

PST(B) – The advanced range

Description



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)
- 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 $1.5 - 7 \times I_n$
- 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

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.

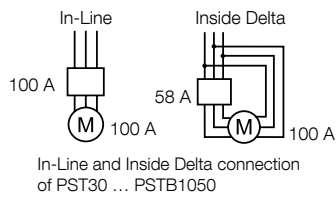
External keypad

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.

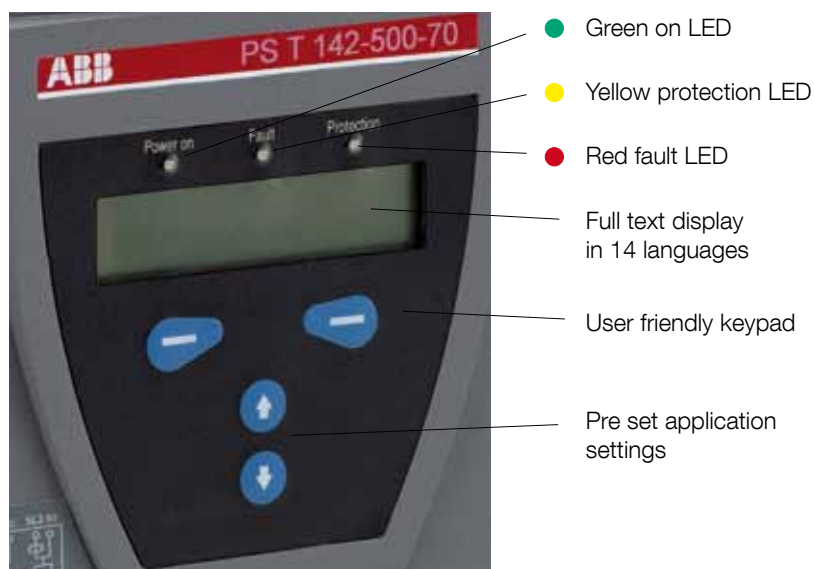
PST(B) – The advanced range

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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 40 – 41, For heavy duty applications like centrifugal fans, crushers, mixers, mills, stirrers and long conveyor belts, select a softstarter from page 42 – 43.



Settings



External keypad with same design as the fixed HMI

PST(B) – The advanced range

Overview



PST30 ... PST72

PST85 ... PST142

Normal start
In-Line connected

(400 V) kW

IEC, Max. A

(440-480 V) hp

UL, Max FLA

Softstarter. Type

	PST30	PST37	PST44	PST50	PST60	PST72	PST85	PST105	PST142
(400 V) kW	15	18.5	22	25	30	37	45	55	75
IEC, Max. A	30	37	44	50	60	72	85	105	142
(440-480 V) hp	20	25	30	40	40	50	60	75	100
UL, Max FLA	28	34	42	54	60	68	80	104	130

400 V, 40 °C

Using MCCB only, type 1 coordination will be achieved.

MCCB (50kA), type

	T2S160						T3S250		
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To achieve a type 2 coordination, semi-conductor fuses must be used.

Fuse protection (65kA), Semiconductor fuses, Bussmann, type

	170M1566	170M1568	170M1569	170M1570	170M1571	170M1572	170M3819	170M5809
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Suitable switch fuse for recommended semi-conductor fuses.

Switch fuse, type

	OS32GD03P	OS63GD03P			OS125GD03P		OS250D03P	OS400D03P
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The line contactor is not required for the softstarter itself but often used to open if OL trips

Line contactor, type

	AF30	AF38	A50	A63	A75	A95	A110	A145
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Overload protection is used to protect the motor from over heating

Electronic overload relay

	Built-in							
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The by-pass contactor will reduce the power loss of the softstarter. All softstarters can be operated without by-pass

By-pass contactor, type

	AF16	AF26	AF30	A40	A50	A63	A95
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A50 ... A300 might be replaced by AF50 ... AF300.

The table above is an overview of possible combinations of devices.

Complete coordination tables are available at www.abb.com/lowvoltage

PST(B) – The advanced range

Overview



PST175 ... PST300

PSTB370 ... PSTB470

PSTB570 ... PSTB1050

Normal start
In-Line connected

(400 V) kW
IEC, Max. A
(440-480 V) hp
UL, Max FLA

Softstarter, Type

PST175	PST210	PST250	PST300	PSTB370	PSTB470	PSTB570	PSTB720	PSTB840	PSTB1050
90	110	132	160	200	250	315	400	450	560
175	210	250	300	370	470	570	720	840	1050
125	150	200	250	300	400	500	600	700	900
156	192	248	302	361	480	590	720	840	1062

400 V, 40 °C

Using MCCB only, type 1 coordination will be achieved.

