for an excellent control of pumps. The compact design with the most important functionality integrated provides a very efficient starting solution.

The illuminated language neutral display and the four button keypad make it easy to take advantage of all the advanced functionality in the softstarter. The display will also provide all the necessary information both during ramping and continuous operation.

PST(B) — The advanced range
The PST(B) softstarter is the most advanced softstarter in the range with almost all imaginable functionality included. All the advanced protections for the motor, the softstarter and the load ensure a trouble free operation. Pre-warnings even allow problems to be detected before the motor needs to be stopped and thereby avoiding unnecessary downtime.

The torque control function has been developed and tested together with well known pump manufacturers to ensure the best possible start/stop of pumps without water hammering and pressure surges.

With the full text LCD display in your own language, pre-programmed application settings and event logging, it couldn't be easier to set-up and operate.

By using the ABB FieldBusPlug, you can decide at any time which bus protocol to use. The fieldbus system will allow you to set-up, control and monitor the softstarter.

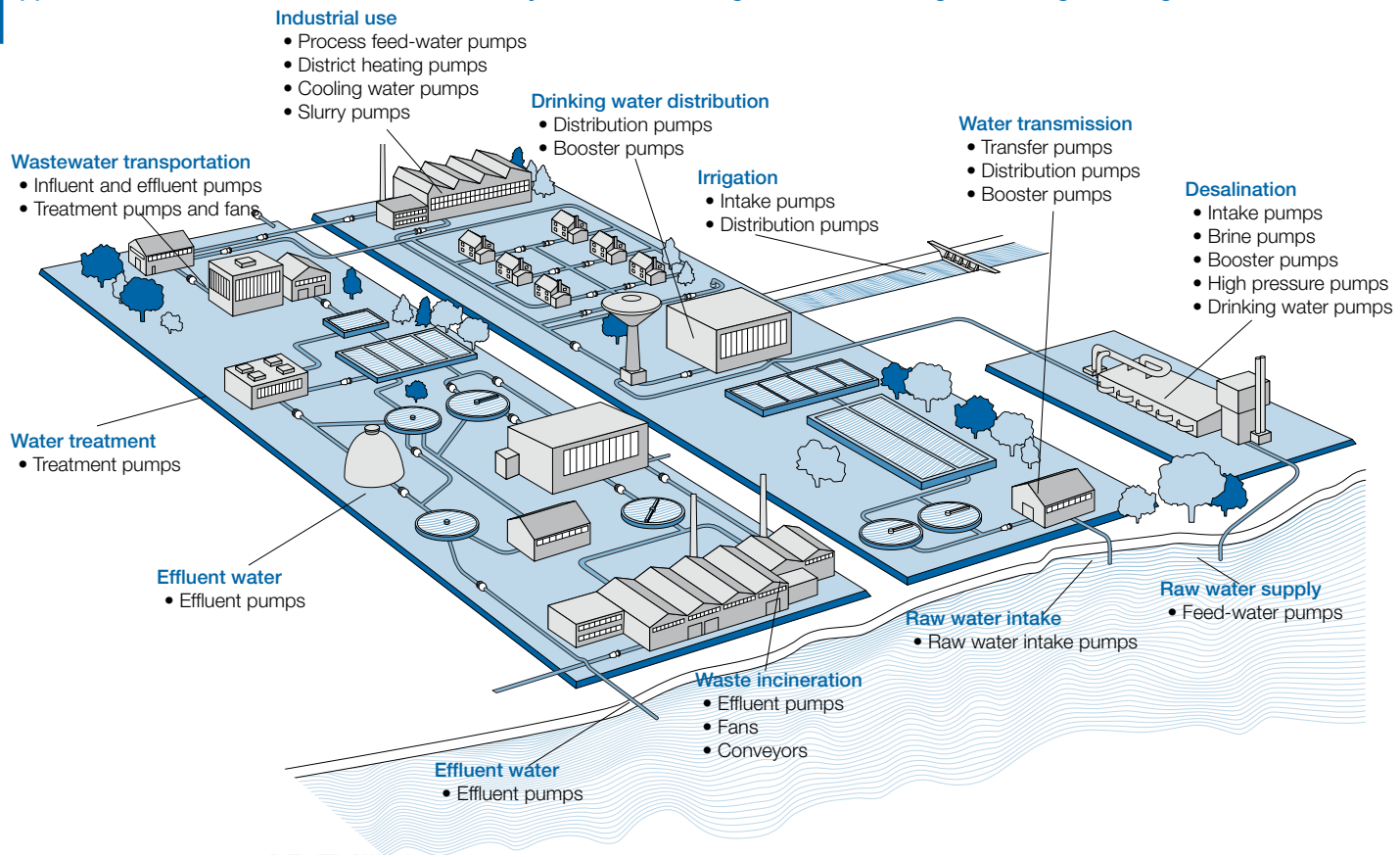
PSR	PSE	PST(B)	• Standard O Optional – Not available
•	•	• 1)	Built-in by-pass 1) on PSTB
–	–	•	Inside delta connection
–	•	O	Coated PCBs
–	•	•	Display and keypad
–	•	•	Torque control
–	•	•	Settable current limit function
–	•	•	Electronic motor overload protection
–	–	•	PTC input for motor protection
–	–	•	Phase imbalance protection
–	–	•	Phase reversal protection
–	•	•	Locked rotor protection
–	•	•	Thyristor overtemperature protection
–	•	•	Underload protection
–	–	•	Programmable warning functions
–	•	•	Analog output
O	O	•	FieldBus communication
–	O	•	Event log
–	O	O	External keypad

• Standard
O Optional
– Not available

Applications

Pumps

Water is the world's most important resource and water facilities can be found all over the world. Examples of water applications are freshwater and wastewater systems, circulating water for heating or cooling and irrigation.



Common questions:

- How to avoid voltage drops on the network when starting?
- ABB softstarter will reduce the starting current and thereby avoid the voltage drops.
- How to avoid water hammering when stopping?
- Use our softstarters equipped with an optimized stop ramp or even better with torque control.
- How to ensure high reliability in harsh environments?
- Use our softstarters equipped with coated circuit boards to better withstand those environments.
- How to protect my pumping equipment in the best possible way?
- Use ABB softstarters equipped with our special designed protections such as overload, underload, and locked rotor protection.

Applications

Fans

Common questions:

– How to avoid extended voltage drops due to long starting time?

– Use an ABB softstarter equipped with current limit to keep control of the starting current.

– How to extend the life of the driving belts?

– Our softstarters will reduce the mechanical stress during start, thus avoiding slipping belts.

– How to ensure the operation of the fan?

– A softstarter with underload protection will detect broken belts, making the operator immediately aware of the problem.

Compressors

Common questions:

– How to ensure a long life of the compressor?

– Using a softstarter for starting will reduce the accelerating torque, thereby minimizing the mechanical stress.

– How to build a compact compressor unit?

– Using a compact softstarter like PSR or PSE will allow a much more compact starting equipment than for instance a star delta starter.

Conveyor belts

Common questions:

– How to reduce the need for service and repair of the conveyor belt?

– A softstarter from ABB will cause minimal mechanical stress on the conveyor belt.

– How to avoid that the conveyor belt is running in the wrong direction?

– Use a softstarter with phase reversal protection.

– How to improve the efficiency of the conveyor belt?

– Using softstarters with high and low current warnings allows you to load on and off the conveyor belt.

– How to ensure a successful start in high inertia loads?

– A softstarter with kick start function will provide sufficient torque to be able to overcome the initial high friction from a temporarily jammed belt.

Notes

Softstarters
Type PSR

Product description

- Wide rated operational voltage 208 – 600 V
- Rated control supply voltage 24 V DC or 100 – 240 V AC
- Rated operational current 3 – 105 A
- Wide ambient temperature range, -25 to +60 ºC (-13 to 140 ºF)
- Built-in by-pass on all sizes, saving energy and reducing installation time
- Potentiometer settings
- Run signal relay on all devices
- TOR signal relay on PSR25 … PSR105
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- DIN rail mounting on PSR3 … PSR45
- Screw mounting on all sizes
- Connection kits for easy connection with ABB manual motor starters
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance.

Softstarters
Type PSR

PSR – The compact range
Description

The PSR range is the most compact of all the ABB softstarter ranges, thereby making it possible to fit many devices into the same enclosure. The system concept with Manual Motor Starters provides a far more compact starting solution than for example a star delta starter.

Flexible mounting
PSR softstarters from 3 to 45 A are possible to mount on a din rail, ensuring quick and easy mounting. Naturally, all sizes can be screw mounted.

Few settings
The set-up of the PSR is easily done and confirmed using the three clearly marked potentiometers on the front.

Built-in by-pass for energy saving
The built-in by-pass on all sizes does not only save energy; it will also ensure the most compact ABB softstarter design and reduce the installation time.

Suitable for stopping pumps
Even without using torque control, the PSR range is designed to reduce water hammering and will allow a superior stop compared to the direct stop resulting from a star delta starter or a DOL starter. See the special designed stop ramp with step down voltage below.

System concept with manual motor starters
All PSR softstarter sizes can easily be connected to the corresponding manual motor starters from ABB, using the special designed connection kits. This will both make the mounting and the connection easier and will provide a very compact starting solution containing short circuit and thermal protection, isolation function and softstarter - everything that you need.

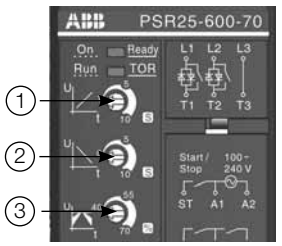
Settings

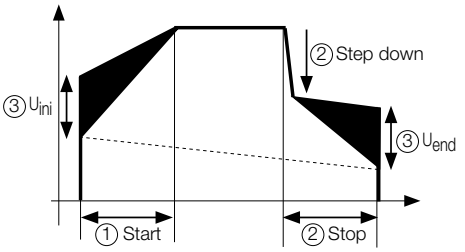
① Start = 1 ... 20 sec

Stop = 0 ... 20 sec - including the step down voltage.

② Step down = 2% reduction for each second increased stop ramp
Stop ramp 10 sec -> Step down 80% (20% reduction)

③ U_{ini} = 40 ... 70% results in End voltage = 30 ... 60%





PSR – The compact range
Overview

	PSR3 ... PSR16					PSR25 ... PSR30		PSR37 ... PSR45		PSR60 ... PSR105			
Softstarter													
Normal start In-line connected	PSR3	PSR6	PSR9	PSR12	PSR16	PSR25	PSR30	PSR37	PSR45	PSR60	PSR72	PSR85	PSR105
(480 V) hp	2	3	5	7.5	10	15	20	25	30	40	50	60	75
(600 V) hp	2	5	7.5	10	10	20	25	30	40	50	60	75	100
UL/CSA, Max FLA	3.4	6.1	9	11	15.2	24.2	28	34	46.2	59.4	68	80	104
Using manual motor starter, type 1 coordination will be achieved	**Manual motor starter (5 kA, 600 V, 40 °C)**												
	MS116			MS132				MS450		MS495			—
Using J fuses, type 1 coordination will be achieved	**J type fuse protection (85 kA)**												
175 % rating	5 A	10 A	15 A	15 A	25 A	40 A	45 A	50 A	80 A	100 A	110 A	125 A	175 A
Max rating	35 A	35 A	35 A	35 A	35 A	60 A	60 A	90 A	90 A	110 A	125 A	150 A	200 A
Minimum enclosure size [1]	254 x 204 x 153 mm / 10 x 8 x 6 in					305 x 254 x 204 mm / 12 x 10 x 8 in				600 x 400 x 210 mm / 24 x 16 x 8 in			
Fusible disconnect switch for the above J fuses	**Fusible disconnect switch**												
	OS30					OS60			OS100		OS200		
Overload protection is used to protect the motor from over heating	**Thermal overload relay**												
	TF42DU								TA75DU			TA110DU	
The line contactor is not required for the softstarter itself but often used to open if OL trips	**Line contactor**												
	AF9			AF12	AF16	AF26	AF30	AF50		AF63	AF75	AF95	AF110
Using by-pass will reduce the power loss and allow more starts per hour	**Bypass contacts**												
	Built-in												

[1] Enclosure that has two latching points minimum. For use in pollution degree 2 environment.

PSR – The compact range
Ordering details

PSR3 ... PSR105

Rated operational voltage U_e, 208-600 V AC

Rated control supply voltage, U_s, 100 - 240 V AC


PSR3 ... PSR16


PSR25 ... PSR30

230 V kW	400 V kW	500 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number
0.75	1.5	2.2	0.5	0.75	2	2	3.4	0.450 (0.99)	PSR3-600-70
1.5	3	4	1	1.5	3	5	6.1	0.450 (0.99)	PSR6-600-70
2.2	4	4	2	2	5	7.5	9	0.450 (0.99)	PSR9-600-70
3	5.5	5.5	3	3	7.5	10	11	0.450 (0.99)	PSR12-600-70
4	7.5	7.5	3	5	10	10	15.2	0.450 (0.99)	PSR16-600-70
5.5	11	15	7.5	7.5	15	20	24.2	0.650 (1.43)	PSR25-600-70
7.5	15	18.5	7.5	10	20	25	28	0.650 (1.43)	PSR30-600-70
7.5	18.5	22	10	10	25	30	34	1.000 (2.20)	PSR37-600-70
11	22	30	15	15	30	40	46.2	1.000 (2.20)	PSR45-600-70
15	30	37	20	20	40	50	59.4	2.200 (4.85)	PSR60-600-70
22	37	45	20	25	50	60	68	2.270 (5.00)	PSR72-600-70
22	45	55	25	30	60	75	80	2.270 (5.00)	PSR85-600-70
30	55	55	30	40	75	100	104	2.270 (5.00)	PSR105-600-70

Rated operational voltage U_e, 208-600 V AC

Rated control supply voltage, U_s, 24 V DC


PSR37 ... PSR45


PSR60 ... PSR105

0.75	1.5	2.2	0.5	0.75	2	2	3.4	0.450 (0.99)	PSR3-600-81
1.5	3	4	1	1.5	3	5	6.1	0.450 (0.99)	PSR6-600-81
2.2	4	4	2	2	5	7.5	9	0.450 (0.99)	PSR9-600-81
3	5.5	5.5	3	3	7.5	10	11	0.450 (0.99)	PSR12-600-81
4	7.5	7.5	3	5	10	10	15.2	0.450 (0.99)	PSR16-600-81
5.5	11	15	7.5	7.5	15	20	24.2	0.650 (1.43)	PSR25-600-81
7.5	15	18.5	7.5	10	20	25	28	0.650 (1.43)	PSR30-600-81
7.5	18.5	22	10	10	25	30	34	1.000 (2.20)	PSR37-600-81
11	22	30	15	15	30	40	46.2	1.000 (2.20)	PSR45-600-81
15	30	37	20	20	40	50	59.4	2.200 (4.85)	PSR60-600-81
22	37	45	20	25	50	60	68	2.270 (5.00)	PSR72-600-81
22	45	55	25	30	60	75	80	2.270 (5.00)	PSR85-600-81
30	55	55	30	40	75	100	104	2.270 (5.00)	PSR105-600-81

PSR – The compact range
Accessories


PSR16-MS116


PSR30-MS132


PSR45-MS450


PSR105-MS495


PSR-FAN


PSR-FAN 60-105 A


PS-FBPA


PSLW

Connection kit

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSR3...PSR16 with MS116	1	0.030 (0.07)	PSR16-MS116
PSR25...PSR30 with MS132	1	0.030 (0.07)	PSR30-MS132
PSR37...PSR45 with MS450	1	0.030 (0.07)	PSR45-MS450
PSR60...PSR105 with MS495	1	0.050 (0.11)	PSR105-MS495

Fan

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSR3...PSR45	1	0.010 (0.02)	PSR-FAN
PSR60...PSR105	1	0.013 (0.03)	PSR-FAN 60-105 A

Terminal enlargements

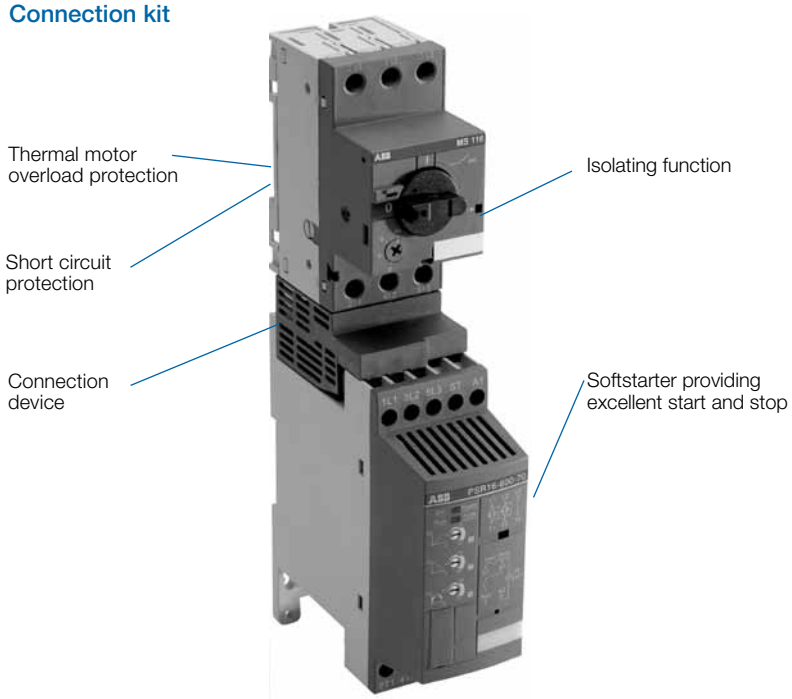
For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSR60...105 Wire range mm2 1x10...50, 2x10...25	1	0.150 (0.33)	PSLW-72

FieldBus plug connection accessory

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
The same accessory for all sizes	1	0.060 (0.13)	PS-FBPA

ABB Field Bus Plug suitable for all sizes. See page 5.40 - 5.43

Connection kit



Softstarters Type PSR

PSR – The compact range
Technical data

Rated insulation voltage U_i	600 V												
Rated operational voltage U_e	208...600 V +10 %/-15 %, 50/60 Hz ±5 %												
Rated control supply voltage U_s	100...240 V AC, 50/60Hz ±5 % or 24 V DC, +10 %/-15 %,												
Power consumption	**PSR3**	**PSR6**	**PSR9**	**PSR12**	**PSR16**	**PSR25**	**PSR30**	**PSR37**	**PSR45**	**PSR60**	**PSR72**	**PSR85**	**PSR105**
Supply circuit													
at 100-240 V AC	12 VA							10 VA					
at 24 V DC	5 W												
Max. Power loss at rated I_e	**PSR3**	**PSR6**	**PSR9**	**PSR12**	**PSR16**	**PSR25**	**PSR30**	**PSR37**	**PSR45**	**PSR60**	**PSR72**	**PSR85**	**PSR105**
	0.7 W	2.9 W	6.5 W	11.5 W	20.5 W	25 W	36 W	5.5 W	8.1 W	3.6 W	5.2 W	7.2 W	6.6 W
Starting capacity at I_r	4 x Ir for 6 sec.												
Number of starts per hour	See table on page 5.13.												
standard	10 [1]												
with aux. fan	20 [1]												
Service factor	100 %												
Ambient temperature													
during operation	-25 °C to + 60 °C (-13 to 140 °F) [2]												
during storage	-40 °C to + 70 °C (-40 to 158 °F)												
Maximum altitude	4000 m (13123 ft) [3]												
Degree of protection	**PSR3**	**PSR6**	**PSR9**	**PSR12**	**PSR16**	**PSR25**	**PSR30**	**PSR37**	**PSR45**	**PSR60**	**PSR72**	**PSR85**	**PSR105**
main circuit	IP20							IP10					
control circuit	IP20												

Connection	**PSR3-PSR16**	**PSR25-PSR30**	**PSR37-PSR45**	**PSR60-PSR105**
main circuit				
cable area	1 x 2.5mm²	1 x 2.5 - 10 mm²	1 x 6 - 35 mm²	1 x 10 - 95 mm²
	1 x 14 AWG	1 x 12 - 8 AWG	1 x 8 - 4 AWG	1 x 6 - 2/0 AWG
tightening torrque	1 Nm - 9 lb.in	2.3 Nm - 20 lb.in	4.0 Nm - 35 lb.in	8.0 Nm - 71 lb.in
	PSR3-PSR16	**PSR25-PSR105**		
control circuit				
cable area	1 x 1.5 - 2.5 mm²	1 x 1.5 - 2.5 mm²		
	2 x 1.5 mm²	2 x 1.5 mm²		
	1 x 16 - 14 AWG	1 x 16 -14 AWG		
	2 x 16 AWG	2 x 16 AWG		
tightening torque	1 Nm - 9 lb.in	0.6 Nm - 5 lb.in		

Signal relays	**PSR3-PSR16**	**PSR25-PSR105**
for Run signal		
Resistive load	240 V AC, 3 A / 24 V DC, 3 A	240 V AC, 3 A / 24 V DC, 3 A
AC-15 (Contactor)	240 V AC, 0.5 A / 24 V DC, 0.5 A	240 V AC, 0.5 A / 24 V DC, 0.5 A
for Top ramp signal		
Resistive load	-	240 V AC, 3 A / 24 V DC, 3 A
AC-15 (Contactor)	-	240 V AC, 0.5 A / 24 V DC, 0.5 A

LED	for On/Ready	Green
	for Run/Top Of Ramp	Green
Settings	Ramp time during start	1-20 sec.
	Ramp time during stop	0-20 sec.
	Initial- and End Voltage	40-70%

[1] Valid for 50 % on time and 50 % off time. 4 x I_e for 6 sec., if other data is required, contact your sales office.
[2] Above 40 °C (104 °F) up to max. 60 °C (140 °F) reduce the rated current with 0.8 % per °C (0.44 % per °F).
[3] When used at high altitudes above 1000 meters (3281 ft) up to 4000 meters (13123 ft) you need to derate the rated current using the following formula.