MCCB (50kA), type

T4S250	T5S400	T5S630	T6S630	T6S800	T7S1250	T7S1600

To achieve a type 2 coordination, semi-conductor fuses must be used.

Fuse protection (65kA), Semiconductor fuses, Bussmann, type

170M5810	170M5812	170M5813	170M6813	170M5813	170M6813	170M8554	170M6018	170M6020 ²⁾

Suitable switch fuse for recommended semi-conductor fuses.

Switch fuse, type

OS400D03P	OS630D03P	OS400D03P	OS630D03P	OS800D03P	1)

The line contactor is not required for the softstarter itself but often used to open if OL trips

Line contactor, type

A185	A210	A260	A300	AF400	AF580	AF750	AF1350	AF1650

Overload protection is used to protect the motor from over heating

Electronic overload relay, type

Built-in

The by-pass contactor will reduce the power loss of the softstarter. All softstarters can be operated without by-pass

By-pass contactor, type

A145	A210	Built-in

1) Switch fuse not available. Use Bussmann fuse base 170H3004
2) PSTB1050-690-70 has 170M6019

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 the softstarter selection tool available at www.abb.com/lowvoltage

Quick guide for selection

Normal start Class 10	Heavy duty start class 30
Ordering - see page 40 - 41	Ordering - see page 42 - 43
Typical applications	
<ul style="list-style-type: none"> • Bow thruster • Compressor • Elevator 	<ul style="list-style-type: none"> • Centrifugal pump • Conveyor belt (short) • Escalator • Centrifugal fan • Crusher • Mixer • Conveyor belt (long) • Mill • Stirrer
<p>! If more than 10 starts/h Select one size larger than the standard selection</p>	

PST(B) – The advanced range

Normal starts, class 10, In-Line, ordering details



PST30 ... PSTB1050

Rated operational voltage U_e , 208 - 600 V

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

Motor power

400 V P_e kW	500 V P_e kW	690 V P_e kW	IEC Max rated operational current I_e A	Type*)	Order code**)	Weight kg 1 piece
15	18.5	-	30	PST30-600-70□	1SFA894 002 R70▽	4.80
18.5	22	-	37	PST37-600-70□	1SFA894 003 R70▽	4.80
22	25	-	44	PST44-600-70□	1SFA894 004 R70▽	4.80
25	30	-	50	PST50-600-70□	1SFA894 005 R70▽	4.80
30	37	-	60	PST60-600-70□	1SFA894 006 R70▽	5.00
37	45	-	72	PST72-600-70□	1SFA894 007 R70▽	5.00
45	55	-	85	PST85-600-70□	1SFA894 008 R70▽	11.20
55	75	-	105	PST105-600-70□	1SFA894 009 R70▽	13.00
75	90	-	142	PST142-600-70□	1SFA894 010 R70▽	13.00
90	110	-	175	PST175-600-70□	1SFA894 011 R70▽	21.50
110	132	-	210	PST210-600-70□	1SFA894 012 R70▽	21.50
132	160	-	250	PST250-600-70□	1SFA894 013 R70▽	23.00
160	200	-	300	PST300-600-70□	1SFA894 014 R70▽	23.00
200	257	-	370	PSTB370-600-70□	1SFA894 015 R70▽	31.00
250	315	-	470	PSTB470-600-70□	1SFA894 016 R70▽	31.00
315	400	-	570	PSTB570-600-70□	1SFA894 017 R70▽	52.00
400	500	-	720	PSTB720-600-70□	1SFA894 018 R70▽	55.00
450	600	-	840	PSTB840-600-70□	1SFA894 019 R70▽	60.00
560	730	-	1050	PSTB1050-600-70□	1SFA894 020 R70▽	60.00

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	30	PST30-690-70□	1SFA895 002 R70▽	4.80
18.5	22	30	37	PST37-690-70□	1SFA895 003 R70▽	4.80
22	25	37	44	PST44-690-70□	1SFA895 004 R70▽	4.80
25	30	45	50	PST50-690-70□	1SFA895 005 R70▽	4.80
30	37	55	60	PST60-690-70□	1SFA895 006 R70▽	5.00
37	45	59	72	PST72-690-70□	1SFA895 007 R70▽	5.00
45	55	75	85	PST85-690-70□	1SFA895 008 R70▽	11.20
55	75	90	105	PST105-690-70□	1SFA895 009 R70▽	13.00
75	90	132	142	PST142-690-70□	1SFA895 010 R70▽	13.00
90	110	160	175	PST175-690-70□	1SFA895 011 R70▽	21.50
110	132	184	210	PST210-690-70□	1SFA895 012 R70▽	21.50
132	160	220	250	PST250-690-70□	1SFA895 013 R70▽	23.00
160	200	257	300	PST300-690-70□	1SFA895 014 R70▽	23.00
200	257	355	370	PSTB370-690-70□	1SFA895 015 R70▽	31.00
250	315	450	470	PSTB470-690-70□	1SFA895 016 R70▽	31.00
315	400	560	570	PSTB570-690-70□	1SFA895 017 R70▽	52.00
400	500	710	720	PSTB720-690-70□	1SFA895 018 R70▽	55.00
450	600	800	840	PSTB840-690-70□	1SFA895 019 R70▽	60.00
560	730	1000	1050	PSTB1050-690-70□	1SFA895 020 R70▽	60.00

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

**) Add code number in Order code acc. to below:
 ▽ 0 = Normal
 2 = Coated PCBs



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



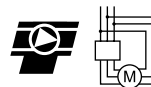
PSTB370 ... PSTB470



PSTB570 ... PSTB1050

PST(B) – The advanced range

Normal starts, class 10, Inside Delta, ordering details



PST30...PSTB1050

Rated operational voltage U_e , 208 - 600 V

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

Motor power



PST30 ... PST72

1SFC132305F0001



PST85 ... PST142

1SFC132306F0001



PST175 ... PST300

1SFC132307F0001



PSTB370 ... PSTB470

1SFC132308F0001



PSTB570 ... PSTB1050

1SFC132309F0001

400 V P kW	500 V P kW	690 V P kW	IEC Max rated operational current I_e A	Type ^{*)}	Order code ^{**)}	Weight kg 1 piece
25	30	-	52	PST30-600-70□	1SFA894 002 R70▽0	4.80
30	37	-	64	PST37-600-70□	1SFA894 003 R70▽0	4.80
37	45	-	76	PST44-600-70□	1SFA894 004 R70▽0	4.80
45	55	-	85	PST50-600-70□	1SFA894 005 R70▽0	4.80
55	75	-	105	PST60-600-70□	1SFA894 006 R70▽0	5.00
59	80	-	124	PST72-600-70□	1SFA894 007 R70▽0	5.00
75	90	-	147	PST85-600-70□	1SFA894 008 R70▽0	11.20
90	110	-	181	PST105-600-70□	1SFA894 009 R70▽0	13.00
132	160	-	245	PST142-600-70□	1SFA894 010 R70▽0	13.00
160	200	-	300	PST175-600-70□	1SFA894 011 R70▽0	21.50
184	250	-	360	PST210-600-70□	1SFA894 012 R70▽0	21.50
220	295	-	430	PST250-600-70□	1SFA894 013 R70▽0	23.00
257	355	-	515	PST300-600-70□	1SFA894 014 R70▽0	23.00
355	450	-	640	PSTB370-600-70□	1SFA894 015 R70▽0	31.00
450	600	-	814	PSTB470-600-70□	1SFA894 016 R70▽0	31.00
540	700	-	987	PSTB570-600-70□	1SFA894 017 R70▽0	52.00
710	880	-	1247	PSTB720-600-70□	1SFA894 018 R70▽0	55.00
800	1000	-	1455	PSTB840-600-70□	1SFA894 019 R70▽0	60.00
1000	1250	-	1810	PSTB1050-600-70□	1SFA894 020 R70▽0	60.00

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	52	PST30-690-70□	1SFA895 002 R70▽0	4.80
30	37	55	64	PST37-690-70□	1SFA895 003 R70▽0	4.80
37	45	59	76	PST44-690-70□	1SFA895 004 R70▽0	4.80
45	55	75	85	PST50-690-70□	1SFA895 005 R70▽0	4.80
55	75	90	105	PST60-690-70□	1SFA895 006 R70▽0	5.00
59	80	110	124	PST72-690-70□	1SFA895 007 R70▽0	5.00
75	90	132	147	PST85-690-70□	1SFA895 008 R70▽0	11.20
90	110	160	181	PST105-690-70□	1SFA895 009 R70▽0	13.00
132	160	220	245	PST142-690-70□	1SFA895 010 R70▽0	13.00
160	200	257	300	PST175-690-70□	1SFA895 011 R70▽0	21.50
184	250	315	360	PST210-690-70□	1SFA895 012 R70▽0	21.50
220	295	400	430	PST250-690-70□	1SFA895 013 R70▽0	23.00
257	355	500	515	PST300-690-70□	1SFA895 014 R70▽0	23.00
355	450	600	640	PSTB370-690-70□	1SFA895 015 R70▽0	31.00
450	600	800	814	PSTB470-690-70□	1SFA895 016 R70▽0	31.00
540	700	960	987	PSTB570-690-70□	1SFA895 017 R70▽0	52.00
710	880	1200	1247	PSTB720-690-70□	1SFA895 018 R70▽0	55.00
800	1000	1400	1455	PSTB840-690-70□	1SFA895 019 R70▽0	60.00
1000	1250	1700	1810	PSTB1050-690-70□	1SFA895 020 R70▽0	60.00