$[\ \%\ \text{of}\ I_e = 100 - \frac{x - 1000}{150}\ ]$ x = actual altitude for the softstarter in meter

$[\ \%\ \text{of}\ I_e = 100 - \frac{x - 3280}{497}\ ]$ x = actual altitude for the softstarter in feet

PSR – The compact range
Technical data

Number of starts per hour using PSR softstarters

Motor current I_e	Starts/hour without auxiliary fan							
	10	20	30	40	50	60	80	100
3 A	PSR3							PSR6
6 A	PSR6					PSR9		
9 A	PSR9			PSR12			PSR16	PSR25
12 A	PSR12			PSR16	PSR25		PSR30	
16 A	PSR16	PSR25			PSR30		PSR37	
25 A	PSR25	PSR30	PSR37			PSR45		PSR60
30 A	PSR30	PSR37		PSR45		PSR60		PSR72
37 A	PSR37	PSR45		PSR60		PSR72	PSR85	PSR105
45 A	PSR45		PSR60		PSR72	PSR85	PSR105	-
60 A	PSR60		PSR72	PSR85	PSR105		-	-
72 A	PSR72	PSR85	PSR105		-	-	-	-
85 A	PSR85	PSR105		-	-	-	-	-
105 A	PSR105	-	-	-	-	-	-	-

Starts/hour with auxiliary fan							
10	20	30	40	50	60	80	100
PSR3							
PSR6							PSR9
PSR9					PSR12		
PSR12				PSR16	PSR25		
PSR16		PSR25			PSR30		
PSR25	PSR30		PSR37				PSR45
PSR30		PSR37		PSR45			
PSR37		PSR45			PSR60		
PSR45			PSR60		PSR72		
PSR60			PSR72		PSR85	PSR105	-
PSR72			PSR85	PSR105		-	-
PSR85		PSR105		-	-	-	-
PSR105	-	-	-	-	-	-	-

Data based on an ambient temperature of 40 °C (104 ºF), starting current of 4 x I_e and ramp time 6 seconds.
For more optimized selections, or to use PSR for heavy duty starts, please use the softstarter selection program, prosoft.

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Notes

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Softstarters
Type PSE

Product description

- Wide rated operational voltage 208 – 600 V AC
- Wide rated control supply voltage 100 – 250 V, 50/60 Hz
- Rated operational current 18 to 370 A
- Wide ambient temperature range, -25 to +60 ºC (-13 to 140 ºF)
- Coated circuit boards for reliable operation in harsh environment
- Built-in by-pass on all sizes, saving energy and reducing installation time
- User friendly HMI with illuminated language neutral display and four button keypad
- Optional external keypad, IP66
- Torque control for excellent control of pumps
- Current limit, adjustable between 1.5 – 7 x I_e
- Motor overload protection with classes 10A, 10, 20 and 30
- Motor underload protection to detect pumps running dry
- Locked rotor protection, detecting jammed pumps
- Kick start to start jammed pumps or conveyor belts
- Analog output showing operational current, 4 – 20 mA
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance.

PSE – The efficient range
Description

The PSE softstarter range is the world's first compact soft-starters with Torque Control. This makes the PSE range an excellent choice for pumping application where water hammering normally is a big problem. With its compact design and advanced functionality, the PSE is also a very efficient solution for other common applications such as compressors and fans.

Torque control
The most important function when stopping pumps is torque control. Since the PSE softstarter is optimized for controlling pumps, this feature is a must.

Built-in by-pass for energy saving
Using the built-in by-pass after reaching full voltage will greatly reduce the power loss and thereby save energy. In the PSE softstarter range, the by-pass is built-in on all sizes, which will give the most compact starting solution and reduce the need for wiring during installation.

Coated circuit boards
All circuit boards in the new PSE softstarter have a protective coating to ensure a reliable operation even in tough environments like wastewater plants, where corrosive gases and acids may exist.

Motor protection
The PSE softstarter is equipped with built-in electronic overload protection, protecting the motor from overheating. Since no additional overload device is needed, our efficient design saves both space, installation time, and ultimately money.

Analog output
The analog output terminals can be connected to an analog current meter to show the current during operation and thereby eliminating the need for an additional current transformer. The analog output signal can also be used as an analog input to a PLC.

Display and keypad
The set-up of the PSE softstarter is done by using the four button keypad and the illuminated display, providing a quick and easy set-up. While operating, the display will also provide important status information such as current and voltage.

External keypad
As an option the PSE softstarter can be equipped with an external keypad for easy set-up and monitoring of the unit without opening the enclosure door. The keypad can also be used to copy parameters between different softstarters.

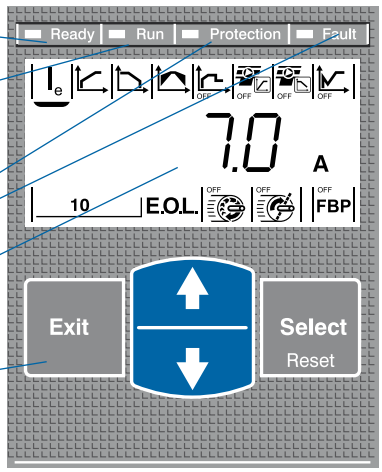
PSE – The efficient range
Description

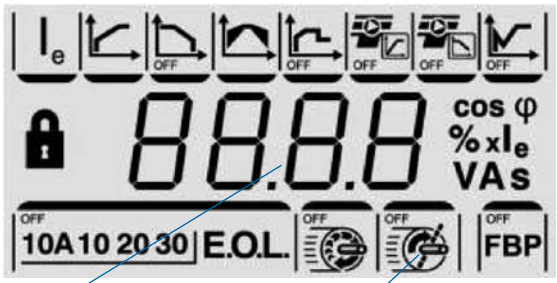
The PSE Softstarter can be selected according to the rated motor power in normal duty applications like pumps, compressors, elevators, escalators, short conveyor belts and bow thrusters. See page 5.20.

For heavy duty applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 5.21. The softstarter selection tool prosoft can also be used for a more optimized selection.

Settings

- Green ready LED
  Flashing - Suppy available
  Steady - Main available
- Green run LED
  Flashing - Ramping up/down
  Steady - TOR
- Yellow protection LED
- Red fault LED
- Back-lit display
- User friendly keypad
  Similar as for PST(B)





Four digits showing values and messages

Icon's for showing functions. Language neutral

PSE – The efficient range
Overview

PSE18 ... PSE105

	Softstarter								
Normal start In-line connected	PSE18	PSE25	PSE30	PSE37	PSE45	PSE60	PSE72	PSE85	PSE105
(480 V) hp	10	15	20	25	30	40	50	60	75
(600 V) hp	15	20	25	30	40	50	60	75	100
UL/CSA, Max FLA	18	25	28	34	42	60	68	80	104

Using MCCB only, type 1 coordination will be achieved	MCCB (25 kA/600V, 35 kA/480V, 40°C)						
	T3S070TW	T3S100TW	T3S125TW	T3S150TW	T3S225TW	T4S250TW	T5S300TW

Using J fuses, type 1 coordination will be achieved	J type fuse protection (85 kA)								
175 % rating	30 A	40 A	45 A	50 A	70 A	100 A	110 A	125 A	175 A
Max rating	40 A	50 A	60 A	80 A	100 A	125 A	150 A	175 A	225 A

Minimum enclosure size [1]	600 x 500 x 300 mm / 24 x 20 x 12 in

Fusible disconnect switch for the above J fuses	Fusible disconnect switch			
	OS30	OS60	OS100	OS200

The line contactor is not required for the softstarter itself but often used to open if OL trips	Line contactor						
	AF26	AF30	AF50	AF63	AF75	AF95	AF110

Overload protection is used to protect the motor from over heating	Electronic overload relay
	Built-in

The by-pass will reduce the power loss of the softstarter	By-pass
	Built-in

[1] Enclosure that has two latching points minimum. For use in pollution degree 2 environment.

PSE – The efficient range
Overview

	PSE142 ... PSE170		PSE210 ... PSE370			
	Softstarter					
Normal start In-line connected	PSE142	PSE170	PSE210	PSE250	PSE300	PSE370
(480 V) hp	100	125	150	200	250	300
(600 V) hp	125	150	200	250	300	350
UL/CSA, Max FLA	130	169	192	248	302	361
Using MCCB only, type 1 coordination will be achieved	**MCCB (25 kA/600V, 35 kA/480V, 40°C)**			**MCCB (25 kA/600V, 50 kA/480V, 40°C)**		
Max rating	T5S400BW	T6S600BW		T6S800BW		
Using J fuses, type 1 coordination will be achieved	**J type fuse protection (85 kA)**					
175 % rating	225 A	250 A	300 A	400 A	500 A	600 A
Max rating	300 A	350 A	450 A	500 A	600 A	700 A
Minimum enclosure size [1]	900 x 760 x 300 mm / 36 x 30 x 12 in		1200 x 900 x 300 mm / 48 x 36 x 12 in			
Fusible disconnect switch for the above J fuses	**Fusible disconnect switch**					
	OS400				OS600	
The line contactor is not required for the softstarter itself but often used to open if OL trips	**Line contactor**					
	AF145	AF185	AF210	AF260	AF300	AF400
Overload protection is used to protect the motor from over heating	**Electronic overload relay**					
	Built-in					
The by-pass will reduce the power loss of the softstarter	**By-pass**					
	Built-in					

How to select correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications.
If a more precise selection is required, you can use prosoft, a selection software available at www.abb.com/lowvoltage

Quick guide for selection

Normal start Class 10	**Heavy duty start class 30**
Ordering - see page 5.20	Ordering - see page 5.21
Typical applications	
• Bow thruster • Centrifugal pump	• Centrifugal fan • Conveyor belt (long)
• Compressor • Conveyor belt (short)	• Crusher • Mill
• Elevator • Escalator	• Mixer • Stirrer
If more than 10 starts/h	
! Select one size larger than the standard selection	

[1] Enclosure that has two latching points minimum. For use in pollution degree 2 environment.

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Softstarters
Type PSE

PSE – The efficient range

Normal starts, class 10, in-line, ordering details

PSE18 ... PSE105

PSE142 ... PSE170

PSE210 ... PSE370

PSE18 ... PSE370

Rated operational voltage, U_e, 208 - 600 V AC

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

230 V kW	400 V kW	500 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number
4	7.5	11	5	5	10	15	18	2.4 (5.29)	PSE18-600-70
5.5	11	15	7.5	7.5	15	20	25	2.4 (5.29)	PSE25-600-70
7.5	15	18.5	7.5	10	20	25	28	2.4 (5.29)	PSE30-600-70
9	18.5	22	10	10	25	30	34	2.4 (5.29)	PSE37-600-70
11	22	30	10	15	30	40	42	2.4 (5.29)	PSE45-600-70
15	30	37	20	20	40	50	60	2.4 (5.29)	PSE60-600-70
18.5	37	45	20	25	50	60	68	2.5 (5.51)	PSE72-600-70
22	45	55	25	30	60	75	80	2.5 (5.51)	PSE85-600-70
30	55	75	30	40	75	100	104	2.5 (5.51)	PSE105-600-70
40	75	90	40	50	100	125	130	4.2 (9.26)	PSE142-600-70
45	90	110	60	60	125	150	169	4.2 (9.26)	PSE170-600-70
59	110	132	60	75	150	200	192	12.4 (27.34)	PSE210-600-70
75	132	160	75	100	200	250	248	13.9 (30.64)	PSE250-600-70
90	160	200	100	100	250	300	302	13.9 (30.64)	PSE300-600-70
110	200	250	125	150	300	350	361	13.9 (30.64)	PSE370-600-70

PSE – The efficient range

Heavy duty starts, class 30, in-line, ordering details

PSE18 ... PSE370

Rated operational voltage, U_e, 208 - 600 V AC

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

PSE18 ... PSE105

PSE142 ... PSE170

PSE210 ... PSE370

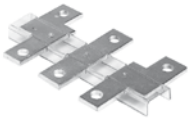
230 V kW	400 V kW	500 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number
3	5.5	7.5	3	3	7.5	10	11	2.4 (5.29)	PSE18-600-70
4	7.5	11	5	5	10	15	18	2.4 (5.29)	PSE25-600-70
5.5	11	15	7.5	7.5	15	20	25	2.4 (5.29)	PSE30-600-70
7.5	15	18.5	7.5	7.5	20	25	28	2.4 (5.29)	PSE37-600-70
9	18.5	22	10	10	25	30	34	2.4 (5.29)	PSE45-600-70
11	22	30	15	15	30	40	42	2.4 (5.29)	PSE60-600-70
15	30	37	20	20	40	50	60	2.5 (5.51)	PSE72-600-70
18.5	37	45	25	25	50	60	68	2.5 (5.51)	PSE85-600-70
22	45	55	30	30	60	75	80	2.5 (5.51)	PSE105-600-70
30	55	75	40	40	75	100	104	4.2 (9.26)	PSE142-600-70
40	75	90	50	50	100	125	130	4.2 (9.26)	PSE170-600-70
45	90	110	60	60	125	150	169	12.4 (27.34)	PSE210-600-70
59	110	132	75	75	150	200	192	13.9 (30.64)	PSE250-600-70
75	132	160	75	75	200	250	248	13.9 (30.64)	PSE300-600-70
90	160	200	125	125	250	300	302	13.9 (30.64)	PSE370-600-70

PSE – The efficient range
Accessories

ATK...

Cable connectors for Al and Cu cables

For softstarter type	Wire range mm² (AWG)	Tightening torque max. Nm (lb-in)	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSE142 ...170	25-150 (4 AWG - 300 MCM)	13.5 (275 lb-in)	3	0.100 (0.220)	ATK185
PSE210 ... 370	25-185 (4 AWG - 400 MCM)	43 (375 lb-in)	3	0.168 (0.370)	ATK300
PSE210 ... 370	2 x 25-240 (2 x 4 AWG - 500 MCM)	43 (375 lb-in)	3	0.434 (0.957)	ATK300/2



LW...

LE185

Terminal enlargements

For softstarter type	Dimensions hole ø mm (in)	Bar mm (in)	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSE142...170	10.5 (0.413)	20 x 5 (0.787 x 0.197)	1	0.450 (0.992)	LW185
PSE210...370	13 (0.512)	40 x 6 (1.575 x 0.236)	1	1.230 (2.712)	LW300

Terminal nut washer kits [1)]

For softstarter type	Req. qty	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSE142...170	2	2	0.200 (0.441)	LE185
PSE210...370	2	2	0.300 (0.661)	LE300

LT ... -AL

Terminal shrouds

For softstarter type	Suitable for	Req. qty	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSE142...170	Compression lugs	2	2	0.220 (0.485)	LT185-AL
PSE210...370	Compression lugs	2	2	0.280 (0.617)	LT300-AL [2)]

PSEEK

External keypad including a 3m cable

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PSE18...370	1	–	PSEEK

PS-FBPA

Fieldbus plug connection accessory

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
The same accessory for all sizes	1	0.060 (0.132)	PS-FBPA

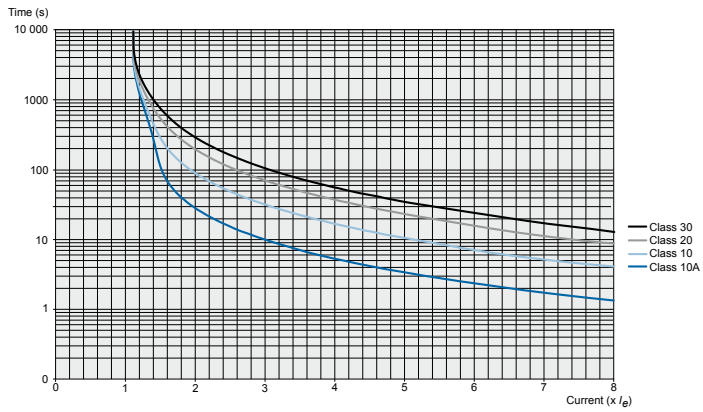
ABB Field Bus Plug suitable for all sizes. See page 5.40 - 5.43

[1)] The terminal nut washer kits come standard with the PSE unit.
[2)] The LT300-AL is not compatible with ATK300/2 cable connector.

PSE – The efficient range
Technical data

Rated insulation voltage U_i	600 V
Rated operational voltage U_e	208 ... 600 V +10 %/-15 %
Rated control supply voltage U_s	100 ... 250 V +10 %/-15 %, 50/60 Hz ±5 %
Rated control circuit voltage U_c	Internal 24 V DC
Starting capacity	4xI_e for 10 sec.
Number of starts per hour	10 [1]
Overload capability,	
Overload Class	10
Ambient temperature	
During operation	-25 … +60 °C (-13 to 140 °F) [2]
During storage	-40 … +70 °C (-40 to 158 °F)
Maximum Altitude	4000 m (13123 ft) [3]
Degree of protection	
Main circuit	IP00
Supply and Control circuit	IP20
Main circuit	
Built-in By-pass	Yes
Cooling system - Fan cooled (thermostat controlled)	Yes
HMI for settings	
Display	4 7-segments and icons. Illuminated
Keypad	2 selection keys and 2 navigation keys
Main settings	
Setting current	Size dependent
Ramp time during start	1-30 sec
Ramp time during stop	0-30 sec
Initial / end voltage	30-70%
Current limit	1,5-7xI_e
Torque control for start	Yes / No
Torque control for stop	Yes / No
Kick start	Off, 30-100%
Signal relays	
Number of signal relays	3
K2	Run signal
K3	TOR (By-pass) signal
K1	Event signal
Rated operational voltage U_e	250 V AC / 24 V DC [4]
Rated thermal current I_{th}	3 A
Rated operational current I_e at AC-15 (U_e = 250 V)	1.5 A

Analog output	
Output signal reference	4 ... 20 mA
Type of output signal	I Amp
Scaling	Fixed at 1.2 x I_e
Control circuit	
Number of inputs	3 (start, stop, reset of faults)
Signal indication LED's	
On / Ready	Green flashing / steady
Run / TOR	Green flashing / steady
Protection	Yellow
Fault	Red
Protections	
Electronic overload	Yes (Class 10A, 10, 20, 30)
Locked rotor protection	Yes
Underload protection	Yes
Field bus connection	
Connection for ABB FieldBusPlug	Yes (option)
External keypad	
Display LCD type	
Ambient temperature	
during operation	-25 … +60 °C (-13 to 140 °F)
during storage	-40 … +70 °C (-40 to 158 °F)
Degree of protection	IP66



Tripping curves for electronic overload protection (Cold)

[1] Valid for 50 % on time and 50 % off time, with 3.5 x I_e for 7 seconds. If other data is required, please contact your sales office
[2] Above 40 °C (104 °F) up to max. 60 °C (140 °F) reduce the rated current with 0.6 % per °C (0.33 % per °F).
[3] When used at high altitudes above 1000 meters (3281 ft) up to 4000 meters (13123 ft) you need to derate the rated current using the following formula.

$[\ \%\ \text{of}\ I_e = 100 - \frac{x - 1000}{150}\ ]$ x = actual altitude for the softstarter in meter

$[\ \%\ \text{of}\ I_e = 100 - \frac{x - 3280}{497}\ ]$ x = actual altitude for the softstarter in feet

[4] A common voltage needs to be used for all 3 signal relays.

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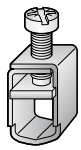
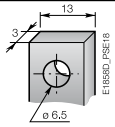
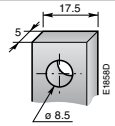
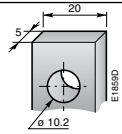
Softstarters Type PSE

PSE – The efficient range
Technical data

Cross section of connection cables

		Softstarter PSE18 ... PSE105	PSE142 ... PSE170	PSE210 ... PSE370
Main circuit Connection clamp				
Solid/stranded	1 x mm² (AWG)	2.5 – 70 (14-1/0)	See accessories	
Solid/stranded	2 x mm² (AWG)	2.5 – 70 (14-1/0)	See accessories	
Tightening torque (recommended)	Nm (lb-in)	9 (79.66)	See accessories	
Connection bar				
Width and thickness	mm (in)	13 (0.512) x 3 (0.118)	17.5 (0.689) x 5 (0.197)	20 (0.787) x 5 (0.197)
Hole diameter	mm (in)	6.5 (0.256)	8.5 (0.335)	10.2 (0.402)
Tightening torque (recommended)	Nm (lb-in)	9 (79.66)	18 (159.31)	28 (247.82)
Supply and control circuit Connection clamp				
Solid/stranded	1 x mm² (AWG)	2.5 (14)	2.5 (14)	2.5 (14)
Solid/stranded	2 x mm² (AWG)	1.5 (16)	1.5 (16)	1.5 (16)
Tightening torque (recommended)	Nm (lb-in)	0.5 (4.43)	0.5 (4.43)	0.5 (4.43)

Semi-conductor fuse ratings and power losses

For Softstarter	Overload protection		Max power loss at rated I_e (Internal by-pass)	Max semi-conductor fuse rating - main circuit Coordination type 2 (85 kA)			Supply circuit power requirements [1]
				Bussman Fuses, DIN43 620			
Type	Type	Current range A	W	A	Type	Size	VA/VA pull in
PSE							
PSE18	Integrated	5.4-18	0.2	40	170M1563	000	16
PSE25	Integrated	7.5-25	0.4	50	170M1564	000	16
PSE30	Integrated	9-30	0.5	80	170M1566	000	16
PSE37	Integrated	11.1-37	0.8	100	170M1567	000	16
PSE45	Integrated	13.5-45	1.2	125	170M1568	000	16
PSE60	Integrated	18-60	2.2	160	170M1569	000	16
PSE72	Integrated	21.6-72	3.1	250	170M1571	000	16
PSE85	Integrated	25.5-85	4.3	315	170M1572	000	16
PSE105	Integrated	31.8-106	6.6	400	170M3819	1	16
PSE142	Integrated	42.9-143	12.1	450	170M5809	2	16
PSE170	Integrated	51.3-171	17.6	500	170M5810	2	16
PSE210	Integrated	63-210	8.8	630	170M5812	2	23/350
PSE250	Integrated	75-250	12.5	700	170M5813	2	23/350
PSE300	Integrated	90.6-302	18	800	170M6812	3	23/350
PSE370	Integrated	111-370	27.4	900	170M6813	3	23/350

[1] For the supply circuit use a maximum 6 A time-delay fuse or an MCB with type C characteristics.