^{*)} Add code letter in Type acc. to below:
 □ No code letter = Normal
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^{**)} Add code number in Order code acc. to below:
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 2 = Coated PCBs

PST(B) – The advanced range

Heavy Duty, class 30, In-Line, ordering details



PST30...PSTB1050

Rated operational voltage, U_e , 208 - 600 V

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

Motor power

400 V P kW	500 V P kW	690 V P kW	IEC Max rated operational current I_e A	Type*)	Order code**)	Weight kg 1 piece
11	15	-	22	PST30-600-70□	1SFA894 002 R70▽	4.80
15	18.5	-	30	PST37-600-70□	1SFA894 003 R70▽	4.80
18.5	22	-	37	PST44-600-70□	1SFA894 004 R70▽	4.80
22	25	-	44	PST50-600-70□	1SFA894 005 R70▽	4.80
25	30	-	50	PST60-600-70□	1SFA894 006 R70▽	5.00
30	37	-	60	PST72-600-70□	1SFA894 007 R70▽	5.00
37	45	-	72	PST85-600-70□	1SFA894 008 R70▽	11.20
45	55	-	85	PST105-600-70□	1SFA894 009 R70▽	13.00
55	75	-	105	PST142-600-70□	1SFA894 010 R70▽	13.00
75	90	-	142	PST175-600-70□	1SFA894 011 R70▽	21.50
90	110	-	175	PST210-600-70□	1SFA894 012 R70▽	21.50
110	132	-	210	PST250-600-70□	1SFA894 013 R70▽	23.00
132	160	-	250	PST300-600-70□	1SFA894 014 R70▽	23.00
160	200	-	300	PSTB370-600-70□	1SFA894 015 R70▽	31.00
200	257	-	370	PSTB470-600-70□	1SFA894 016 R70▽	31.00
250	315	-	470	PSTB570-600-70□	1SFA894 017 R70▽	52.00
315	400	-	570	PSTB720-600-70□	1SFA894 018 R70▽	55.00
400	500	-	720	PSTB840-600-70□	1SFA894 019 R70▽	60.00
450	600	-	840	PSTB1050-600-70□	1SFA894 020 R70▽	60.00



PST30 ... PST72

1SFC132305F0001



PST85 ... PST142

1SFC132308F0001



PST175 ... PST300

1SFC132307F0001



PSTB370 ... PSTB470

1SFC132308F0001



PSTB570 ... PSTB1050

1SFC132305F0001

PST30...PSTB1050

Rated operational voltage U_e , 400 - 690 V

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

11	15	18.5	22	PST30-690-70□	1SFA895 002 R70▽	4.80
15	18.5	25	30	PST37-690-70□	1SFA895 003 R70▽	4.80
18.5	22	30	37	PST44-690-70□	1SFA895 004 R70▽	4.80
22	25	37	44	PST50-690-70□	1SFA895 005 R70▽	4.80
25	30	45	50	PST60-690-70□	1SFA895 006 R70▽	5.00
30	37	55	60	PST72-690-70□	1SFA895 007 R70▽	5.00
37	45	59	72	PST85-690-70□	1SFA895 008 R70▽	11.20
45	55	75	85	PST105-690-70□	1SFA895 009 R70▽	13.00
55	75	90	105	PST142-690-70□	1SFA895 010 R70▽	13.00
75	90	132	142	PST175-690-70□	1SFA895 011 R70▽	21.50
90	110	160	175	PST210-690-70□	1SFA895 012 R70▽	21.50
110	132	184	210	PST250-690-70□	1SFA895 013 R70▽	23.00
132	160	220	250	PST300-690-70□	1SFA895 014 R70▽	23.00
160	200	257	300	PSTB370-690-70□	1SFA895 015 R70▽	31.00
200	257	355	370	PSTB470-690-70□	1SFA895 016 R70▽	31.00
250	315	450	470	PSTB570-690-70□	1SFA895 017 R70▽	52.00
315	400	560	570	PSTB720-690-70□	1SFA895 018 R70▽	55.00
400	500	710	720	PSTB840-690-70□	1SFA895 019 R70▽	60.00
450	600	800	840	PSTB1050-690-70□	1SFA895 020 R70▽	60.00

*) Add code letter in Type acc. to below:
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 T = Coated PCBs

**) Add code number in Order code acc. to below:
 ▽ 0 = Normal
 2 = Coated PCBs

PST(B) – The advanced range

Heavy Duty, class 30, Inside Delta, ordering details



PST30...PSTB1050

Rated operational voltage U_o , 208 - 600 V

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

Motor power



PST30 ... PST72



PST85 ... PST142



PST175 ... PST300



PSTB370 ... PSTB470



PSTB570 ... PSTB1050

400 V P_n kW	500 V P_n kW	690 V P_n kW	IEC Max rated operational current I_n A	Type*)	Order code**)	Weight kg 1 piece
18,5	25	-	42	PST30-600-70□	1SFA894 002 R70▽	4,80
25	30	-	52	PST37-600-70□	1SFA894 003 R70▽	4,80
30	37	-	64	PST44-600-70□	1SFA894 004 R70▽	4,80
37	45	-	76	PST50-600-70□	1SFA894 005 R70▽	4,80
45	55	-	85	PST60-600-70□	1SFA894 006 R70▽	5,00
55	75	-	105	PST72-600-70□	1SFA894 007 R70▽	5,00
59	80	-	124	PST85-600-70□	1SFA894 008 R70▽	11,20
75	90	-	147	PST105-600-70□	1SFA894 009 R70▽	13,00
90	110	-	181	PST142-600-70□	1SFA894 010 R70▽	13,00
132	160	-	245	PST175-600-70□	1SFA894 011 R70▽	21,50
160	200	-	300	PST210-600-70□	1SFA894 012 R70▽	21,50
184	250	-	360	PST250-600-70□	1SFA894 013 R70▽	23,00
220	295	-	430	PST300-600-70□	1SFA894 014 R70▽	23,00
257	355	-	515	PSTB370-600-70□	1SFA894 015 R70▽	31,00
355	450	-	640	PSTB470-600-70□	1SFA894 016 R70▽	31,00
450	600	-	814	PSTB570-600-70□	1SFA894 017 R70▽	52,00
540	700	-	987	PSTB720-600-70□	1SFA894 018 R70▽	55,00
710	880	-	1247	PSTB840-600-70□	1SFA894 019 R70▽	60,00
800	1000	-	1455	PSTB1050-600-70□	1SFA894 020 R70▽	60,00

PST30...PSTB1050

Rated operational voltage, U_o , 400 - 690 V

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

18,5	25	37	42	PST30-690-70□	1SFA895 002 R70▽	4,80
25	30	45	52	PST37-690-70□	1SFA895 003 R70▽	4,80
30	37	55	64	PST44-690-70□	1SFA895 004 R70▽	4,80
37	45	59	76	PST50-690-70□	1SFA895 005 R70▽	4,80
45	55	75	85	PST60-690-70□	1SFA895 006 R70▽	5,00
55	75	90	105	PST72-690-70□	1SFA895 007 R70▽	5,00
59	80	110	124	PST85-690-70□	1SFA895 008 R70▽	11,20
75	90	132	147	PST105-690-70□	1SFA895 009 R70▽	13,00
90	110	160	181	PST142-690-70□	1SFA895 010 R70▽	13,00
132	160	220	245	PST175-690-70□	1SFA895 011 R70▽	21,50
160	200	257	300	PST210-690-70□	1SFA895 012 R70▽	21,50
184	250	315	360	PST250-690-70□	1SFA895 013 R70▽	23,00
220	295	400	430	PST300-690-70□	1SFA895 014 R70▽	23,00
257	355	500	515	PSTB370-690-70□	1SFA895 015 R70▽	31,00
355	450	600	640	PSTB470-690-70□	1SFA895 016 R70▽	31,00
450	600	800	814	PSTB570-690-70□	1SFA895 017 R70▽	52,00
540	700	960	987	PSTB720-690-70□	1SFA895 018 R70▽	55,00
710	880	1200	1247	PSTB840-690-70□	1SFA895 019 R70▽	60,00
800	1000	1400	1455	PSTB1050-690-70□	1SFA895 020 R70▽	60,00

*) Add code letter in Type acc. to below:

- No code letter = Normal
- T = Coated PCBs

**) Add code number in Order code acc. to below:

- ▽ 0 = Normal
- 2 = Coated PCBs

PST(B) – The advanced range Accessories

Cable connectors for Cu cables

For PST85...300 you need 9 pieces if also using the terminals B1, B2, B3 for external by-pass contactor.