Softstarters
Type PST

Description

- Wide rated operational voltage 208 – 690 V AC
- Wide rated control supply voltage 100 – 250 V, 50/60 Hz
- Rated operational current 30 to 1050 A (Up to 1810 A inside delta)
- Wide ambient temperature range, -25 to +50 °C (-13 to 122 °F)
- Both in line and inside delta connection
- Coated circuit boards available, for reliable operation even in harsh environments
- Full text display in 14 languages and 4 button keypad for easy set-up and operation
- Optional external keypad, IP66
- Built-in by-pass contactor on PSTB (from 370 A) for energy saving and easy installation
- Prepared for external by-pass on PST (30 – 300 A)
- Torque Control for excellent control of pumps
- Current limit, adjustable between 1.5 – 7 x I_e
- Fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- Dual motor overload protection with classes 10A, 10, 20 and 30
- Adaptable motor underload protection to detect pumps running dry
- Adaptable locked rotor protection to detect jammed pumps
- PTC protection to protect the motor from overheating
- Adjustable kick start to start jammed pumps
- Programmable output signal relays
- Programmable pre-warning functions
- Event log with time stamp
- Analog output showing current, voltage, power factor etc.
  0 – 10 V, 0 – 20 mA, 4 – 20 mA

PST(B) – The advanced range
Description

The PST(B) softstarter is the most advanced softstarter in the ABB product portfolio and is equipped with almost all imaginable features. This makes the PST(B) ideal for almost every application.

Torque Control
The ABB torque control function is developed together with pump manufacturers to ensure the best possible pump stop, eliminating problems with water hammering and pressure surges.

By-pass for energy saving
By-passing the softstarter after reaching full voltage, will save energy and reduce the heat generation. The PST softstarters are equipped with extra terminals making the connection of an external by-pass contactor easier and allowing all protections to be active during by-pass. On the PSTB softstarters, an ABB AF-contactor is already built-in, ensuring a compact starting solution with minimal wiring during installation.

Advanced protections
The PST(B) softstarters are equipped with almost all protections imaginable for protecting the motor, the softstarter and the application. To offer more flexibility, all protections can be tailored to your specific needs.

Flexible analog output
The analog output terminals can be connected to an analog current meter to show the current during operation and thereby eliminating the need for an additional current transformer. The analog output signal can also be used as an analog input to a PLC.

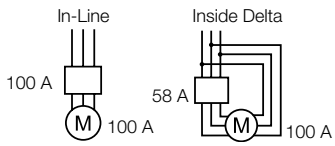
Fieldbus communication
Using the ABB FieldBusPlug, all the most common fieldbus protocols are supported. Using the PLC system it is possible to set-up the softstarter, read status information and also to control the softstarter.

Display and keypad
The PST(B) softstarter is equipped with a full text display showing all information in clear text in your own language. To make it even easier to set-up, there are standard settings for many common applications, such as centrifugal pump. Selecting this will automatically provide all required settings including torque control when stopping.

External keypad
As an option, the PST(B) softstarter can be equipped with an external keypad for easy set-up and monitoring of the unit without opening the enclosure door. The keypad can also be used to copy parameters between different softstarters.

PST(B) – The advanced range
Description

The PST Softstarter can be selected according to the rated motor power in normal duty applications like pumps, compressors, elevators, escalators, short conveyor belts and bow thrusters. See page 5.30 - 5.31, For heavy duty applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 5.32 - 5.33. The softstarter selection tool prosoft can also be used for a more optimized selection.



In-Line and Inside Delta connection of PST30 … PSTB1050

Screw mounting

2 programmable inputs

3 programmable output signal relays

Built-in by-pass on PSTB
Extra terminals on PST

All data available on the front

Analog output or PTC input

- Green on LED
- Yellow protection LED
- Red fault LED

Full text display in 14 languages

User friendly keypad

Pre set application settings

External keypad with same design as the fixed one

Softstarters
Type PST

PST(B) – The advanced range
Overview

	PST30 ... PST72						PST85 ... PST142		
Normal start In-Line connected	**Softstarter**								
	PST30	PST37	PST44	PST50	PST60	PST72	PST85	PST105	PST142
(480 V) hp	20	25	30	40	40	50	60	75	100
(600 V) hp	25	30	40	50	50	60	75	100	125
UL/CSA, Max FLA	28	34	42	54	60	68	80	104	130
Using MCCB only, type 1 coordination will be achieved	**MCCB (10kA, 480-600 V, 40 °C)**								
	Ts3								T4
Using J fuses, type 1 coordination will be achieved	**J type fuse protection (85 kA)**								
175 % rating	45 A	50 A	70 A	90 A	100 A	110 A	125 A	175 A	225 A
Max rating	90 A	110 A	150 A	175 A	225 A		250 A	350 A	400 A
Minimum enclosure size [1]	500 x 500 x 300 mm / 20 x 20 x 12 in						600 x 500 x 300 mm / 24 x 20 x 12 in		
Fusible disconnect switch for the above J fuses	**Fusible disconnect switch**								
	OS60		OS100		OS200				OS400
The line contactor is not required for the softstarter itself but often used to open if OL trips	**Line contactor**								
	AF30	AF50			AF63	AF75	AF95	AF110	AF145
Overload protection is used to protect the motor from over heating	**Electronic overload relay**								
	Built-in								
The bypass contactor will reduce the power loss of the softstarter. All softstarters can be operated without by-pass	**By-pass contactor (AC-1)**								
	AF16	AF26	AF30	AF50			AF75		AF110

[1] Enclosure that has two latching points minimum. For use in pollution degree 2 environment.

PST(B) – The advanced range
Overview

	PST175 ... PST300				PSTB370 ... PSTB470		PSTB570 ... PSTB1050			
	Softstarter									
Normal start In-Line connected	PST175	PST210	PST250	PST300	PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
(480 V) hp	125	150	200	250	300	400	500	600	700	900
(600 V) hp	150	200	250	300	350	500	600	700	800	1000
UL/CSA, Max FLA	156	192	248	302	361	480	590	720	840	1062

Using MCCB only, type 1 coordination will be achieved	MCCB (18 kA, 480-600 V, 40 °C)				MCCB (30 kA, 480-600 V, 40 °C)			MCCB (42 kA, 480-600 V, 40 °C)		
	T4	T5			T6			T7		T8
Using J or L fuses, type 1 coordination will be achieved	J or L type fuse protection (85 kA)									
175 % rating	250 A	300 A	400 A	500 A	600 A	800 A	1000 A	1200 A	1400 A	1800 A
Max rating	400 A		450 A	600 A	700 A	1200 A			-	-
Minimum enclosure size [1]	760 x 760 x 300 mm / 30 x 30 x 12 in				1220 x 915 x 407 mm /48 x 36 x 16 in					
Fusible disconnect switch for the above J fuses	Fusible disconnect switch									
	OS400			OS600		OS800	OS1200		-	-
The line contactor is not required for the softstarter itself but often used to open if OL trips	Line contactor									
	AF185	AF210	AF260	AF300	AF400	AF580		AF750	AF1350	AF1650
Overload protection is used to protect the motor from over heating	Electronic overload relay									
	Built-in									
The bypass contactor will reduce the power loss of the softstarter. All softstarters can be operated without by-pass	By-pass contactor (AC-1)									
	AF145	AF185	AF210	Built-in						

How to select correct size

By using the guide here, you can quickly select a suitable softstarter for the most common applications.

If a more precise selection is required, you can use prosoft, a selection software available at www.abb.com/lowvoltage

Quick guide for selection	
Normal start Class 10	**Heavy duty start class 30**
Ordering - see page 5.30 - 5.31	Ordering - see page 5.32 - 5.33
Typical applications	
• Bow thruster • Centrifugal pump • Compressor • Conveyor belt (short) • Elevator • Escalator	• Centrifugal fan • Conveyor belt (long) • Crusher • Mill • Mixer • Stirrer
If more than 10 starts/h Select one size larger than the standard selection	

[1] Enclosure that has two latching points minimum. For use in pollution degree 2 environment.

Softstarters
Type PST

PST(B) – The advanced range
Normal starts, class 10, In-Line, ordering details

PST30 ... PST72

PST85 ... PST142

PST175 ... PST300

PSTB370 ... PSTB470

PSTB570 ... PSTB1050

PST30 ... PSTB1050

Rated operational voltage U_e, 208 - 600 V

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

400 V kW	500 V kW	690 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number *)
15	18.5	-	7.5	10	20	25	28	4.80 (10.58)	PST30-600-70☐
18.5	22	-	10	10	25	30	34	4.80 (10.58)	PST37-600-70☐
22	25	-	10	15	30	40	42	4.80 (10.58)	PST44-600-70☐
25	30	-	15	20	40	50	54	4.80 (10.58)	PST50-600-70☐
30	37	-	20	20	40	50	60	5.00 (11.02)	PST60-600-70☐
37	45	-	20	25	50	60	68	5.00 (11.02)	PST72-600-70☐
45	55	-	25	30	60	75	80	11.20 (24.69)	PST85-600-70☐
55	75	-	30	40	75	100	104	13.00 (28.66)	PST105-600-70☐
75	90	-	40	50	100	125	130	13.00 (28.66)	PST142-600-70☐
90	110	-	50	60	125	150	156	21.50 (47.40)	PST175-600-70☐
110	132	-	60	75	150	200	192	21.50 (47.40)	PST210-600-70☐
132	160	-	75	100	200	250	248	23.00 (50.71)	PST250-600-70☐
160	200	-	100	100	250	300	302	23.00 (50.71)	PST300-600-70☐
200	257	-	125	150	300	350	361	31.00 (68.34)	PSTB370-600-70☐
250	315	-	150	200	400	500	480	31.00 (68.34)	PSTB470-600-70☐
315	400	-	200	250	500	600	590	52.00 (114.64)	PSTB570-600-70☐
400	500	-	250	300	600	700	720	55.00 (121.25)	PSTB720-600-70☐
450	600	-	300	350	700	800	840	60.00 (133.28)	PSTB840-600-70☐
560	730	-	400	450	900	1000	1062	60.00 (133.28)	PSTB1050-600-70☐

PST30 ... PSTB1050

Rated operational voltage U_e, 400 - 690 V

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

15	18.5	25	-	-	20	25	28	4.80 (10.58)	PST30-690-70☐
18.5	22	30	-	-	25	30	34	4.80 (10.58)	PST37-690-70☐
22	25	37	-	-	30	40	42	4.80 (10.58)	PST44-690-70☐
25	30	45	-	-	40	50	54	4.80 (10.58)	PST50-690-70☐
30	37	55	-	-	40	50	60	5.00 (11.02)	PST60-690-70☐
37	45	59	-	-	50	60	68	5.00 (11.02)	PST72-690-70☐
45	55	75	-	-	60	75	80	11.20 (24.69)	PST85-690-70☐
55	75	90	-	-	75	100	104	13.00 (28.66)	PST105-690-70☐
75	90	132	-	-	100	125	130	13.00 (28.66)	PST142-690-70☐
90	110	160	-	-	125	150	156	21.50 (47.40)	PST175-690-70☐
110	132	184	-	-	150	200	192	21.50 (47.40)	PST210-690-70☐
132	160	220	-	-	200	250	248	23.00 (50.71)	PST250-690-70☐
160	200	257	-	-	250	300	302	23.00 (50.71)	PST300-690-70☐
200	257	355	-	-	300	350	361	31.00 (68.34)	PSTB370-690-70☐
250	315	450	-	-	400	500	480	31.00 (68.34)	PSTB470-690-70☐
315	400	560	-	-	500	600	590	52.00 (114.64)	PSTB570-690-70☐
400	500	710	-	-	600	700	720	55.00 (121.25)	PSTB720-690-70☐
450	600	800	-	-	700	800	840	60.00 (133.28)	PSTB840-690-70☐
560	730	1000	-	-	900	1000	1062	60.00 (133.28)	PSTB1050-690-70☐

*) **Add code letter in Type acc. to below:**
☐ No code letter = Normal
T = Coated PCBs

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

PST(B) – The advanced range

Normal starts, class 10, Inside Delta, ordering details

PST30 ... PST72

PST85 ... PST142

PST175 ... PST300

PSTB370 ... PSTB470

PSTB570 ... PSTB1050

PST30...PSTB1050

Rated operational voltage U_e, 208 - 600 V

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

400 V kW	500 V kW	690 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number *)
25	30	-	10	15	30	40	42	4.80 (10.58)	PST30-600-70☐
30	37	-	15	20	40	50	54	4.80 (10.58)	PST37-600-70☐
37	45	-	20	25	50	60	72	4.80 (10.58)	PST44-600-70☐
45	55	-	25	30	60	75	80	4.80 (10.58)	PST50-600-70☐
55	75	-	30	40	75	100	104	5.00 (11.02)	PST60-600-70☐
59	80	-	30	40	75	100	104	5.00 (11.02)	PST72-600-70☐
75	90	-	40	50	100	125	130	11.20 (24.69)	PST85-600-70☐
90	110	-	50	60	125	150	156	13.00 (28.66)	PST105-600-70☐
132	160	-	60	75	150	200	192	13.00 (28.66)	PST142-600-70☐
160	200	-	75	100	200	250	248	21.50 (47.40)	PST175-600-70☐
184	250	-	100	100	250	300	302	21.50 (47.40)	PST210-600-70☐
220	295	-	125	150	300	350	361	23.00 (50.71)	PST250-600-70☐
257	355	-	150	200	400	500	480	23.00 (50.71)	PST300-600-70☐
355	450	-	200	250	500	600	590	31.00 (68.34)	PSTB370-600-70☐
450	600	-	250	300	600	700	720	31.00 (68.34)	PSTB470-600-70☐
540	700	-	300	350	700	800	840	52.00 (114.64)	PSTB570-600-70☐
710	880	-	400	500	1000	1200	1247	55.00 (121.25)	PSTB720-600-70☐
800	1000	-	500	600	1200	1500	1454	60.00 (133.28)	PSTB840-600-70☐
1000	1250	-	600	700	1500	1800	1839	60.00 (133.28)	PSTB1050-600-70☐

PST30 ... PSTB1050

Rated operational voltage U_e, 400 - 690 V

Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

25	30	45	-	-	30	40	42	4.80 (10.58)	PST30-690-70☐
30	37	55	-	-	40	50	54	4.80 (10.58)	PST37-690-70☐
37	45	59	-	-	50	60	72	4.80 (10.58)	PST44-690-70☐
45	55	75	-	-	60	75	80	4.80 (10.58)	PST50-690-70☐
55	75	90	-	-	75	100	104	5.00 (11.02)	PST60-690-70☐
59	80	110	-	-	75	100	104	5.00 (11.02)	PST72-690-70☐
75	90	132	-	-	100	125	130	11.20 (24.69)	PST85-690-70☐
90	110	160	-	-	125	150	156	13.00 (28.66)	PST105-690-70☐
132	160	220	-	-	150	200	192	13.00 (28.66)	PST142-690-70☐
160	200	257	-	-	200	250	248	21.50 (47.40)	PST175-690-70☐
184	250	315	-	-	250	300	302	21.50 (47.40)	PST210-690-70☐
220	295	400	-	-	300	350	361	23.00 (50.71)	PST250-690-70☐
257	355	500	-	-	400	500	480	23.00 (50.71)	PST300-690-70☐
355	450	600	-	-	500	600	590	31.00 (68.34)	PSTB370-690-70☐
450	600	800	-	-	600	700	720	31.00 (68.34)	PSTB470-690-70☐
540	700	960	-	-	700	800	840	52.00 (114.64)	PSTB570-690-70☐
710	880	1200	-	-	1000	1200	1247	55.00 (121.25)	PSTB720-690-70☐
800	1000	1400	-	-	1200	1500	1454	60.00 (133.28)	PSTB840-690-70☐
1000	1250	1700	-	-	1500	1800	1839	60.00 (133.28)	PSTB1050-690-70☐

*) **Add code letter in Type acc. to below:**
☐ No code letter = Normal
T = Coated PCBs

Spec Tech Industrial Electric www.spectechind.com 888-773-2832

PST(B) – The advanced range
Heavy Duty, class 30, In-Line, ordering details

PST30 ... PST72

PST85 ... PST142

PST175 ... PST300

PSTB370 ... PSTB470

PSTB570 ... PSTB1050

PST30...PSTB1050

Rated operational voltage U_e, 208 - 600 V
Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

400 V kW	500 V kW	690 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number *)
11	15	-	5	7.5	15	20	25	4.80 (10.58)	PST30-600-70☐
15	18.5	-	7.5	10	20	25	28	4.80 (10.58)	PST37-600-70☐
18.5	22	-	10	10	25	30	34	4.80 (10.58)	PST44-600-70☐
22	25	-	10	15	30	40	42	4.80 (10.58)	PST50-600-70☐
25	30	-	15	20	40	50	54	5.00 (11.02)	PST60-600-70☐
30	37	-	20	20	40	50	60	5.00 (11.02)	PST72-600-70☐
37	45	-	20	25	50	60	68	11.20 (24.69)	PST85-600-70☐
45	55	-	25	30	60	75	80	13.00 (28.66)	PST105-600-70☐
55	75	-	30	40	75	100	104	13.00 (28.66)	PST142-600-70☐
75	90	-	40	50	100	125	130	21.50 (47.40)	PST175-600-70☐
90	110	-	50	60	125	150	156	21.50 (47.40)	PST210-600-70☐
110	132	-	60	75	150	200	192	23.00 (50.71)	PST250-600-70☐
132	160	-	75	100	200	250	248	23.00 (50.71)	PST300-600-70☐
160	200	-	100	100	250	300	302	31.00 (68.34)	PSTB370-600-70☐
200	257	-	125	150	300	350	361	31.00 (68.34)	PSTB470-600-70☐
250	315	-	150	200	400	500	480	52.00 (114.64)	PSTB570-600-70☐
315	400	-	200	250	500	600	590	55.00 (121.25)	PSTB720-600-70☐
400	500	-	250	300	600	700	720	60.00 (133.28)	PSTB840-600-70☐
450	600	-	300	350	700	800	840	60.00 (133.28)	PSTB1050-600-70☐

PST30...PSTB1050

Rated operational voltage U_e, 400 - 690 V
Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

11	15	18.5	-	-	15	20	25	4.80 (10.58)	PST30-600-70☐
15	18.5	25	-	-	20	25	28	4.80 (10.58)	PST37-600-70☐
18.5	22	30	-	-	25	30	34	4.80 (10.58)	PST44-600-70☐
22	25	37	-	-	30	40	42	4.80 (10.58)	PST50-600-70☐
25	30	45	-	-	40	50	54	5.00 (11.02)	PST60-600-70☐
30	37	55	-	-	40	50	60	5.00 (11.02)	PST72-600-70☐
37	45	59	-	-	50	60	68	11.20 (24.69)	PST85-600-70☐
45	55	75	-	-	60	75	80	13.00 (28.66)	PST105-600-70☐
55	75	90	-	-	75	100	104	13.00 (28.66)	PST142-600-70☐
75	90	132	-	-	100	125	130	21.50 (47.40)	PST175-600-70☐
90	110	160	-	-	125	150	156	21.50 (47.40)	PST210-600-70☐
110	132	184	-	-	150	200	192	23.00 (50.71)	PST250-600-70☐
132	160	220	-	-	200	250	248	23.00 (50.71)	PST300-600-70☐
160	200	257	-	-	250	300	302	31.00 (68.34)	PSTB370-600-70☐
200	257	355	-	-	300	350	361	31.00 (68.34)	PSTB470-600-70☐
250	315	450	-	-	400	500	480	52.00 (114.64)	PSTB570-600-70☐
315	400	560	-	-	500	600	590	55.00 (121.25)	PSTB720-600-70☐
400	500	710	-	-	600	700	720	60.00 (133.28)	PSTB840-600-70☐
450	600	800	-	-	700	800	840	60.00 (133.28)	PSTB1050-600-70☐

*) **Add code letter in Type acc. to below:**
☐ No code letter = Normal
T = Coated PCBs

PST(B) – The advanced range

Heavy Duty, class 30, Inside Delta, ordering details

PST30 ... PST72

PST85 ... PST142

PST175 ... PST300

PSTB370 ... PSTB470

PSTB570 ... PSTB1050

PST30...PSTB1050

Rated operational voltage U_e, 208 - 600 V
Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

400 V kW	500 V kW	690 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number *)
18.5	25	-	7.5	10	25	30	34	4.80 (10.58)	PST30-600-70☐
25	30	-	10	15	30	40	42	4.80 (10.58)	PST37-600-70☐
30	37	-	15	20	40	50	54	4.80 (10.58)	PST44-600-70☐
37	45	-	20	25	50	60	72	4.80 (10.58)	PST50-600-70☐
45	55	-	25	30	60	75	80	5.00 (11.02)	PST60-600-70☐
55	75	-	30	40	75	100	104	5.00 (11.02)	PST72-600-70☐
59	80	-	40	40	75	100	104	11.20 (24.69)	PST85-600-70☐
75	90	-	40	50	100	125	130	13.00 (28.66)	PST105-600-70☐
90	110	-	50	60	125	150	156	13.00 (28.66)	PST142-600-70☐
132	160	-	60	75	150	200	192	21.50 (47.40)	PST175-600-70☐
160	200	-	75	100	200	250	248	21.50 (47.40)	PST210-600-70☐
184	250	-	100	100	250	300	302	23.00 (50.71)	PST250-600-70☐
220	295	-	125	150	300	350	361	23.00 (50.71)	PST300-600-70☐
257	355	-	150	200	400	500	480	31.00 (68.34)	PSTB370-600-70☐
355	450	-	200	250	500	600	590	31.00 (68.34)	PSTB470-600-70☐
450	600	-	250	300	600	700	720	52.00 (114.64)	PSTB570-600-70☐
540	700	-	300	350	700	800	840	55.00 (121.25)	PSTB720-600-70☐
710	880	-	400	500	1000	1200	1247	60.00 (133.28)	PSTB840-600-70☐
800	1000	-	500	600	1200	1500	1454	60.00 (133.28)	PSTB1050-600-70☐

PST30...PSTB1050

Rated operational voltage U_e, 400 - 690 V
Rated control supply voltage, U_s, 100 - 250 V AC, 50/60 Hz

400 V kW	500 V kW	690 V kW	208 V hp	230 V hp	480 V hp	600 V hp	UL/CSA Max rated operational current I_e A	Weight kg (lb)	Catalog number *)
18.5	25	37	-	-	25	30	34	4.80 (10.58)	PST30-690-70☐
25	30	45	-	-	30	40	42	4.80 (10.58)	PST37-690-70☐
30	37	55	-	-	40	50	54	4.80 (10.58)	PST44-690-70☐
37	45	59	-	-	50	60	72	4.80 (10.58)	PST50-690-70☐
45	55	75	-	-	60	75	80	5.00 (11.02)	PST60-690-70☐
55	75	90	-	-	75	100	104	5.00 (11.02)	PST72-690-70☐
59	80	110	-	-	75	100	104	11.20 (24.69)	PST85-690-70☐
75	90	132	-	-	100	125	130	13.00 (28.66)	PST105-690-70☐
90	110	160	-	-	125	150	156	13.00 (28.66)	PST142-690-70☐
132	160	220	-	-	150	200	192	21.50 (47.40)	PST175-690-70☐
160	200	257	-	-	200	250	248	21.50 (47.40)	PST210-690-70☐
184	250	315	-	-	250	300	302	23.00 (50.71)	PST250-690-70☐
220	295	400	-	-	300	350	361	23.00 (50.71)	PST300-690-70☐
257	355	500	-	-	400	500	480	31.00 (68.34)	PSTB370-690-70☐
355	450	600	-	-	500	600	590	31.00 (68.34)	PSTB470-690-70☐
450	600	800	-	-	600	700	720	52.00 (114.64)	PSTB570-690-70☐
540	700	960	-	-	700	800	840	55.00 (121.25)	PSTB720-690-70☐
710	880	1200	-	-	1000	1200	1247	60.00 (133.28)	PSTB840-690-70☐
800	1000	1400	-	-	1200	1500	1454	60.00 (133.28)	PSTB1050-690-70☐

*) **Add code letter in Type acc. to below:**
☐ No code letter = Normal
T = Coated PCBs

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PST(B) – The advanced range
Accessories

LX...

LW...

LE185

LE460

LT ... -AL

PSTEK

PSTM-2

Terminal lug kits for Al and Cu cables

For PST(B)85...1050 without external bypass (line/load lugs and terminal nut washer)

For softstarter type	Wire range AWG	Tightening torque max. Nm (lb-in)	Packing piece	Catalog number
PST85 …142	#6 - 250 MCM (1 per phase)	13.5 (275 lb-in)	6	PSLK-185
PST175 …300	#4 - 400 MCM (1 per phase)	43 (375 lb-in)	6	PSLK-300
PST175...300	#4 - 500 MCM (2 per phase)	43 (375 lb-in)	6	PSLK-300/2
PSTB370...470	2/0 - 500 MCM (2 per phase)	43 (375 lb-in)	6	PSLK-580/2
PSTB570 …1050	2/0 - 500 MCM (3 per phase)	43 (375 lb-in)	6	PSLK-750/3

For PST85...300 with external bypass (line/load lugs and terminal nut washer)

PST85 …142	#6 - 250 MCM (1 per phase)	13.5 (275 lb-in)	9	PSLK-185-B
PST175 …300	#4 - 400 MCM (1 per phase)	43 (375 lb-in)	9	PSLK-300-B
PST175 …300	#4 - 500 MCM (2 per phase)	43 (375 lb-in)	9	PSLK-300/2-B

Terminal extensions

For softstarter type	Dimensions hole ø mm² (in²)	Bar mm (in)	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST85…142	8.5 (0.0132)	17.5 x 5 (0.689 x 0.197)	1	0.250 (0.551)	LX185 [1]
PST175…300	10.5 (0.0163)	20 x 5 (0.787 x 0.197)	1	0.350 (0.772)	LX300 [2]
PSTB370...470	10.5 (0.0163)	25 x 5 (0.984 x 0.197)	1	0.500 (1.102)	LX460
PSTB570...1050	13 (0.0202)	40 x 6 (1.575 x 0.236)	1	0.850 (1.874)	LX750

Terminal enlargements

For softstarter type	Dimensions hole ø mm² (in²)	Bar mm (in)	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST30…72	6.5 (0.0101)	15 x 3 (0.591 x 0.118)	1	0.100 (0.220)	LW110 [1]
PST85…142	10.5 (0.0163)	17.5 x 5 (0.689 x 0.197)	1	0.250 (0.551)	LW185 [1]
PST175...300	10.5 (0.0163)	20 x 5 (0.787 x 0.197)	1	0.450 (0.992)	LW300 [1]
PSTB370...470	10.5 (0.0163)	25 x 5 (0.984 x 0.197)	1	0.730 (1.609)	LW460
PSTB570...1050	13 (0.0202)	40 x 6 (1.575 x 0.236)	1	1.230 (2.712)	LW750

Terminal nut washer

For softstarter type	Req. qty	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST85...142	1	2	0.200 (0.441)	LE185 [1]
PST175...300	3	2	0.300 (0.661)	LE300 [2]
PSTB370...470	6	6	0.600 (1.323)	LE460
PSTB570...1050	6	6	0.750 (1.653)	LE750

Terminal shrouds

For softstarter type	Suitable for	Req. qty	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST85…142	Compression lugs and cable connectors	1 pc	2	0.220 (0.485)	LT185-AL
		1 pc	2	0.800 (1.764)	LT460-AL
PST175...300	Compression lugs and cable connectors	3 pcs	2	0.280 (0.617)	LT300-AL [2] [3]
PSTB370...470	Compression lugs and cable connectors	2 pcs	2	0.800 (1.764)	LT460-AL
PSTB570...1050	Compression lugs and cable connectors	2 pcs	2	0.825 (1.819)	LT750-AL

External keypad including a 3m cable

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST30...300 PSTB370...1050	1	0.400 (0.882)	PSTEK

Marine Kit

For softstarter type	Packing piece	Weight kg (lb) 1 piece	Catalog number
PST85…142	1	0.240 (0.529)	PSTM-2

Fieldbus plug - ABB Fieldbus Plug suitable for all sizes. See page 5.40 - 5.43

[1] Only fits on the motor side.
[2] Use two sets of the accessories on the line side and one set on the motor side.
[3] The LT300-AL is not compatible with PSLK-300/2 cable connector.

PST(B) – The advanced range
Technical data

Rated insulation voltage U_i	690 V	
Rated operational voltage U_e	208...600 V, 400...690 V + 10 % / -15 % 50/60 Hz ±5%	
Rated control supply voltage U_s	100...250 V +10% / -15% 50/60 Hz ±5%	
Rated control circuit voltage U_c	Internal or external 24 V DC	
Starting capacity at I_r	3 x I_e for 15 sec.	
Number of starts per hour	**PST30...300**	**PSTB370...1050**
	30 [1]	10 [1]
Overload capability		
Overload class	10	
Service factor	**PST(B)30...840**	**PSTB1050**
	115 %	100 %
Ambient temperature		
during operation	±0 ... +50 °C (32 to 122 °F) [2]	
during storage	-25 ... +70 °C (-13 to 158 °F)	
Maximum altitude	4000 m [3]	
Degree of protection	**PST30...72**	**PST85...PSTB1050**
main circuit	IP10	IP00
Supply and control circuit	IP20	
Main circuit	**PST30...300**	**PSTB370...1050**
Built-in By-pass contactor	No	Yes
Cooling system - Fan cooled	Yes (thermostat controlled)	
HMI for settings (Human Machine Interface)		
Display	Full text	
Languages	English, German, Italian, Dutch, Chinese, Finnish, Swedish, French, Spanish, Russian, Portugese, Turkish, Polish and Czech	
Keypad	2 selection keys and 2 navigating keys	
Signal relays		
Number of programmable signal relays	3 (each relay can be programmed to be Run, By-pass or Event signal)	
K4	Default as Run signal	
K5	Default as TOR (By-pass) signal	
K6	Default as Event signal	
Rated operational voltage, U_e	250 V AC / 24 V DC	
Rated thermal current I_{th}	5 A	
Rated operational current I_e at AC-15 (U_e=250 V)	1.5 A	
Analog output		
Output signal reference	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA	
Type of output signal	I Amp, U Volt, P kW, P hp, Q kVAr, S kVA, TmpMot, TmpSCR, cosPhi	

Control circuit	
Number of inputs	2 (start, stop)
Number of additional programmable inputs	2 (Each input can be programmed to be either; Non, Reset, Enable, Jog, DOL- On, Start motor 2, Start motor 3 or FB-Dis)
Signalling indication LED	
Power on	Green
Fault	Red
Protection	Yellow
Protections	
Electronic overload	Yes (Class 10A, 10, 20, 30)
Dual overload	Yes (separate overload function for start and run)
PTC connection	Yes
Locked rotor protection	Yes (Level and delay adjustable)
Underload protection	Yes (Level and delay adjustable)
Phase imbalance	Yes (Level and delay adjustable)
High current (8 x I_e)	Yes
Phase reversal protection	Yes
Warnings (pre-warning)	
High current	Yes (Level and delay adjustable)
Low current (underload)	Yes (Level and delay adjustable)
Overload trip	Yes (Level and delay adjustable)
Overtemp, thyristor (SCR)	Yes
Start of several motors	
Possible to set-up and start three different motors	Yes (Different parameter sets)
Field bus connection	
Connection for ABB FieldBusPlug	Yes
PTC input	
Switch off resistance	2825 ohm ± 20%
Switch on resistance	1200 ohm ± 20%
External keypad	
Display	LCD type
Ambient temperature	
During operation	±0 ... +50 °C (32 to 122 °F)
During storage	-25 ... +70 °C (-13 to 158 °F)
Degree of protection	IP66

PSTB Integrated by-pass ratings

Softstarter	PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
Integrated contactor	AF300		AF460	AF580	AF750	
AC-3 rating (A)	305		460	580	750	

[1] Valid for 50 % on time and 50 % off time. 3.5 x I_e for 7 sec., if other data is required, contact your sales office.
[2] Above 40 °C (104 °F) up to max. 50 °C (122 °F) reduce the rated current with 0.8 % per °C (0.44 % per °F).
[3] When used at high altitudes above 1000 meters (3281 ft) up to 4000 meters (13123 ft) you need to derate the rated current using the following formula.

[% of I_e = 100 - $\frac{x - 1000}{150}$] x = actual altitude for the softstarter in meter

[% of I_e = 100 - $\frac{x - 3280}{497}$] x = actual altitude for the softstarter in feet

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PST(B) – The advanced range
Technical data

Major possible settings and the displayed text and the set default values

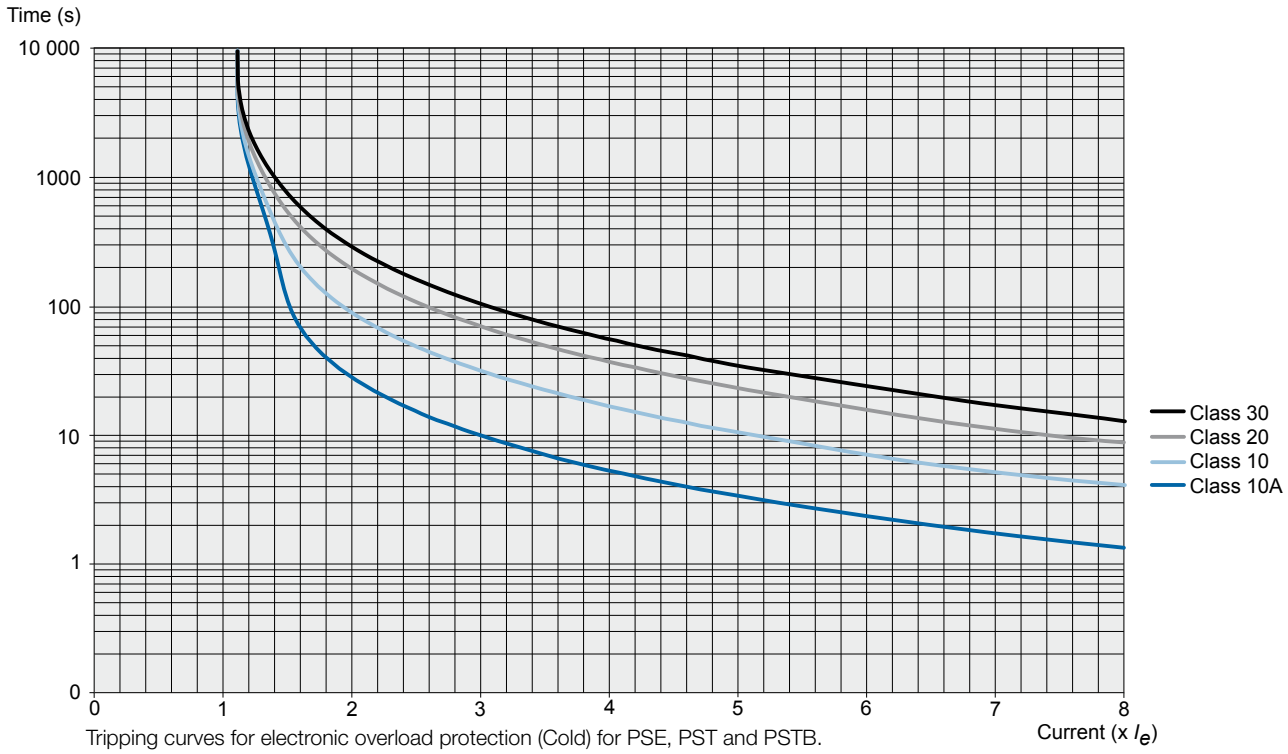
Description	Text on display	Values on display	Default value
Setting current for overload, locked rotor etc.	Setting I_e	9.0 ...1207 A divided into 19 overlapping ranges.	See page 5.37
Time for start ramp	Start Ramp	1 ... 30 s, 1 ... 120 s (Range depends on Start Range)	10 s
Time for stop ramp	Stop Ramp	0 ... 30 s, 0 ... 120 s (Range depends on Stop Range)	0 s
Initial voltage for start ramp	Init Volt	30 ... 70 %	30 %
End voltage for stop ramp	End Volt	30 ... 70 %	30 %
Step down voltage	Step Down	30 ...100 %	100 %
Level of the current limit.	Current Lim	1.5 ... 7.0 x I_e	4.0 x I_e
Selection of Kick start	Kick Start	Yes, No	No
Level of Kick start if selected	Kick Level	50 ... 100 %	50 %
Time for Kick start if selected	Kick Time	0.1 ... 1.5 s	0.2
Selectable range for start ramp	Start Range	1 ... 30 s, 1...120 s	1 ... 30 s
Selectable range for stop ramp	Stop Range	0 ... 30 s, 0 ... 120 s	0 ... 30 s
Overload protection	Overload	No, Normal, Dual	Normal
Overload Class	OL Class	10 A, 10, 20, 30	10
Overload Class, Dual type, Start Class	OL Class S	10A, 10, 20, 30	10
Overload Class, Dual type, Run Class	OL Class R	10A, 10, 20, 30	10
Type of operation for overload protection	OL Op	Stop-M, Stop-A, Ind	Stop-M
Locked rotor protection	Locked Rotor	Yes, No	No
Trip level for locked rotor protection	Lock R Lev	0.5 ... 8.0 x I_e	4.0 x I_e
Trip time for locked rotor protection	Lock R Time	0.2 ... 10 s	1.0 s
Type of operation for locked rotor protection	Lock R Op	Stop-M, Stop-A, Ind	Stop-M
Underload protection	Underload	Yes, No	No
Trip level for Underload protection	Underl Lev	0.4 ... 0.8 x I_e	0.5 x I_e
Trip time for Underload protection	Underl Time	1 ... 30 s	10 s
Type of operation for Underload protection	Underl Op	Stop-M, Stop-A, Ind	Stop-M
Phase imbalance protection	Phase Imb	Yes, No	No
Trip level for phase imbalance protection	Ph Imb Lev	10 ... 80 %	80 %
Type of operation for phase imbalance protection	Ph Imb Op	Stop-M, Stop-A, Ind	Stop-M
High current protection	High I	Yes, No	No
Type of operation for high current protection	High I Op	Stop-M, Stop-A, Ind	Stop-M
Phase reversal protection	Phase Rev	Yes, No	No
Type of operation for phase reversal protection	Ph Rev Op	Stop-M, Stop-A, Ind	Stop-M
PTC protection	PTC	Yes, No	No
Type of operation for PTC protection	PTC Op	Stop-M, Stop-A	Stop-M
An external Bypass contactor is used	Ext ByPass	Yes, No	No
High current warning	Warn I=High	Yes, No	No
Trip level for high current warning	Wa I=H Lev	0.5 ... 5.0 x I_e	1.2 x I_e
Low current warning	Warn I=Low	Yes, No	No
Trip level for low current warning	Wa I=L Lev	0.4 ...1.0 x I_e	0.8 x I_e
Overload warning	Warn OL	Yes, No	No
Trip level for overload warning	Wa OL Lev	40 ... 99 %	90 %
Thyristor overload warning	Warn SCR OL	Yes, No	No
Type of operation for phase loss fault	Ph Loss Op	Stop-M, Stop-A	Stop-M
Type of operation for by-pass doesn't close	BP open Op	Stop-M, Stop-A	Stop-M
Type of operation for by-pass doesn't open	BP closed Op	Stop-M, Stop-A	Stop-M
Type of operation for fieldbus fault	FB Fault Op	Stop-M, Stop-A	Stop-M
Type of operation for frequency fault	Freq F Op	Stop-M, Stop-A	Stop-M
Type of operation for heat sink over temperature fault	HS Temp Op	Stop-M, Stop-A	Stop-M
Type of operation for thyristor short circuit fault	SCR SC Op	Stop-M, Stop-A	Stop-M
Function of programmable input In_0	In0	None, Reset, Enable, Jog, DOL, Start 2, FB-Dis	Reset
Function of programmable input In_1	In1	None, Reset, Enable, Jog, DOL, Start 3, FB-Dis	Reset
Function of programmable relay output K4	Relay K4	Run, TOR, Event	Run
Function of programmable relay output K5	Relay K5	Run, TOR, Event	TOR
Function of programmable relay output K6	Relay K6	Run, TOR, Event	Event
Control of the softstarter with fieldbus	Fieldb Ctrl	Yes, No	No
Number of sequences for sequence start.	No of Seq	No, 2, 3	No
Language to use on display	Language	US/UK, FI, SE, PT, NL, IT, FR, ES, DE, CN, RU, TR, PL, CZ	US/UK

PST(B) – The advanced range
Technical data

Description	Text on display	Values on display	Default value
Password for display	Password	No, 1 ... 255	
Start mode	Start Mode	Volt, Torque	Volt
Stop mode	Stop Mode	Volt, Torque	Volt
Torque limit	Torque limit	20 ... 200 %	150 %
Analog output	Analogue Out	Yes, No	No
Analog output, reference	Anl Ref	0 ...10 V, 0 ... 20 mA, 4 ... 20 mA	4 ...20 mA
Analog output, type of value	Anl Type	I Amp, U Volt, P kW, P hp, Q kVAr, S kVA, TmpMot, TmpSCR, cosPhi	I Amp

Tripping curves for the integrated electronic overload protection

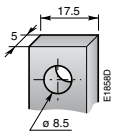
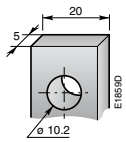
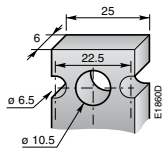
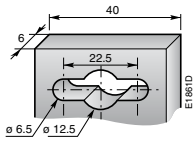
All units have an integrated electronic overload protection possible to set on four different tripping classes.
Below you find a curve for each tripping class in cold state. These tripping curves are valid for PSE, PST and PSTB



Tripping curves for electronic overload protection (Cold) for PSE, PST and PSTB.