For softstarter type	Wire range mm ²	Tightening torque max. Nm	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85 ...142	6-185	16	-	1SDA 023 354 R0001	3	0.200
PST85 ...142	2 x (50-120)	16	LZ185-2C/120	1SFN 074 709 R1000	3	0.300
PST175 ...PSTB470	16-240	25	-	1SDA 023 368 R0001	3	0.400

Cable connectors for Al and Cu cables

For PST85...300 you need 9 pieces if also using the terminals B1, B2, B3 for external by-pass contactor.

For softstarter type	Wire range mm ²	Tightening torque max. Nm	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85 ...142	35-95	13.5	-	1SDA 023 356 R0001	3	0.100
PST85 ...142	25-150	31	-	1SDA 023 357 R0001	3	0.100
PST175 ...300	120-240	43	-	1SDA 023 370 R0001	3	0.100
PSTB370 ...1050	3 x (70-185)	43	-	1SDA 023 384 R0001	3	0.265
PSTB370 ...1050	2 x (120-240)	31	-	1SDA 023 380 R0001	3	0.110

Terminal extensions

For softstarter type	Dimensions hole ø mm ²	bar mm	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85...142	8.5	17.5 x 5	LX185 ¹⁾	1SFN 074 710 R1000	1	0.250
PST175...300	10.5	20 x 5	LX300 ²⁾	1SFN 075 110 R1000	1	0.350
PSTB370...470	10.5	25 x 5	LX460	1SFN 075 710 R1000	1	0.500
PSTB570...1050	13	40 x 6	LX750	1SFN 076 110 R1000	1	0.850

Terminal enlargements

For softstarter type	Dimensions hole ø mm ²	bar mm	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST30...72	6.5	15 x 3	LW110 ¹⁾	1SFN 074 307 R1000	1	0.100
PST85...142	10.5	17.5 x 5	LW185 ¹⁾	1SFN 074 707 R1000	1	0.250
PST175...300	10.5	20 x 5	LW300 ¹⁾	1SFN 075 107 R1000	1	0.450
PSTB370...470	10.5	25 x 5	LW460	1SFN 075 707 R1000	1	0.730
PSTB570...1050	13	40 x 6	LW750	1SFN 076 107 R1000	1	1.230

Terminal nut washer

For softstarter type	Req. qty	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85...142	1	LE185 ¹⁾	1SFN 074 716 R1000	2	0.200
PST175...300	3	LE300 ²⁾	1SFN 075 116 R1000	2	0.300
PSTB370...470	6	LE460	1SFN 075 716 R1000	6	0.600
PSTB570...1050	6	LE750	1SFN 076 116 R1000	6	0.750

Terminal shrouds

For softstarter type	Suitable for	Req. qty	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85...142	Cable connectors	1 pce and	LT185-AC	1SFN 124 701 R1000	2	0.050
		1 pce	LT460-AC	1SFN 125 701 R1000	2	0.100
PST85...142	Compression lugs	1 pce and	LT185-AL	1SFN 124 703 R1000	2	0.220
		1 pce	LT460-AL	1SFN 125 703 R1000	2	0.800
PST175...300	Cable connectors	3 pcs	LT300-AC ²⁾	1SFN 125 101 R1000	2	0.070
PST175...300	Compression lugs	3 pcs	LT300-AL ²⁾	1SFN 125 103 R1000	2	0.280
PSTB370...470	Cable connectors	2 pcs	LT460-AC	1SFN 125 701 R1000	2	0.100
PSTB370...470	Compression lugs	2 pcs	LT460-AL	1SFN 125 703 R1000	2	0.800
PSTB570...1050	Cable connectors	2 pcs	LT750-AC	1SFN 126 101 R1000	2	0.120
PSTB570...1050	Compression lugs	2 pcs	LT750-AL	1SFN 126 103 R1000	2	0.825

External keypad including a 3m cable

For softstarter type	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST30...300	PSTEK	1SFA 899 003 R1000	1	0.400
PSTB370...1050				

Marine Kit

For softstarter type	Type	Order code	Pack ^{ing} piece	Weight kg 1 piece
PST85...142	PSTM-2	1SFA 899 004 R1000	1	0.240

Fieldbus plug

ABB Fieldbus Plug suitable for all sizes. See page 50-53

¹⁾ Only fits on the motor side

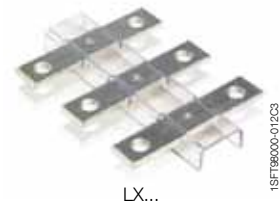
²⁾ Use two sets of the accessories on the line side and one set on the motor side.



LZ...



LZ...



LX...