PST(B) – The advanced range
Technical data

Cross section of connection cables

		Softstarter PST30 ... 72	PST85 ... 142	PST175 ... 300	PSTB370 ... 470	PSTB570 ... 1050
Main circuit						
Available teminals:	L1, L2, L3	Yes	Yes	Yes	Yes	Yes
	T1, T2, T3	Yes	Yes	Yes	Yes	Yes
(For external by-pass)	B1, B2, B3	Yes	Yes	Yes	No	No
Connection clamp						
Solid/stranded	1 x mm² (AWG)	10 ... 95 (8-3/0)	See accessories			
Solid/stranded	2 x mm² (AWG)	6 ... 35 (10-2)	See accessories			
Tightening torque (recommended)	Nm (lb-in)	6.0 (53.10)	See accessories			
Connection bar						
Width and thickness	mm (in)	–	17.5 x 5 (0.689 x 0.197)	20 x 5 (0.787 x 0.197)	25 x 6 (0.984 x 0.236)	40 x 6 (1.575 x 0.236)
Hole diameter	mm (in)	–	8.5 (0.335)	10.2 (0.402)	10.5 (0.413)	6.5, 12.5 (0.256, 0.492)
Tightening torque (recommended)	Nm (lb-in)	–	18 (159.3)	28 (247.8)	35 (309.8)	45 (398.3)
Supply and control circuit						
Connection clamp				Yes		
Solid/stranded	1 x mm² (AWG)			2.5 (14)		
Solid/stranded	2 x mm² (AWG)			1.5 (16)		
Tightening torque (recommended)	Nm (lb-in)			0.5 (4.43)		

PST(B) – The advanced range
Technical data

Fuse ratings and power losses

For Softstarter	Recommended ABB Overload protection		Max power loss at rated I_e		Max semi-conductor fuse rating - main circuit Coordination type 2 (65 kA) [3]			Supply circuit power requirements [1] VA/VA pull in
					Bussman Fuses, DIN43 620			
Type	Type	Current range A	without by-pass [2] W	with by-pass W	A	Type	Size	
PST								
PST30	Integrated	9...35	100	9.5	80	170M1566	000	5
PST37	Integrated	11...43	120	10.5	125	170M1568	000	5
PST44	Integrated	13...51	140	13.5	160	170M1569	000	5
PST50	Integrated	15...58	160	13.5	160	170M1569	000	5
PST60	Integrated	18...69	190	15.5	200	170M1570	000	5
PST72	Integrated	22...83	230	17	250	170M1571	000	5
PST85	Integrated	25...98	270	30.5	315	170M1572	000	10
PST105	Integrated	32...120	325	35	400	170M3819	1	10
PST142	Integrated	43...163	435	37	450	170M5809	2	10
PST175	Integrated	53...201	540	62	500	170M5810	2	15
PST210	Integrated	63...241	645	67	630	170M5812	2	15
PST250	Integrated	75...288	765	67	700	170M5813	2	15
PST300	Integrated	90...345	920	90	900	170M6813	3	15
PSTB 600 V								
PSTB370	Integrated	111...425	N/A	90	700	170M5813	2	20/480
PSTB470	Integrated	141...540	N/A	110	900	170M6813	3	20/480
PSTB570	Integrated	171...655	N/A	105	900	170M6813	3	25/900
PSTB720	Integrated	216...828	N/A	110	1250	170M8554	3	25/860
PSTB840	Integrated	252...966	N/A	170	1500	170M8556	3	25/860
PSTB1050	Integrated	315...1207	N/A	170	1800	170M8558	3	25/860
PSTB 690 V								
PSTB370	Integrated	111...425	N/A	90	700	170M5813	2	20/480
PSTB470	Integrated	141...540	N/A	110	900	170M6813	3	20/480
PSTB570	Integrated	171...655	N/A	105	900	170M6813	3	25/900
PSTB720	Integrated	216...828	N/A	110	1250	170M8554	3	25/860
PSTB840	Integrated	252...966	N/A	170	1500	170M8556	3	25/860
PSTB1050	Integrated	315...1207	N/A	170	1600	170M8557	3	25/860

[1] For the supply circuit use a maximum 6 A time-delay fuse or an MCB with type C characteristics.
[2] Calculated power loss at operational current (Iop) without by-pass.
Ptot = 3 x Iop + VA value
Example: PST 60 running at 52 A
Ptot = 3 x 52 + 5 = 161 W
[3] Max fuse rating independent of In-Line or Inside Delta connection. In Inside Delta connections of PST, the fuses can be placed outside of the delta. For PSTB the fuses shall be placed inside the delta. Contact ABB for more information.

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FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen, ordering details

DeviceNet FieldBusPlug

Ready-made DeviceNet fieldbus interface with various cable lengths.
- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
DeviceNet-FBP	0.25 m (0.82 ft)	DNP21-FBP.025	1	0.09 (0.198)	1SAJ230000R1003
DeviceNet-FBP	0.50 m (1.64 ft)	DNP21-FBP.050	1	0.10 (0.220)	1SAJ230000R1005
DeviceNet-FBP	1.00 m (3.28 ft)	DNP21-FBP.100	1	0.13 (0.287)	1SAJ230000R1010
DeviceNet-FBP	5.00 m (16.40 ft)	DNP21-FBP.500	1	0.36 (0.794)	1SAJ230000R1050

DNP21-FBP
MRP21-FBP
COP21-FBP

MODBUS-RTU FieldBusPlug

Ready-made MODBUS-RTU fieldbus interface with various cable lengths.
- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
MODBUS-RTU-FBP	0.25 m (0.82 ft)	MRP21-FBP.025	1	0.09 (0.198)	1SAJ250000R0003
MODBUS-RTU-FBP	0.50 m (1.64 ft)	MRP21-FBP.050	1	0.10 (0.220)	1SAJ250000R0005
MODBUS-RTU-FBP	1.00 m (3.28 ft)	MRP21-FBP.100	1	0.13 (0.287)	1SAJ250000R0010
MODBUS-RTU-FBP	5.00 m (16.40 ft)	MRP21-FBP.500	1	0.36 (0.794)	1SAJ250000R0050

CANopen FieldBusPlug

Ready-made CANopen fieldbus interface with various cable lengths.
- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
CANopen-FBP	0.25 m (0.82 ft)	COP21-FBP.025	1	0.09 (0.198)	1SAJ230100R1003
CANopen-FBP	0.50 m (1.64 ft)	COP21-FBP.050	1	0.10 (0.220)	1SAJ230100R1005
CANopen-FBP	1.00 m (3.28 ft)	COP21-FBP.100	1	0.13 (0.794)	1SAJ230100R1010

To connect the PST Softstarter to a DeviceNet or CANopen fieldbus system...
you need specific software for PLC set-up, (EDS file) which is available at **www.abb.com/lowvoltage** on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen accessories, ordering details

Accessories for the DeviceNet, MODBUS-RTU and CANopen bus connector

DNF11-FBP.050

DNM11-FBP.050

DeviceNet, MODBUS-RTU and CANopen round cable for bus junctions

Ready-made bus cable with an M12 connector and an open cable end.

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Round cable with female connector	0.50 m (1.64 ft)	DNF11-FBP.050	1	0.04 (0.088)	1SAJ923002R0005
Round cable with male connector	0.50 m (1.64 ft)	DNM11-FBP.050	1	0.04 (0.088)	1SAJ923003R0005

DNX11-FDP

DeviceNet, MODBUS-RTU and CANopen round cable for bus extension

Ready-made bus cable with M12 male and female connectors

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension cable	1.00 m (3.28 ft)	DNX11-FBP.100	1	0.08 (0.176)	1SAJ923001R0010
Extension cable	3.00 m (9.84 ft)	DNX11-FBP.300	1	0.20 (0.441)	1SAJ923001R0030
Extension cable	5.00 m (16.40 ft)	DNX11-FBP.500	1	0.31 (0.683)	1SAJ923001R0050
Round cable	100.00 m (328 ft)	DNC11-FBP.999	1	5.60 (12.346)	1SAJ923004R1000

DNM11-FBP.0

DNF11-FBP.0

DeviceNet, MODBUS-RTU and CANopen round cable connectors

Bus cable and coupling accessories

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Male connector for round cable	DNM11-FBP.0	5	0.15 (0.331)	1SAJ923005R0001
Female connector for round cable	DNF11-FBP.0	5	0.15 (0.331)	1SAJ923006R0001

DNR11-FBP.120

DeviceNet, MODBUS-RTU and CANopen termination resistor

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Termination Resistor, 120 Ohm	DNR11-FBP.120	1	0.02 (0.044)	1SAJ923007R0001

FBP FieldBusPlug
Profibus DP, ordering details

PDP22-FBP

Profibus DP FieldBusPlug
Ready-made Profibus DP fieldbus interface with various cable lengths.
- Supports PROFIBUS DP V0 and V1
- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Profibus DP FBP	0.25 m (0.82 ft)	PDP22-FBP.025	1	0.09 (0.198)	1SAJ240100R1003
Profibus DP FBP	0.50 m (1.64 ft)	PDP22-FBP.050	1	0.10 (0.220)	1SAJ240100R1005
Profibus DP FBP	1.00 m (3.28 ft)	PDP22-FBP.100	1	0.13 (0.287)	1SAJ240100R1010
Profibus DP FBP	2.00 m (6.56 ft)	PDP22-FBP.200	1	0.20 (0.441)	1SAJ240100R1020
Profibus DP FBP	5.00 m (16.40 ft)	PDP22-FBP.500	1	0.36 (0.794)	1SAJ240100R1050

PDQ22-FBP

Profibus DP FieldBusPlug for 4 devices
PDQ22 is a member of the ABB FieldBusPlug family of bus connectors. It allows the connection of up to four devices to Profibus DP by just using one Profibus node access. This allows a cost efficient device integration for devices that are located physically nearby. PDQ22 supports DP-V0 and DP-V1. The degree of protection is IP66. There are separate diagnosis LEDs for bus and device status.

Note that the accessory PDQ22-FBP only works with the PSR and PSE and not with the PST(B) softstarter.

Designation	Type	Packing piece		Catalog number
Quadruple bus connector	PDQ22-FBP	1		1SAJ240200R0050
DINrail adapter for PDQ22-FBP	CDA11-FBP. 0	1		1SAJ929300R0001
Fixing bracket for passive plug of connection cable	CDP11-FBP.0	1		1SAJ929100R0001

Configuration software
This cable and software can be used for set-up and commissioning of the softstarter as well as to keep back-up of the parameter settings.

Designation	Type	Packing piece		Catalog number
USB to FBP interface cable	UTF21-FBP	1		1SAJ929400R0002
PDP22/PDQ22 Device Type Manager (DTM) incl. FDT/DTM frame application	PBDTM-FBP	1		1SAJ924012R0003

To connect the PST Softstarter to a Profibus DP fieldbus system...
you need specific software for PLC set-up, (GSD file) which is available at www.abb.com/lowvoltage on the Softstarter pages. Look under the documentation-link named Software. If you need help or advice, please contact your local ABB office.

PDP21 is replaced by PDP22.
Use PDP22 with the GSD-file Abb_082d.gsd regardless if the PLC is a DP/V0 or DP/V1.

FBP FieldBusPlug

Profibus DP accessories, ordering details

Accessories for the Profibus DP Bus Connector

Profibus DP Round Cable for Bus Junctions

Ready-made bus cable with an M12 connector and an open cable end.

- Application on bus junctions such as e.g. Profibus DB couplers or devices with an integrated Profibus DB interface

PDF11-FBP.50

PDM11-FBP.50

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Round Cable with female connector	0.50 m (1.64 ft)	PDF11-FBP.050	1	0.04 (0.088)	1SAJ924002R0005
Round Cable with male connector	0.50 m (1.64 ft)	PDM11-FBP.050	1	0.04 (0.088)	1SAJ924003R0005

Profibus DP Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors
Round cable on coil

PDX11-FBP

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension Cable	0.50 m (1.64 ft)	PDX11-FBP.050	1	0.04 (0.088)	1SAJ924001R0005
Extension Cable	1.00 m (3.28 ft)	PDX11-FBP.100	1	0.08 (0.176)	1SAJ924001R0010
Extension Cable	3.00 m (9.84 ft)	PDX11-FBP.300	1	0.20 (0.441)	1SAJ924001R0030
Extension Cable	5.00 m (16.40 ft)	PDX11-FBP.500	1	0.31 (0.683)	1SAJ924001R0050
Round Cable	100.00 m (328 ft)	PDC11-FBP.999	1	5.60 (12.346)	1SAJ924004R1000

PDM11-FBP

PDF11-FBP

Profibus DP Accessories for Bus Extension

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Male Connector for round cable	PDM11-FBP.0	5	0.03 (0.066)	1SAJ924005R0001
Female Connector for round cable	PDF11-FBP.0	5	0.03 (0.066)	1SAJ924006R0001

PDR11-FBP.150

PDV11-FBP, PDV12-FBP

Profibus DP Termination Resistor, Miscellaneous Accessories

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Termination Resistor, 150 Ohm	PDR11-FBP.150	1	0.03 (0.066)	1SAJ924007R0001
Feeding connector 24V DC, Code B-A	PDV11-FBP.0	1	0.04 (0.088)	1SAJ924008R0001
Feeding connector 24V DC, Code A-A	PDV12-FBP.0	1	0.04 (0.088)	1SAJ924011R0001
Adaptor M12-Dsub9-M12 Cable length 0.50m	PDA11-FBP.050	1	0.04 (0.088)	1SAJ924009R0005
Adaptor M12-Dsub9-M12 Cable length 2 x 0.50m	PDA12-FBP.050	1	0.04 (0.088)	1SAJ924010R0005

PDA11-FBP.050

PDA12-FBP.050

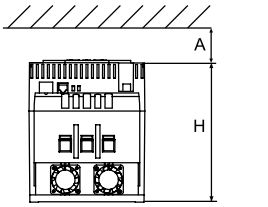
Extension cable

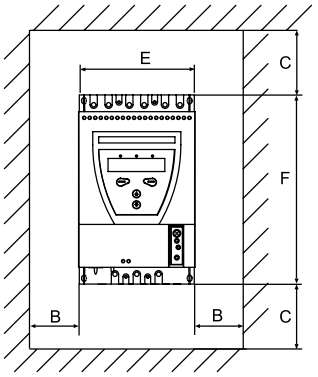
Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension cable (female/male), shielded	0.3 m (0.98 ft)	CDP15-FBP.030	1		1SAJ929140R0003
Extension cable (female/male), shielded	0.6 m (1.97 ft)	CDP15-FBP.060	1		1SAJ929140R0006
Extension cable (female/male), shielded	1.5 m (4.92 ft)	CDP15-FBP.150	1	0.20 (0.441)	1SAJ929140R0015
Extension cable (male/open), shielded	1.5 m (4.92 ft)	CDP16-FBP.150	1	0.20 (0.441)	1SAJ929150R0015

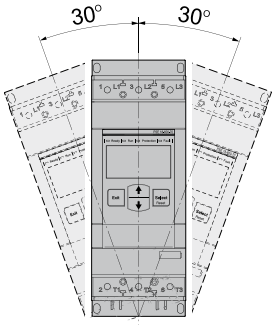
Spec Tech Industrial Electric www.spectechind.com 888-773-2832

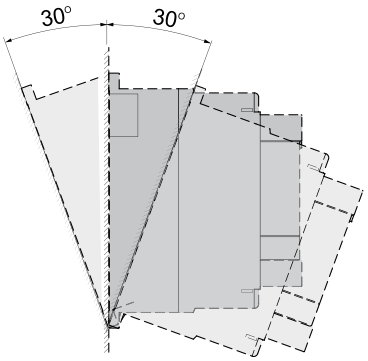
Wall mounting instructions
Softstarters

Minimum distance to wall/front







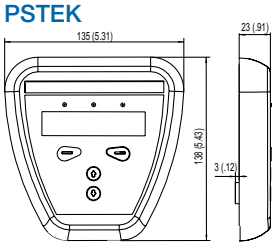


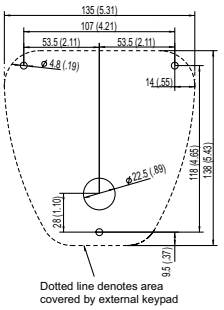
Dimensions (mm/in)

Softstarter	A	B	C	E	F	H
PSR						
PSR3 ... 16	25/0.984	0*	0	45/1.77	140/5.51	114/4.49
PSR25 ... 30	25/0.984	0*	0	45/1.77	160/6.30	128/5.04
PSR37 ... 45	25/0.984	0*	0	54/2.13	187/7.36	153/6.02
PSR60 ... 105	25/0.984	0*	0	70/2.76	220/8.66	180/7.09
PSE						
PSE18 ... 105	20/0.787	10/0.394	100/3.94	90/3.54	245/9.65	185.5/7.30
PSE142 ... 170	20/0.787	10/0.394	100/3.94	130/5.12	295/11.61	219.5/8.64
PSE210 ... 370	20/0.787	10/0.394	100/3.94	190/7.48	550/21.65	236.5/9.31
PST						
PST30 ... 72	20/0.787	10/0.394	100/3.94	160/6.30	260/10.24	196/7.72
PST85 ... 142	20/0.787	10/0.394	100/3.94	186/7.32	390/15.35	270/10.63
PST175 ... 300	20/0.787	10/0.394	100/3.94	360/14.17	420/16.54	270/10.63
PSTB						
PSTB370 ... 470	20/0.787	15/0.394	150/5.91	365/14.37	460/18.11	361/14.21
PSTB570 ... 1050	20/0.787	15/0.394	150/5.91	435/17.13	515/20.28	381/14.21

*) 5 mm/0.197 inch for the 24 V DC version

Dimensions
PSTEK

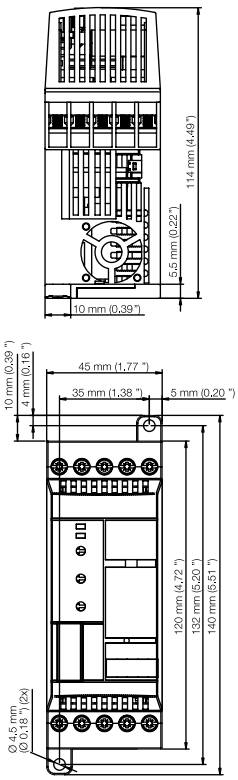




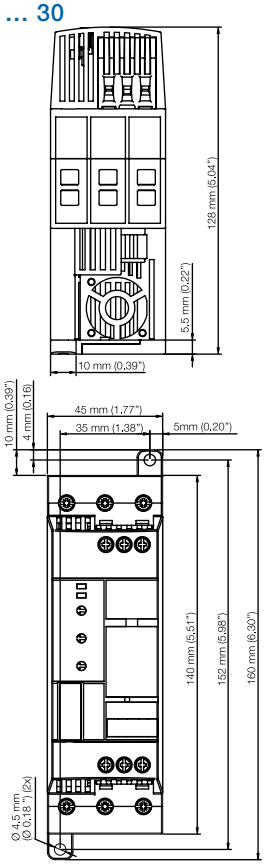
Dimensions in mm (and inches)

Dimensions
PSR softstarters

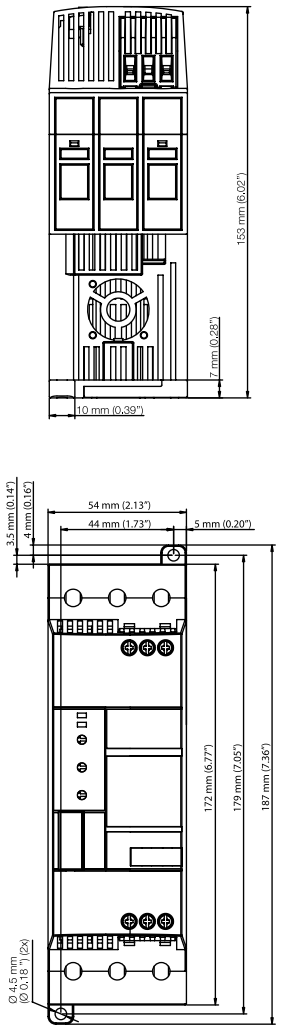
PSR3 ... 16



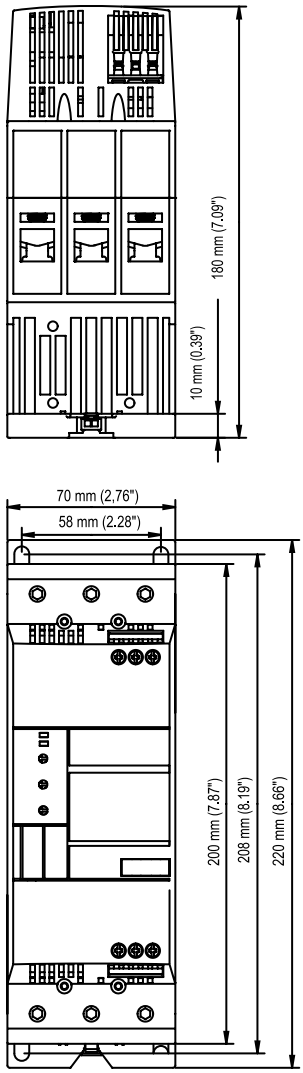
PSR25 ... 30



PSR37 ... 45



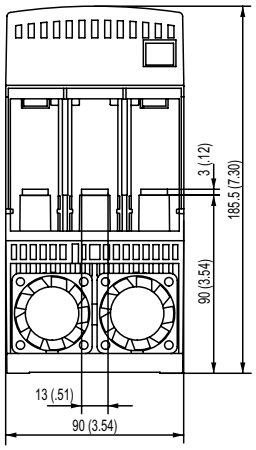
PSR60 ... 105

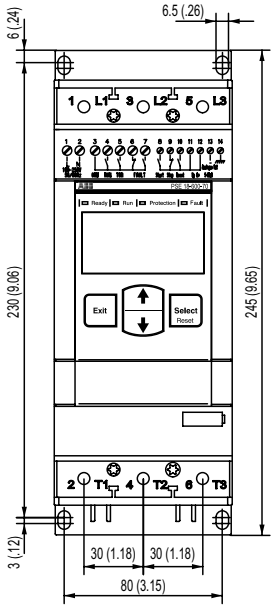


Dimensions in mm (and inches)

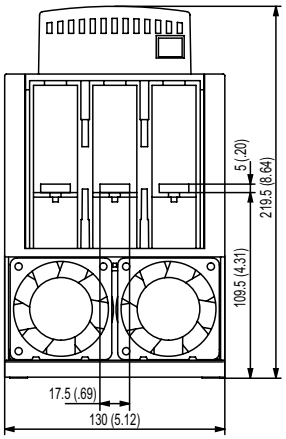
Dimensions
PSE softstarters

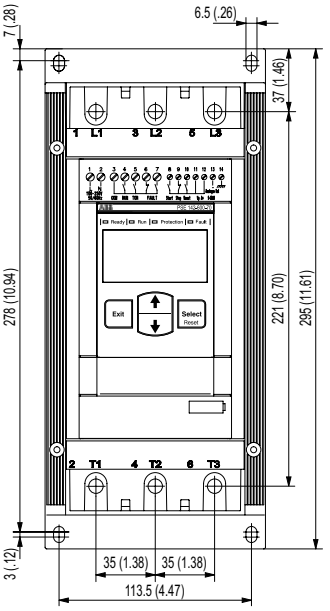
PSE18 ... 105



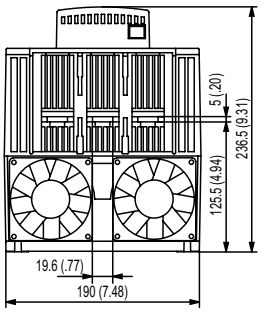


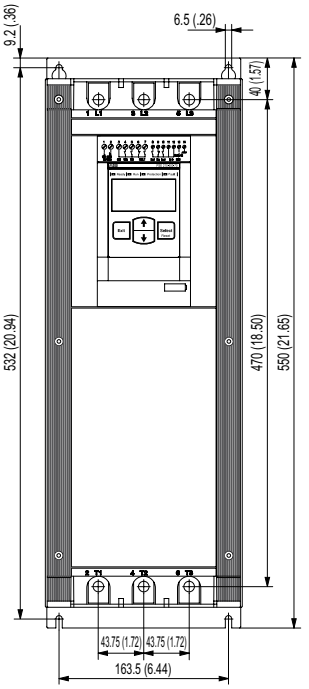
PSE142 ...170





PSE210 ... 370

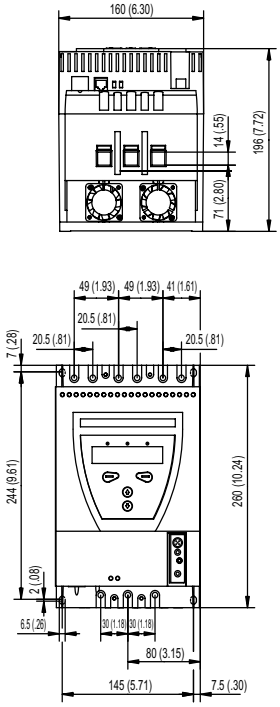




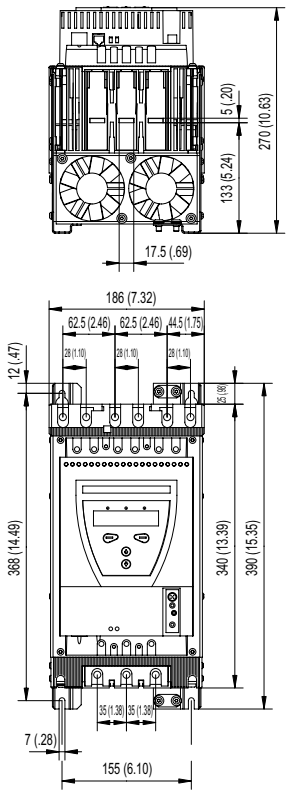
Dimensions in mm (and inches)

Dimensions
PST and PSTB softstarters

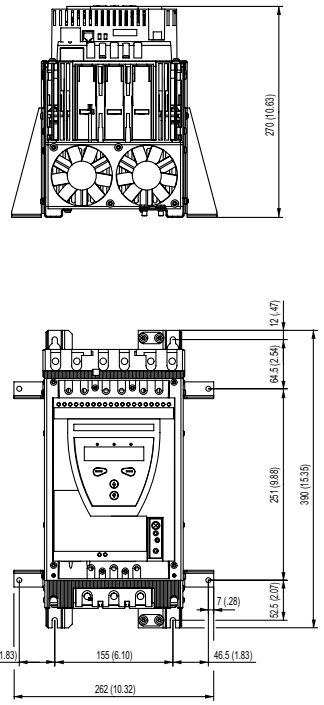
PST30 ... 72



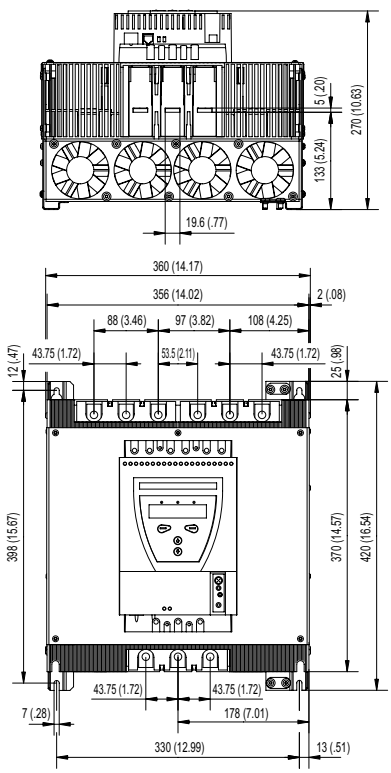
PST85 ...142



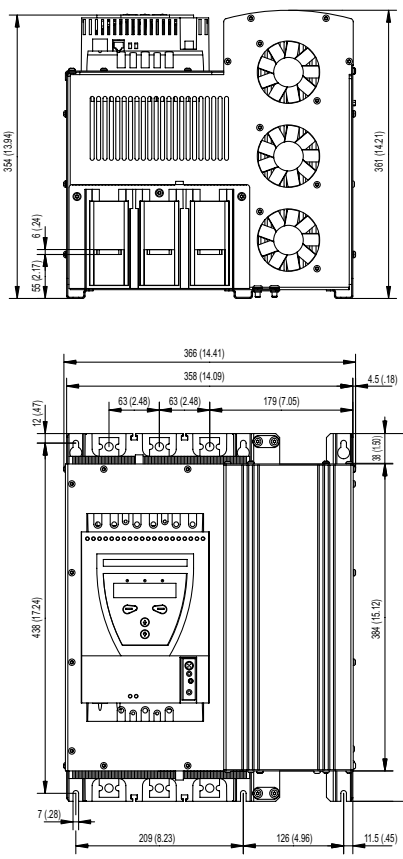
PST85 ...142 with marine kit



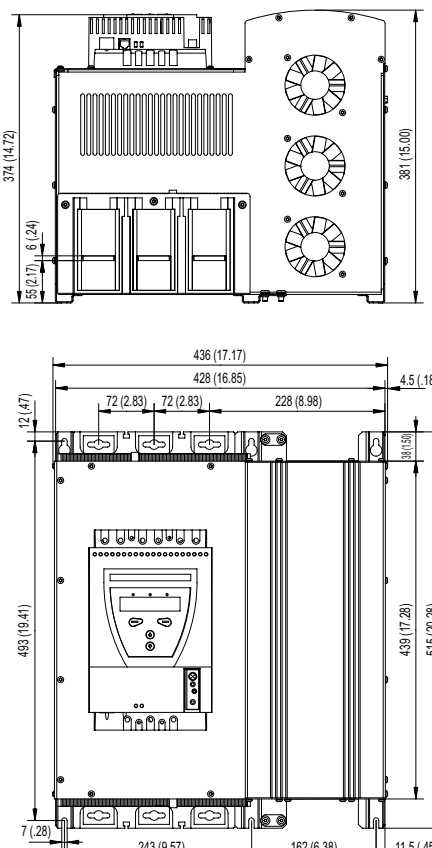
PST175 ... 300



PSTB370 ... 470



PSTB570 ... 1050

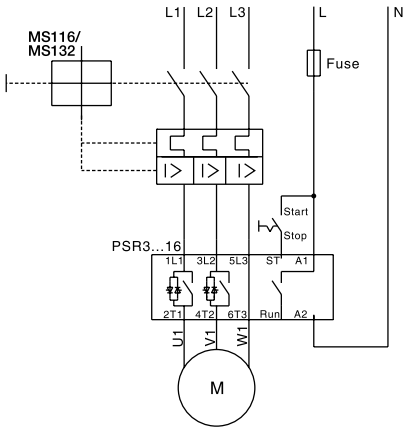


Dimensions in mm (and inches)

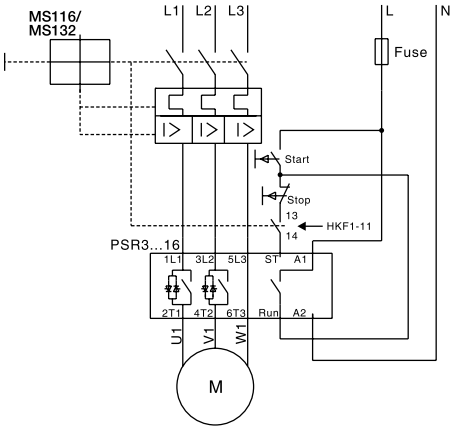
Circuit diagrams
PSR softstarters

PSR3 ...16

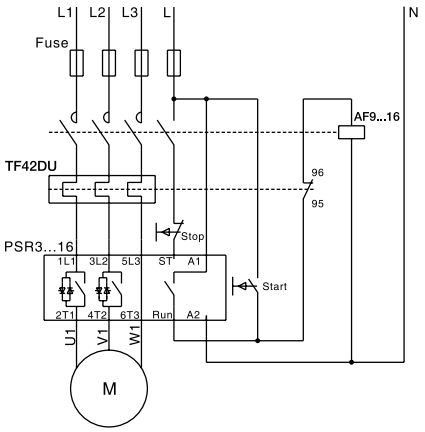
A) With MMS



B) With MMS and auxiliary contact

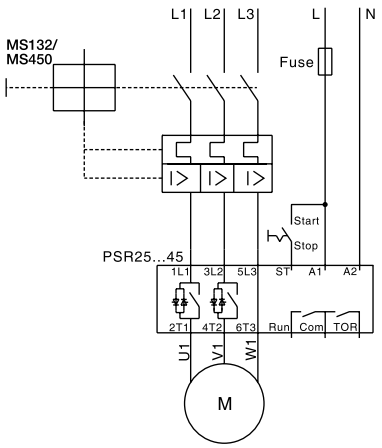


C) With fuses, contactor and O.L.

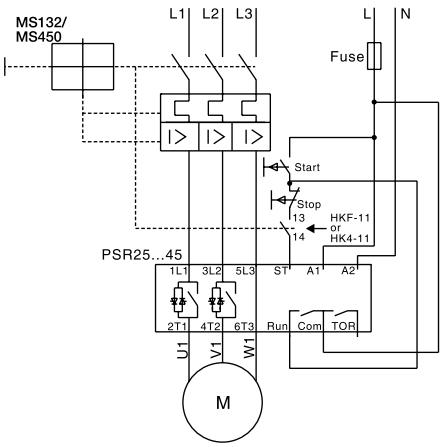


PSR25 ... 45

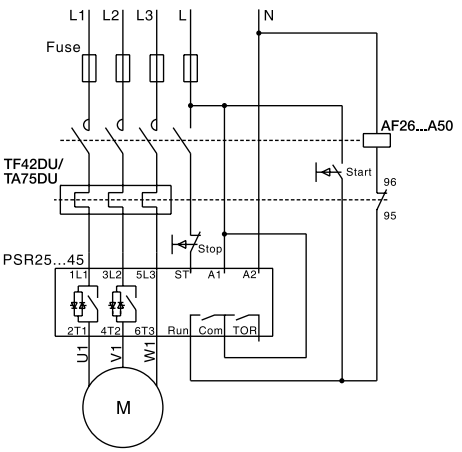
D) With MMS



E) With MMS and auxiliary contact

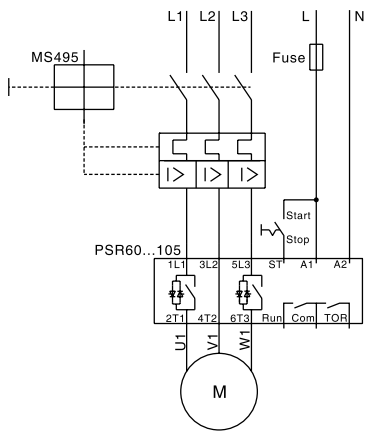


F) With fuses, contactor and O.L.

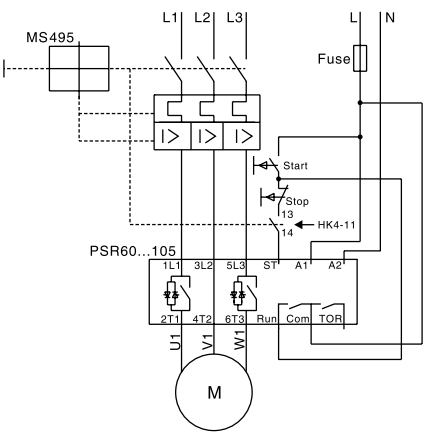


PSR60 ... 105

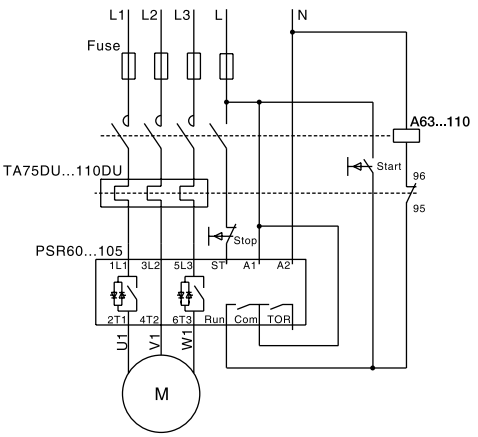
G) With MMS



H) With MMS and auxiliary contact

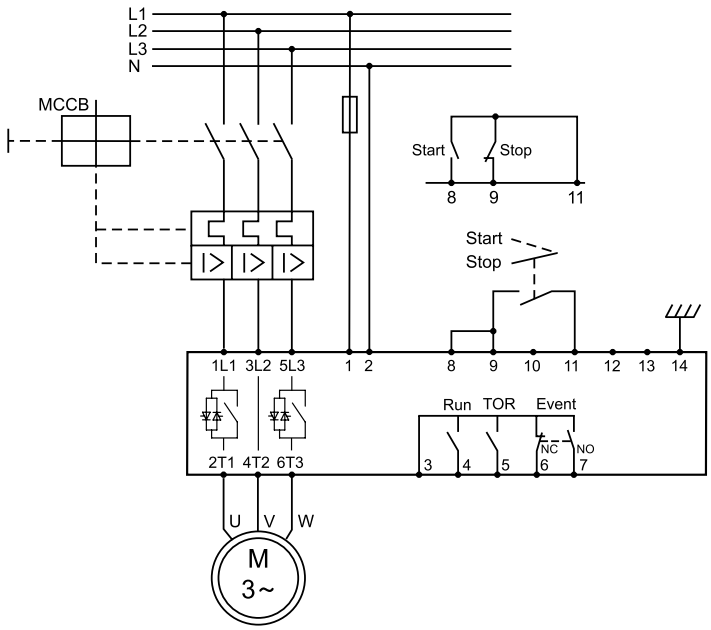


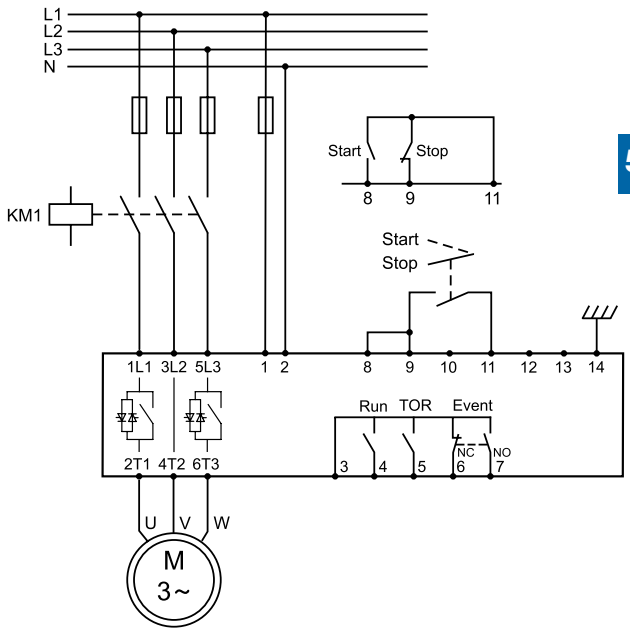
I) With fuses, contactor and O.L.



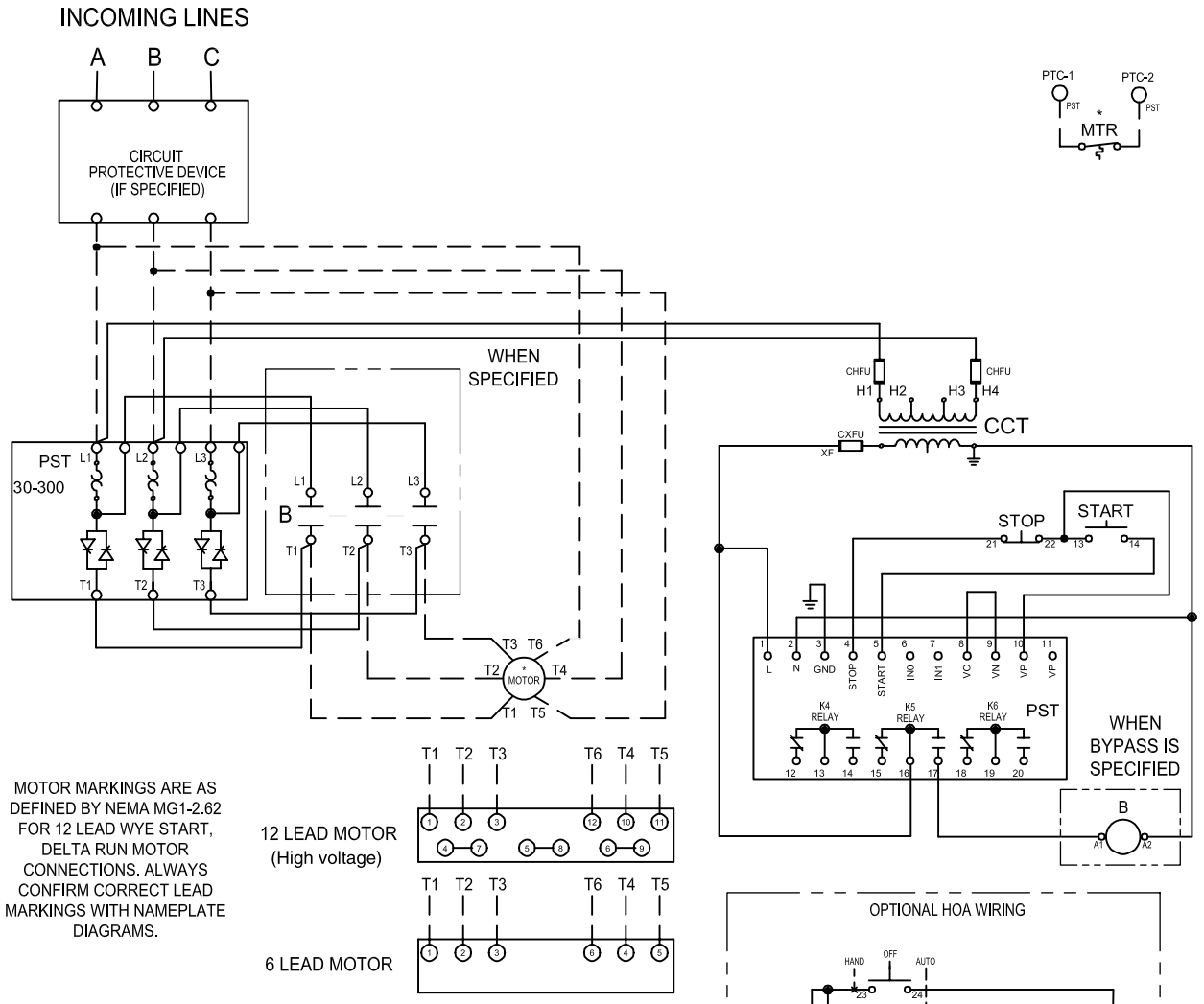
Circuit diagrams
PSE softstarters

PSE18 ... 370

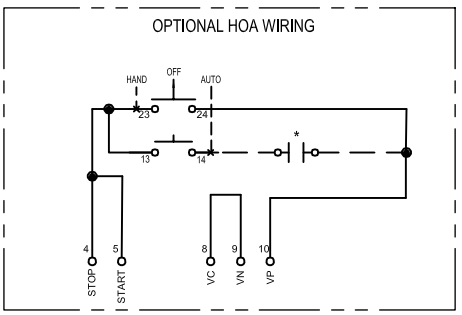




Circuit diagrams
PST30 – PST300
Inside Delta



MOTOR MARKINGS ARE AS DEFINED BY NEMA MG1-2.62 FOR 12 LEAD WYE START, DELTA RUN MOTOR CONNECTIONS. ALWAYS CONFIRM CORRECT LEAD MARKINGS WITH NAMEPLATE DIAGRAMS.



CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
∅	CONNECTION POINT AT TERMINAL BLOCK

PST NOTES:
1. PROG. INPUT In0 FACTORY SET FOR RESET FAULT/OL.
2. PROG. RELAY K4 FACTORY SET FOR RUN.
3. PROG. RELAY K5 FACTORY SET FOR AT SPEED.
4. PROG. RELAY K6 FACTORY SET FOR EVENT.
5. FUNCTION MOT 1 Ie MUST BE SET TO MOTOR FLA.