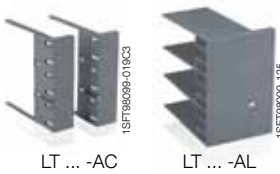
LW...



LE185



LE460



LT ... -AC

LT ... -AL



PSTEK



PSTM-2

PST(B) – The advanced range

Technical data

Rated insulation voltage U_i	690 V		Control circuit	
Rated operational voltage U_e	208...600 V, 400...690 V + 10 % / -15 % 50/60 Hz $\pm 5\%$		Number of inputs	2 (start, stop)
Rated control supply voltage U_s	100...250 V +10% / -15% 50/60 Hz $\pm 5\%$		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)
Rated control circuit voltage U_c	Internal or external 24 V DC			
Starting capacity at I_e	4 x I_e for 10 sec.			
Number of starts per hour	PST30...300	PSTB370...1050		
	30 ¹⁾	10 ¹⁾		
Overload capability			Signalling indication LED	
Overload class	10		Power on	Green
Service factor	PST(B)30...840	PSTB1050	Fault	Red
	115 %	100 %	Protection	Yellow
Ambient temperature				
during operation	$\pm 0 \dots +50 \text{ }^\circ\text{C}$ ²⁾		Protections	
during storage	$-25 \dots +70 \text{ }^\circ\text{C}$		Electronic overload	Yes (Class 10A, 10, 20, 30)
Maximum altitude	4000 m ³⁾		Dual overload	Yes (separate overload function for start and run)
Degree of protection	PST30...72	PST85...PSTB1050	PTC connection	Yes
main circuit	IP10	IP00	Locked rotor protection	Yes (Level and delay adjustable)
Supply and control circuit	IP20		Underload protection	Yes (Level and delay adjustable)
Main circuit	PST30...300	PSTB370...1050	Phase imbalance	Yes (Level and delay adjustable)
Built-in By-pass contactor	No	Yes	High current (8 x I_e)	Yes
Cooling system - Fan cooled	Yes (thermostat controlled)		Phase reversal protection	Yes
HMI for settings (Human Machine Interface)			Warnings (pre-warning)	
Display	Full text		High current	Yes (Level and delay adjustable)
Languages	English, German, Italian, Dutch, Chinese, Finnish, Swedish, French, Spanish, Russian, Portuguese, Turkish, Polish and Czech		Low current (underload)	Yes (Level and delay adjustable)
Keypad	2 selection keys and 2 navigating keys		Overload trip	Yes (Level and delay adjustable)
Signal relays			Overtemp, thyristor (SCR)	Yes
Number of programmable signal relays	3 (each relay can be programmed to be Run, By-pass or Event signal)		Start of several motors	
K4	Default as Run signal		Possible to set-up and start three different motors	Yes (Different parameter sets)
K5	Default as TOR (By-pass) signal		Field bus connection	
K6	Default as Event signal		Connection for ABB FieldBus Plug	Yes
Rated operational voltage, U_e	250 V AC / 24 V DC		PTC input	
Rated thermal current I_{th}	5 A		Switch off resistance	2825 ohm $\pm 20\%$
Rated operational current I_e at AC-15 ($U_e=250$ V)	1.5 A		Switch on resistance	1200 ohm $\pm 20\%$
Analog output			External keypad	
Output signal reference	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA		Display	LCD type
Type of output signal	I Amp, U Volt, P kW, P hp, Q kVAR, S kVA, TmpMot, TmpSCR, cosPhi		Ambient temperature	
			During operation	$\pm 0 \dots +50 \text{ }^\circ\text{C}$
			During storage	$-25 \dots +70 \text{ }^\circ\text{C}$
			Degree of protection	IP66

¹⁾ Valid for 50 % on time and 50 % off time. If other data is required, contact your sales office.

²⁾ Above 40 °C up to max. 50 °C reduce the rated current with 0.8 % per °C.

³⁾ When used at high altitudes above 1000 meters up to 4000 meters you need to derate the rated current using the following formula.