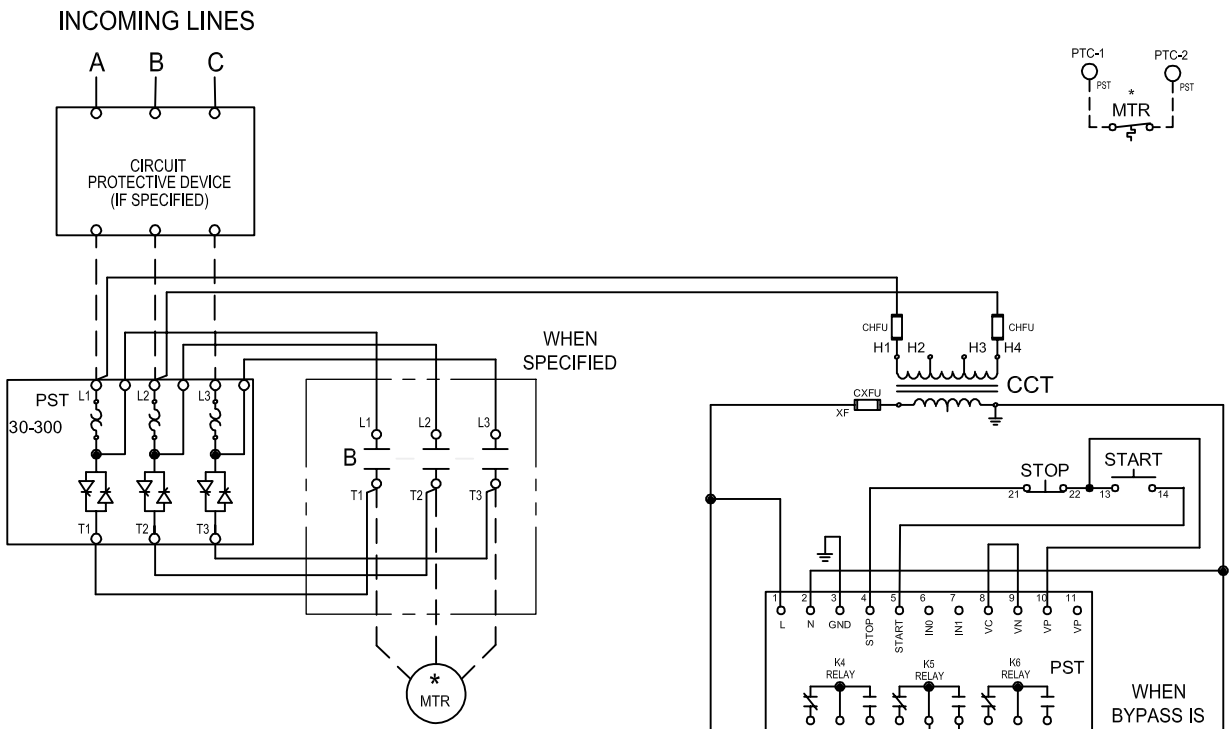
NOTES
1. ALL CONTROL WIRING TO BE 14 GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE ON CONTACTOR COILS:

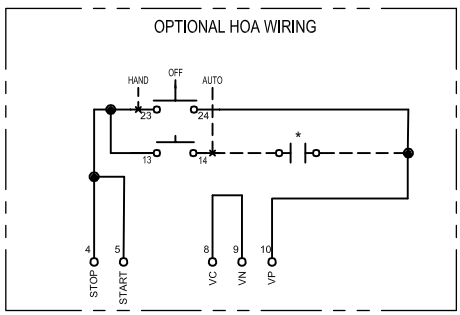
RED-ALL AC VOLTAGES
WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

BLUE-ALL DC VOLTAGES

2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

Circuit diagrams
PST30 – PST300
In-Line





CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

PST NOTES:
1. PROG. INPUT In0 FACTORY SET FOR RESET FAULT/OL.
2. PROG. RELAY K4 FACTORY SET FOR RUN.
3. PROG. RELAY K5 FACTORY SET FOR AT SPEED.
4. PROG. RELAY K6 FACTORY SET FOR EVENT.
5. FUNCTION MOT 1 Ie MUST BE SET TO MOTOR FLA.

LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
∅	CONNECTION POINT AT TERMINAL BLOCK

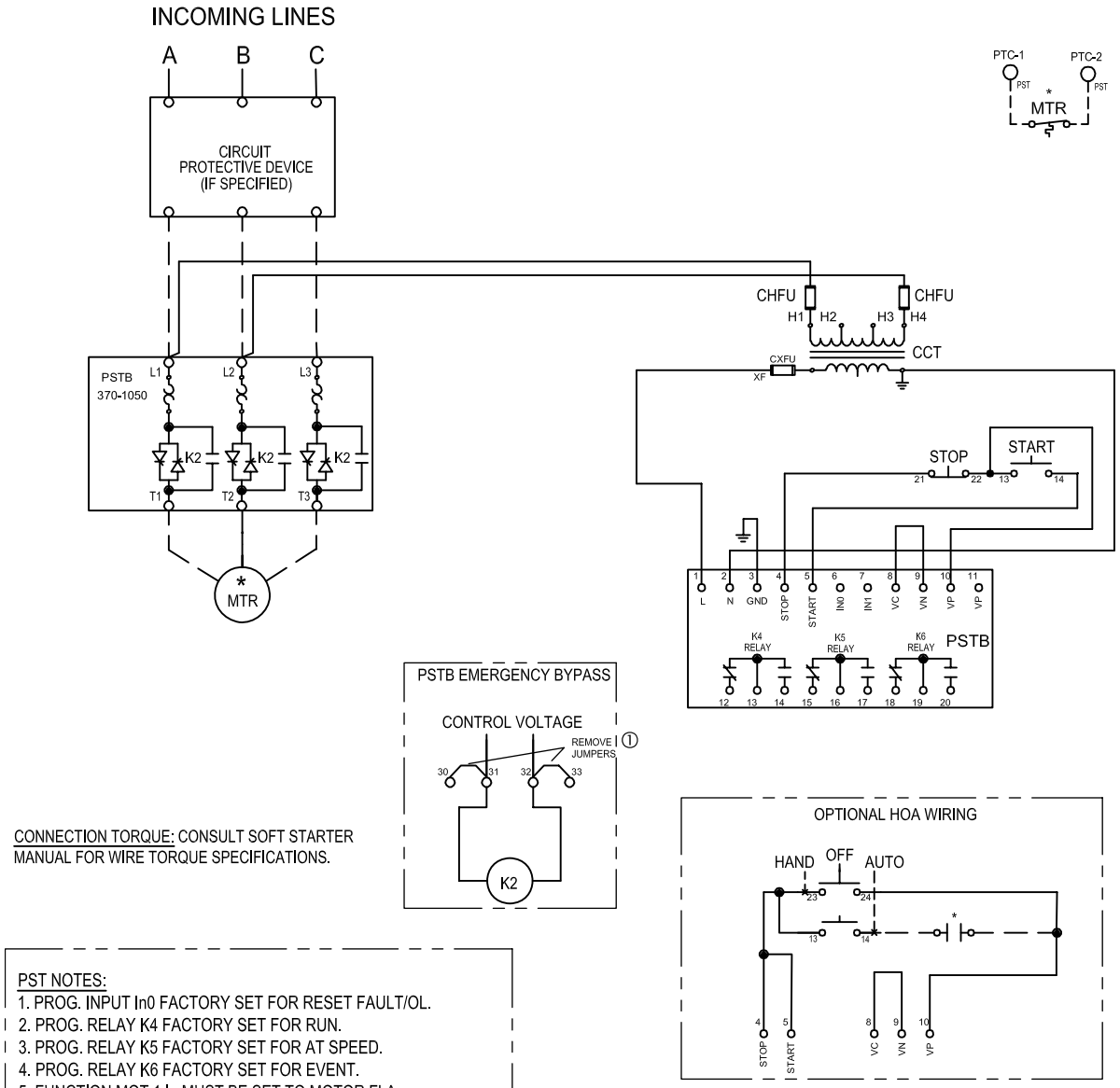
NOTES
1. ALL CONTROL WIRING TO BE 14 GA. COLOR OF CONTROL WIRE SHALL BE PER VOLTAGE ON CONTACTOR COILS:

   RED-ALL AC VOLTAGES
   WHITE MAY BE USED ON THE GROUNDED SIDE OF THE AC CIRCUIT IF SPECIFIED.

   BLUE-ALL DC VOLTAGES

2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

Circuit diagrams
PSTB370 – PSTB1050
In-Line



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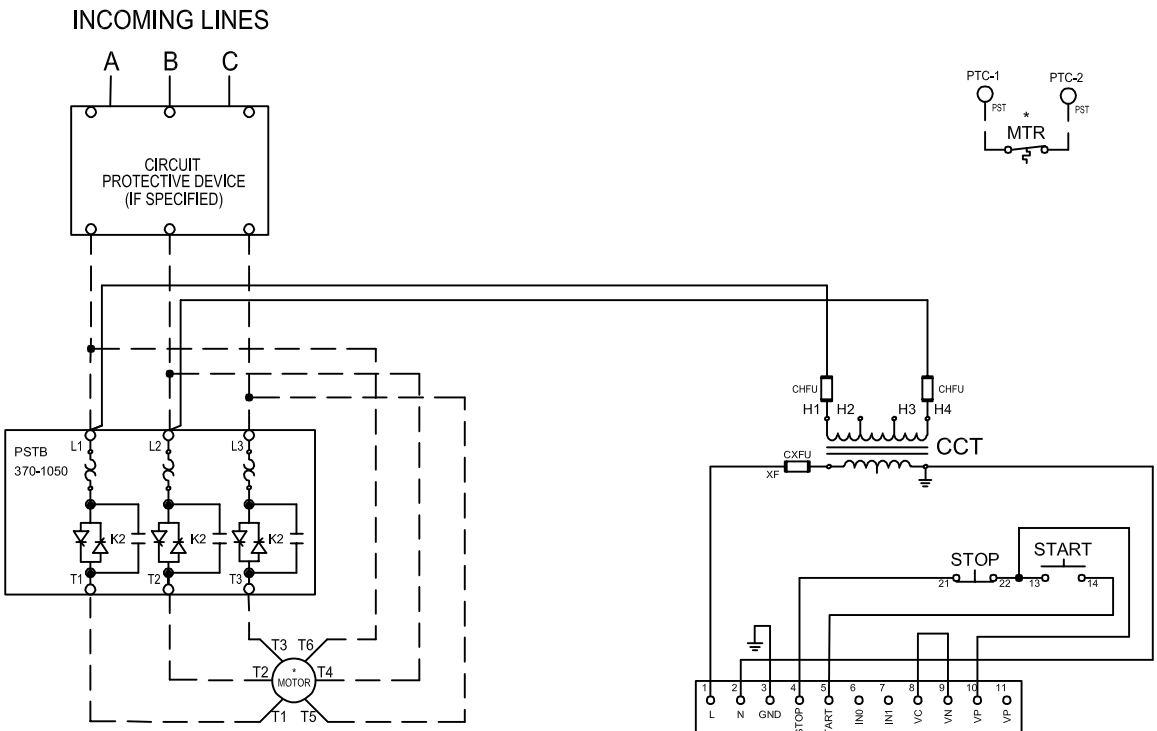
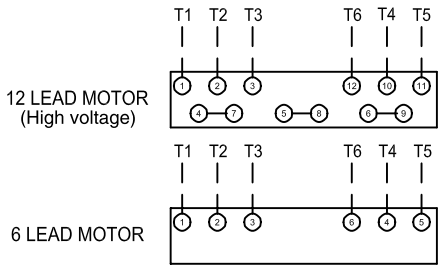
① See page 5.35 for across the line rated (AC3) contactor ratings..

Circuit diagrams
PSTB370 – PSTB1050
Inside Delta

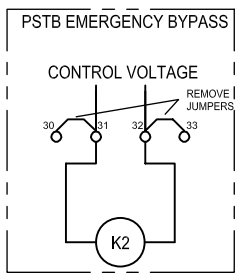


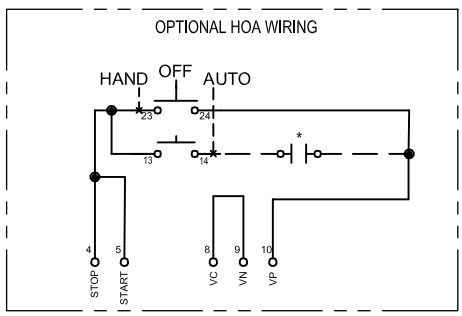
MOTOR MARKINGS ARE AS DEFINED BY NEMA MG1-2.62 FOR 12 LEAD WYE START, DELTA RUN MOTOR CONNECTIONS. ALWAYS CONFIRM CORRECT LEAD MARKINGS WITH NAMEPLATE DIAGRAMS.



CONNECTION TORQUE: CONSULT SOFT STARTER MANUAL FOR WIRE TORQUE SPECIFICATIONS.

LEGEND	
CCT	CONTROL CIRCUIT TRANSFORMER
CHFU	CCT PRIMARY FUSE
CXFU	CCT SECONDARY FUSE
B	BYPASS CONTACTOR
PTC	THERMAL COUPLE
o 13	CONN POINT ON DEVICE WITH NUMBER
*	REMOTE DEVICE
∅	CONNECTION POINT AT TERMINAL BLOCK





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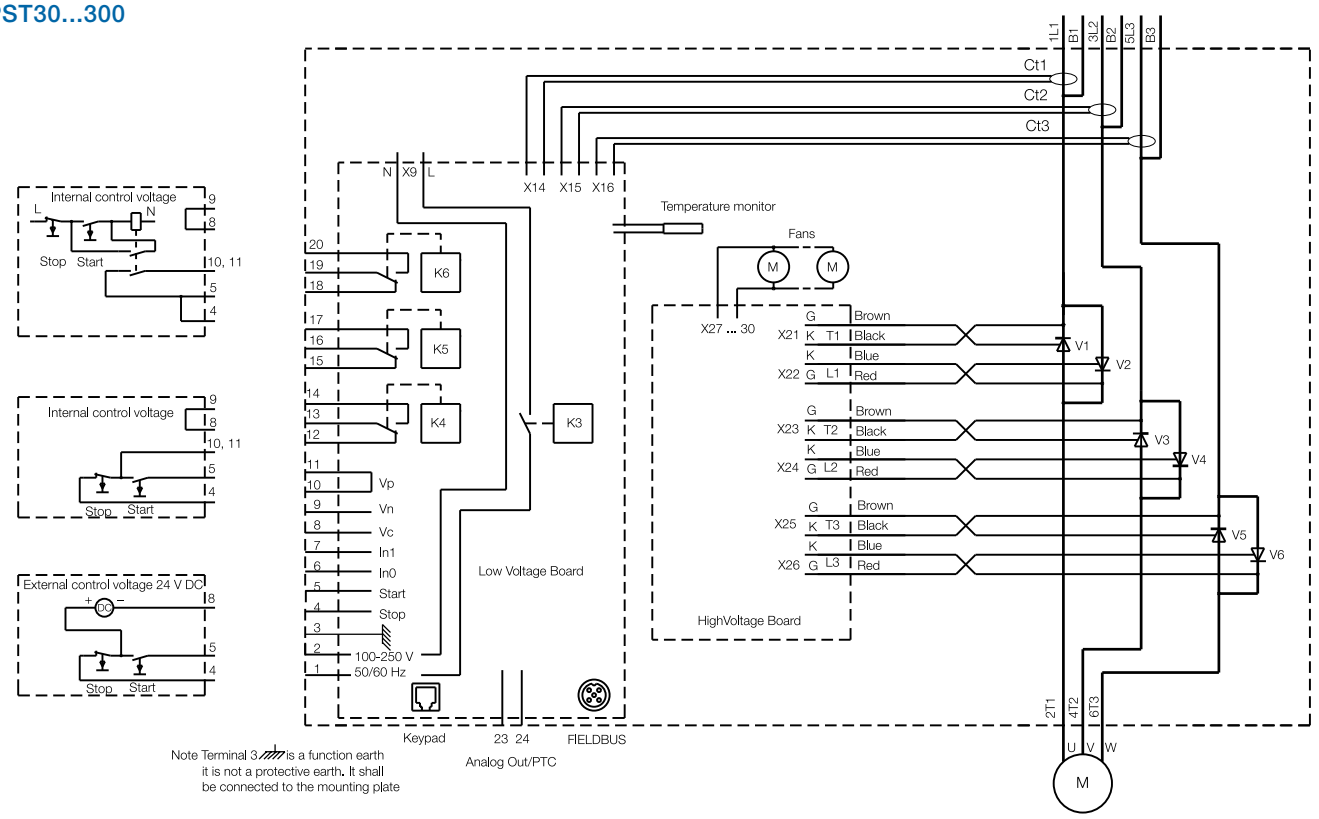
2. ALL DEVICES ARE SHOWN DE-ENERGIZED.
3. DO NOT USE SELECTOR SWITCHES WITH AUTO-RESET OVERLOAD RELAYS.

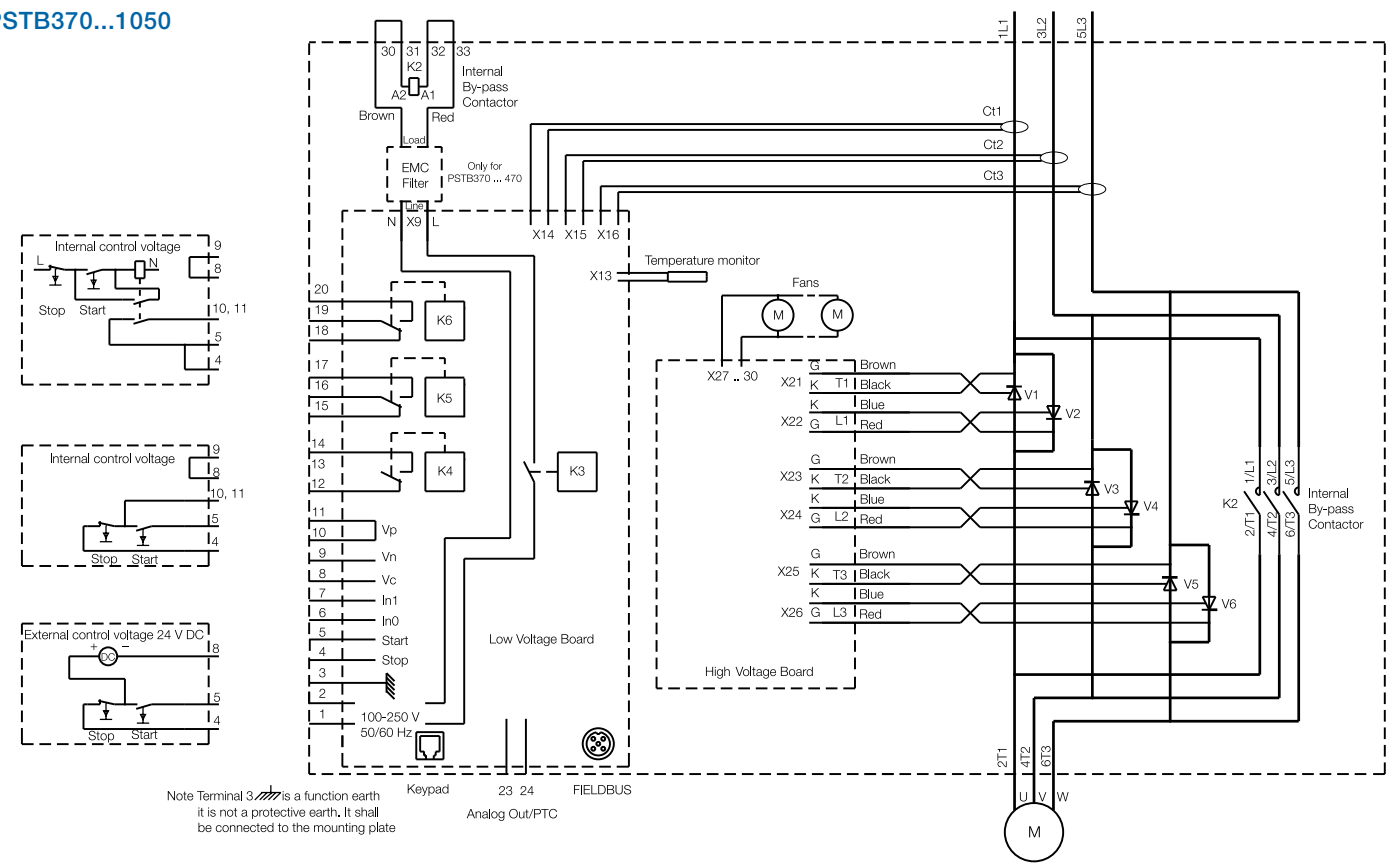
① See page 5.35 for across the line rated (AC3) contactor ratings.

Circuit diagrams
PST and PSTB softstarters

PST30...300



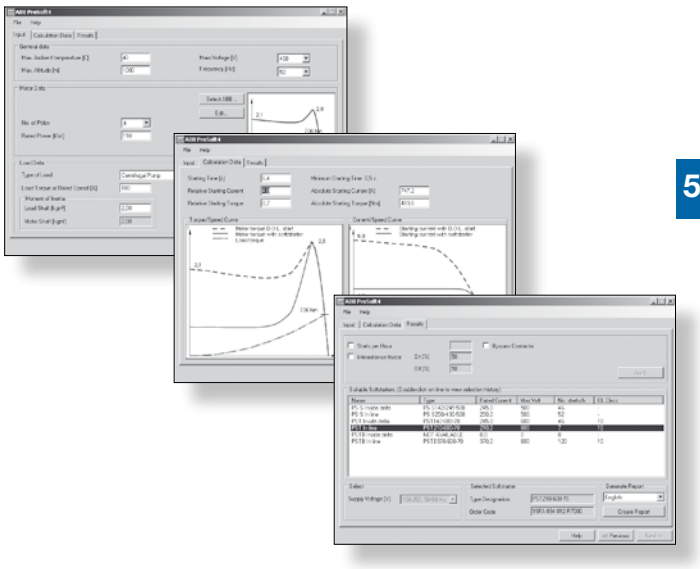
PSTB370...1050



prosoft and marketing material

prosoft5 - Softstarter selection tool

The selection of a softstarter can be done according to this catalog. This will work fine in the majority of cases but by using the softstarter selection tool prosoft, a more optimized selection will be achieved. Especially in extremely heavy duty applications with several minutes starting time, the use of prosoft is recommended.



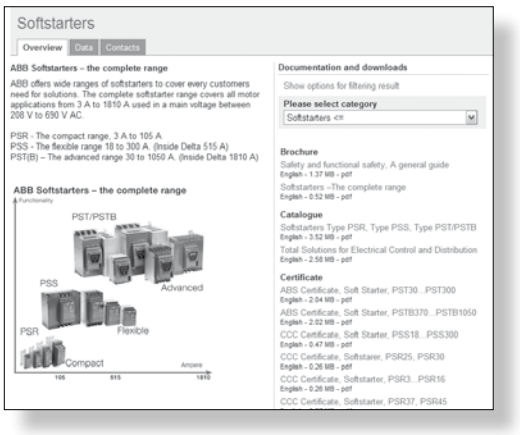
When using prosoft, the selection is done in 3 steps, which can be seen as 3 different tabs in the program:

1. Input tab – Type in the general data and information about the motor and about the load. Try to use as accurate data as possible to get the most accurate results.
2. Calculation tab – Here it is possible to see how long the start will be depending on how high the current is. This tab will indicate which settings should be used and it might affect the selection.
3. The selection tab – Select which of the suggested softstar ters to use. Here it is also possible to generate a report about the selection.

Marketing material available on www.abb.com/lowvoltage

The following material is a selection of all softstarter related material that is available on www.abb.com/lowvoltage. Just click on “Control Products”, then “Softstarters”.

- Product catalogs and brochures
- Certificates and approvals
- Circuit diagrams and application diagrams
- Dimension drawings (2D and 3D)
- Manuals
- eds- and gsd-files for fieldbus connection
- prosoft selection tool



Certifications and approvals

The table below shows the approvals and certifications for different softstarters.

For approvals and/or certificates not listed below, please contact your local ABB sales office.

Certifications and approvals

	Certifications						Approvals: ship classification societies	
Abbreviation Approved in	CE EU	cULus Canada USA	CCC China	GOST Russia	ANCE Mexico	C-tick Australia	ABS American Bureau of Shipping	GL Germany
PSR3 ... PSR105	•	•	•	•	–	•	–	–
PSE18 ... PSE370	•	•	•	•	•	•	–	–
PST30 ... PSTB1050	•	•	•	•	•	•	•	•

• **Standard design approved**, the company labels bear the certification mark when this is required.

Directives and standards

No. 2006/95/EC
No. 2004/108/EC
EN 60947-1
EN 60947-4-2
UL 508
CSA C22.2 No 14

Catalog number explanation
Enclosed

T 100 D F 1 – 48 D M A

Soft starter settings
T – Type PST Enclosed

Horsepower
010 – 10	125 – 125	800 – 800
015 – 15	150 – 150	900 – 900
020 – 20	200 – 200	1000 – 1000
025 – 25	250 – 250	
030 – 30	300 – 300	
040 – 40	350 – 350	
050 – 50	400 – 400	
060 – 60	450 – 450	
075 – 75	500 – 500	
100 – 100	600 – 600	

Connection type
L – Inline

Combination type
No digit – non-combination
F – fusible disconnect
B – thermal magnetic circuit breaker

Enclosure
1 - NEMA/UL Type 1
2 - NEMA/UL Type 12
3 - NEMA/UL Type 3R
4 - NEMA/UL Type 4
X - NEMA/UL Type 4X stainless steel

Line voltage
20: 208V 120V control voltage
24: 240V 120V control voltage
48: 480V 120V control voltage
60: 600V 120V control voltage

Circuit breaker amp ratings
D – 15	M – 70	W – 225	E – 700
E – 20	N – 80	X – 250	F – 800
F – 25	P – 90	Y – 300	G – 900
G – 30	R – 100	Z – 350	H – 1000
H – 35	S – 125	A – 400	J – 1200
J – 40	T – 150	B – 450	K – 1600
K – 50	U – 175	C – 500	
L – 60	V – 200	D – 600	

Fuse clip
A – 30A, 600V, Class J	H – 1200A, 600V, Class L
B – 60A, 600V, Class J	J – 1600A, 600V, Class L
C – 100A, 600V, Class J	K – 2000A, 600V, Class L
D – 200A, 600V, Class J	
E – 400A, 600V, Class J	
F – 600A, 600V, Class J	
G – 800A, 600V, Class L	

Bypass option ①
M – AC1 rated bypass contactor provided as standard

B – AC3 rated bypass contactor with emergency bypass control

For more factory installed options, see pages 5.60 and 5.61.

5

① For more factory installed options, see pages 5.60 and 5.61.

Softstarters Type PST

Enclosed
NEMA 1, 12, Non-combination
In-Line, 5 – 1000 HP

Connected in-line

Max. motor current		Maximum horsepower				NEMA1, 480V	NEMA1, 600V	NEMA12, 480V	NEMA12, 600V
UL	IEC	208V	240V	480V	600V	Catalog number	Catalog number	Catalog number	Catalog number
18	18	5 –	5 –	10 –	– 15	T010L1-48M –	– T015L1-60M	T010L2-48M –	– T015L2-60M
28	30	7.5 –	10 –	20 –	– 25	T020L1-48M –	– T025L1-60M	T020L2-48M –	– T025L2-60M
34	37	10 –	10 –	25 –	– 30	T025L1-48M –	– T030L1-60M	T025L2-48M –	– T030L2-60M
42	44	10 –	15 –	30 –	– 40	T030L1-48M –	– T040L1-60M	T030L2-48M –	– T040L2-60M
54	50	15 –	20 –	40 –	– 50	T040L1-48M –	– T050L1-60M	T040L2-48M –	– T050L2-60M
68	72	20 –	25 –	50 –	– 60	T050L1-48M –	– T060L1-60M	T050L2-48M –	– T060L2-60M
80	85	25 –	30 –	60 –	– 75	T060L1-48M –	– T075L1-60M	T060L2-48M –	– T075L2-60M
104	105	30 –	40 –	75 –	– 100	T075L1-48M –	– T100L1-60M	T075L2-48M –	– T100L2-60M
130	142	40 –	50 –	100 –	– 125	T100L1-48M –	– T125L1-60M	T100L2-48M –	– T125L2-60M
156	175	50	60 –	125 –	– 150	T125L1-48M –	– T150L1-60M	T125L2-48M –	– T150L2-60M
192	210	60 –	75 –	150 –	– 200	T150L1-48M –	– T200L1-60M	T150L2-48M –	– T200L2-60M
248	250	75 –	100	200 –	– 250	T200L1-48M –	– T250L1-60M	T200L2-48M –	– T250L2-60M
302	300	100 –	100	250 –	– 300	T250L1-48M –	– T300L1-60M	T250L2-48M –	– T300L2-60M
361	370	125 –	150	300 –	– 350	T300L1-48M① –	– T350L1-60M①	T300L2-48M① –	– T350L2-60M①
414	400	– –	– –	350 –	– 400	T350L1-48M① –	– T400L1-60M①	T350L2-48M① –	– T400L2-60M①
480	470	150 –	200 –	400 –	– 500	T400L1-48M① –	– T500L1-60M①	T400L2-48M① –	– T500L2-60M①
590	570	200 –	250 –	500 –	– 600	T500L1-48M① –	– T600L1-60M①	T500L2-48M① –	– T600L2-60M①
720	720	250 –	300 –	600 –	– 700	T600L1-48M① –	– T700L1-60M①	T600L2-48M① –	– T700L2-60M①
840	840	300 –	350 –	700 –	– 800	T700L1-48M① –	– T800L1-60M①	T700L2-48M① –	– T800L2-60M①
960	–	350 –	400 –	800 –	– 900	T800L1-48M① –	– T900L1-60M①	T800L2-48M① –	– T900L2-60M①
1062	1050	400 –	450 –	900 –	– 1000	T900L1-48M① –	– T1000L1-60M①	T900L2-48M① –	– T1000L2-60M①

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.60.

Enclosed
NEMA 1, Combination
In-Line, 5 – 1000 HP

Connected in-line

Max. motor current		Maximum horsepower				NEMA1, 480V Circuit breaker	NEMA1, 600V Circuit breaker	NEMA1, 480V Fused disconnect	NEMA1, 600V Fused disconnect
UL	IEC	208V	240V	480V	600V	Catalog number	Catalog number	Catalog number	Catalog number
18	18	5 —	5 —	10 —	— 15	T010LB1-48EM —	— T015LB1-60EM	T010LF1-48AM —	— T015LF1-60AM
28	30	7.5 —	10 —	20 —	— 25	T020LB1-48JM —	— T025LB1-60JM	T020LF1-48BM —	— T025LF1-60BM
34	37	10 —	10 —	25 —	— 30	T025LB1-48KM —	— T030LB1-60KM	T025LF1-48BM —	— T030LF1-60BM
42	44	10 —	15 —	30 —	— 40	T030LB1-48LM —	— T040LB1-60LM	T030LF1-48CM —	— T040LF1-60CM
54	50	15 —	20 —	40 —	— 50	T040LB1-48NM —	— T050LB1-60NM	T040LF1-48CM —	— T050LF1-60CM
68	72	20 —	25 —	50 —	— 60	T050LB1-48RM —	— T060LB1-60RM	T050LF1-48CM —	— T060LF1-60CM
80	85	25 —	30 —	60 —	— 75	T060LB1-48SM —	— T075LB1-60SM	T060LF1-48DM —	— T075LF1-60DM
104	105	30 —	40 —	75 —	— 100	T075LB1-48TM —	— T100LB1-60TM	T075LF1-48DM —	— T100LF1-60DM
130	142	40 —	50 —	100 —	— 125	T100LB1-48VM —	— T125LB1-60VM	T100LF1-48DM —	— T125LF1-60DM
156	175	50	60 —	125 —	— 150	T125LB1-48XM —	— T150LB1-60XM	T125LF1-48EM —	— T150LF1-60EM
192	210	60 —	75 —	150 —	— 200	T150LB1-48YM —	— T200LB1-60YM	T150LF1-48EM —	— T200LF1-60EM
248	250	75 —	100	200 —	— 250	T200LB1-48AM —	— T250LB1-60ZM	T200LF1-48EM —	— T250LF1-60EM
302	300	100 —	100	250 —	— 300	T250LB1-48BM —	— T300LB1-60BM	T250LF1-48FM —	— T300LF1-60FM
361	370	125 —	150	300 —	— 350	T300LB1-48DM① —	— T350LB1-60CM①	T300LF1-48FM① —	— T350LF1-60FM①
414	400	— —	— —	350 —	— 400	T350LB1-48EM① —	— T400LB1-60DM①	T350LF1-48FM① —	— T400LF1-60FM①
480	470	150 —	200 —	400 —	— 500	T400LB1-48FM① —	— T500LB1-60EM①	T400LF1-48GM① —	— T500LF1-60GM①
590	570	200 —	250 —	500 —	— 600	T500LB1-48GM① —	— T600LB1-60GM①	T500LF1-48HM① —	— T600LF1-60H①
720	720	250 —	300 —	600 —	— 700	T600LB1-48JM① —	— T700LB1-60JM①	T600LF1-48HM① —	— 700LF1-60H①
840	840	300 —	350 —	700 —	— 800	T700LB1-48KM① —	— T800LB1-60JM①	T700LF1-48JM① —	— T800LF1-60J①
960	—	350 —	400 —	800 —	— 900	T800LB1-48KM① —	— T900LB1-60KM①	T800LF1-48JM① —	— T900LF1-60J①
1062	1050	400 —	450 —	900 —	— 1000	T900LB1-48KM① —	— T1000LB1-60KM①	T900LF1-48KM① —	— T1000LF1-60K①

① Includes integrated shunt rated (AC1) bypass contactor as standard. For across the line rated (AC3) bypass contactors, see page 5.60.

Factory installed options

Item	Suffix code ①
Softstarters	
Door mounted reset	K
E-Stop	T
Start-stop pushbutton	A
2 position selector switch	C
3 position selector switch	D
Pilot light run	E
Start-stop pushbutton & pilot light	F
2 position selector switch & pilot light	H
3 position selector switch & pilot light	J
Isolation contactor	W
Across the line rated (AC3) contactor with emergency bypass control ②	B
Remote keypad	R
Service entrance, 3-wire	SE3
Service entrance, 4-wire	SE4
Lightning arrestor	LA
Space heater, 100W with thermostat	SH
Auxiliary relays	
Type N control relay (4 pole)	CR
Electronic timer	
1.5 – 30s On Delay	TN30
5 – 100s On Delay	TN100
1.5 – 30s Off Delay	TF30
5 – 100s Off Delay	TF100
Undervoltage relay	UV
Overvoltage relay	OV
Ground fault protection	GFP

Item	Suffix code ①
Meters & metering	
Current transformer	CT
Ammeter (including C.T.)	AM
Ammeter & ammeter switch	AMS
Voltmeter	VM
Voltmeter & voltmeter switch	VMS
Elapsed time meter	ETM
Operation counter	OC
Wattmeter	WM
Additional auxiliary contact blocks for bypass or isolation contactors	
1 N.O. & 1 N.C.	11
2 N.O. & 2 N.C.	22
3 N.O. & 3 N.C.	33

① Add the suffix code after the last digit of the catalog number.
② Control includes panel mounted Norm/E-Bypass switch, START/STOP pushbutton & Class 10 external overload, unless otherwise specified.

1SXU000023C0202 Rev. A

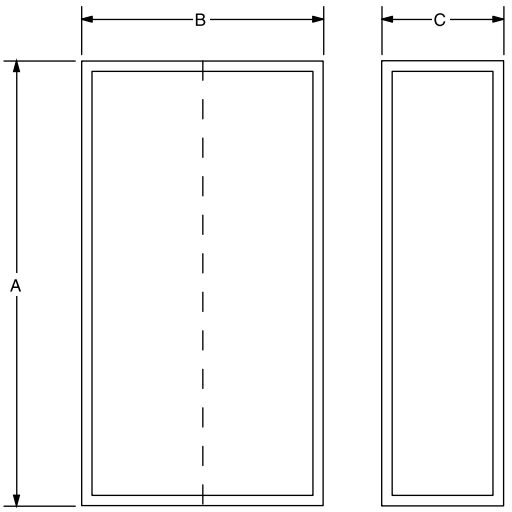
Spec Tech Industrial Electric www.spectechind.com 888-773-2832

Horsepower to PST Softstarter cross-reference
Enclosed

Maximum horsepower in-line

208V	240V	480V	600V	PST Type
5 —	5 —	10 —	— 15	PST30
7.5 —	10 —	20 —	— 25	PST30
10 —	10 —	25 —	— 30	PST37
10 —	15 —	30 —	— 40	PST44
15 —	20 —	40 —	— 50	PST50
20 —	25 —	50 —	— 60	PST72
25 —	30 —	60 —	— 75	PST85
30 —	40 —	75 —	— 100	PST105
40 —	50 —	100 —	— 125	PST142
50 —	60 —	125 —	— 150	PST175
60 —	75 —	150 —	— 200	PST210
75 —	100 —	200 —	— 250	PST250
100 —	100 —	250 —	— 300	PST300
125 —	150 —	300 —	— 350	PSTB370
— —	— —	350 —	— 400	PSTB470
150 —	200 —	400 —	— 500	PSTB470
200 —	250 —	500 —	— 600	PSTB570
250 —	300 —	600 —	— 700	PSTB720
300 —	350 —	700 —	— 800	PSTB840
350 —	400 —	800 —	— 900	PSTB1050
400 —	450 —	900 —	— 1000	PSTB1050

Approximate dimensions
Enclosed
208V – 600V



Enclosed, 208V – 600V

Combination	In-Line A	B	C
PST30 – PST72			
Softstarter only	20	20	12
Softstarter with bypass	20	20	12
Softstarter with fused disconnect	20	20	12
Softstarter with circuit breaker	20	20	12
PST85 – PST142			
Softstarter only	24	20	12
Softstarter with bypass	24	20	12
Softstarter with fused disconnect	30	30	12
Softstarter with circuit breaker	24	24	12
PST175 – PST300			
Softstarter only	30	30	12
Softstarter with bypass	30	30	12
Softstarter with fused disconnect	36	36	12
Softstarter with circuit breaker	36	36	12

Combination	In-Line A	B	C
PSTB370 – PSTB470			
Softstarter with bypass, internal	48	36	16
Softstarter with fused disconnect	48	36	16
Softstarter with circuit breaker	48	36	16
PSTB570 – PSTB720			
Softstarter with bypass, internal	48	36	16
Softstarter with fused disconnect	87	36	24
Softstarter with circuit breaker	87	36	24
PSTB840 – PSTB1050			
Softstarter with bypass, internal	87	36	24
Softstarter with fused disconnect	87	48	24
Softstarter with circuit breaker	87	48	24

PST Softstarter
Extreme duty

PST Extreme duty
Softstarters

General information

Designed for high inertia load applications, such as rock crushers, mixers, hammer mills and chippers, the ABB PST Extreme Duty enclosed softstarters provides reliable reduced voltage starting. The PST Extreme Duty softstarter package provides the best of ABB's wide range of industrial control products integrated with the PST softstarter, packaged in a weatherproof (NEMA/UL Type 4) enclosure.

What's included:

Short circuit protection

To handle the role of short-circuit protection and disconnect, the PST Extreme Duty series uses the T-Max molded case circuit breakers (MCCB's).

Emergency start bypass

For routine bypass or starting in event of an emergency, the PST Extreme series relies on the AF contactor series. The AF series contactors are designed for reliable performance under the most adverse conditions. All AF contactors feature a wide voltage range electronic coil. In addition to extremely low pull-in and holding power requirement, the low (55%) dropout voltage prevents damaging chattering and insures consistent operation in poor power quality conditions.

Redundant electronic overload

Every PST softstarter features an adjustable electronic overload. The PST Extreme Series softstarters (50HP and larger) go one step further and come equipped with an ABB adjustable electronic overloads. Used only in the event of emergency bypass operation, these overload feature four classes of trip curves to insure the motor protection level matches the application demands.

The PST Softstarter

Designed for heavy-duty use and performance the ABB PST is optimized for extreme duty. While most softstarters offer voltage ramp starting, the PST series does more. By using closed loop current control in addition to voltage ramping the PST helps get every bit of performance from even weak power systems. Built and tested to provide 500% rated current for 30 seconds, using the PST means that typical applications can be sized based on Motor HP without resorting to complex, application based de-rate tables.

The often overlooked details

Overlooked little things can lead to big problems and so the PST Extreme Series pays attention to the details. Besides the major components every PST extreme series enclosed softstarter ships with:

- A UL 508A label
- A UL service entrance rating
- A door mounted ABB hand-off-auto switch (NEMA/UL Type 4)
- Three (3) vibration resistant, LED type pilot lights (NEMA/UL Type 4)
- A door interlocked disconnect handle (NEMA/UL Type 4)
- Padlockable and defeatable

Softstarters
Extreme duty

480 & 240 V Extreme duty softstarters

480 V

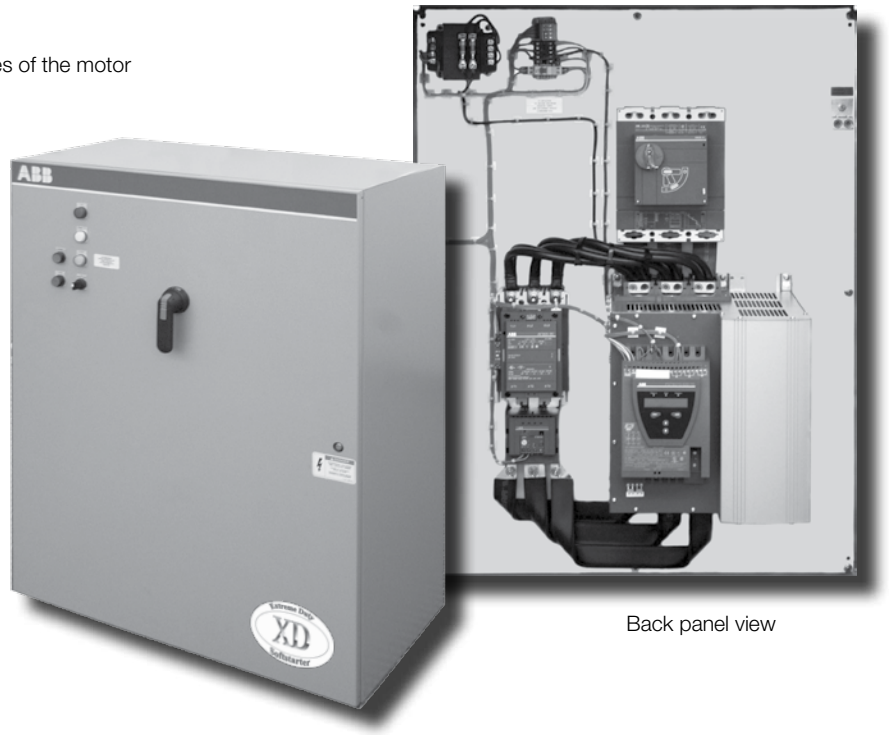
HP @ 480VAC	Enclosure size H x W x D	SCCR ratings @ 600V	Weight	Catalog number
50	24x24x12	10kA	35	T050LB4-48/XD
75	24x24x12	10kA	50	T075LB4-48/XD
100	36x36x12	18kA	65	T100LB4-48/XD
125	36x36x12	18kA	80	T125LB4-48/XD
150	36x36x12	18kA	95	T150LB4-48/XD
200	36x36x12	18kA	170	T200LB4-48/XD
250	48x36x16	18kA	180	T250LB4-48/XD
300	48x36x16	30kA	300	T300LB4-48/XD
400 ①	60x36x16	30kA	450	T400LB4-48/XD
500 ①	60x36x16	42kA	570	T500LB4-48/XD
600 ①	72x37x24	42kA	630	T600LB4-48/XD

240 V

HP @ 240VAC	Enclosure size H x W x D	SCCR ratings @ 600V	Weight	Catalog number
25	24x24x12	10kA	35	T025LB4-24/XD
30	24x24x12	10kA	50	T030LB4-24/XD
40	24x24x12	10kA	65	T040LB4-24/XD
50	36x36x12	18kA	80	T050LB4-24/XD
60	36x36x12	18kA	95	T060LB4-24/XD
75	36x36x12	18kA	170	T075LB4-24/XD
100	36x36x12	18kA	180	T100LB4-24/XD
150	48x36x16	18kA	300	T150LB4-24/XD
200 ①	60x36x16	30kA	450	T200LB4-24/XD
250 ①	60x36x16	30kA	570	T250LB4-24/XD
300 ①	72x37x24	42kA	630	T300LB4-24/XD

Features

- Softstarter is one size larger than required full load amperes of the motor to get additional starting capacity (Extreme Duty).
- Short circuit protection
- Redundant electronic overload
- Emergency start bypass
- Torque control
- A door interlocked disconnect handle (NEMA/UL Type 4) -Padlockable/Defeatable
- Door mounted ABB Hand-OFF-Auto switch (NEMA/UL Type 4)
- Three (3) vibration resistant, LED type pilot lights (NEMA/UL Type 4)
- Pilot lights indicate the following: Power On, RUN and Bypass.
- A UL 508A Label
- Suitable for service entrance 3 wire
- (NEMA/UL Type 4) enclosure



250 HP
unit shown

Back panel view

① Larger horsepower units will include floor mounting kit.