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

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

PST(B) – The advanced range

Technical data

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

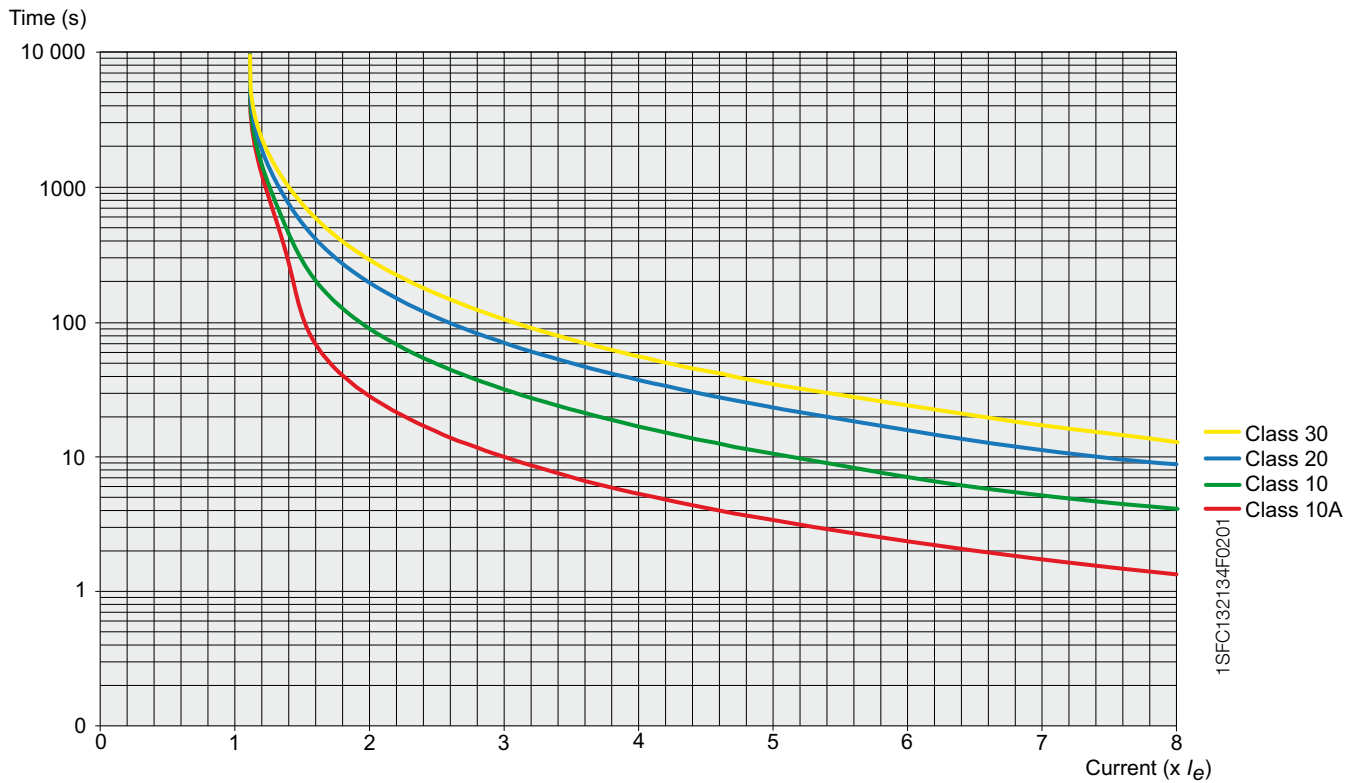
Description	Text on display (Eng)	Values on display	Default value
Setting current for overload, locked rotor etc.	Setting I _a	9.0 ... 1207 A divided into 19 overlapping ranges.	See table, page 48
Time for start ramp	Start Ramp	1 ... 30 s, 1 ... 120 s (Range depends on Start Range)	10 s
Time for stop 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 _a	4.0 x I _a
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 _a	4.0 x I _a
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 _a	0.5 x I _a
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 _a	1.2 x I _a
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 _a	0.8 x I _a
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
Password for display	Password	No, 1 ... 255	No
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 kVA, S kVA, TmpMot, TmpSCR, cosPhi	I Amp

PST(B) – The advanced range

Technical data

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




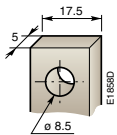
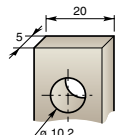
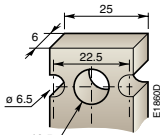
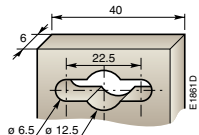
Tripping curves for electronic overload protection (Cold) for PSE, PST and PSTB.



PST(B) – The advanced range

Technical data

Cross section of connection cables

		Type of softstarter				
		PST30 ... 72	PST85 ... 142	PST175 ... 300	PSTB370 ... 470	PSTB570 ... 1050
Main circuit						
Available terminals:	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 mm ²	10 ... 95			See accessories	
Solid/stranded	2 x mm ²	6 ... 35			See accessories	
Tightening torque (recommended)	Nm	6.0			See accessories	
Connection bar	No					
Width and thickness	mm	–				
Hole diameter	mm	–	8.5	10.2	10.5	12.5
Tightening torque (recommended)	Nm	–	18	28	35	45

Supply and control circuit

Connection clamp		Yes
Solid/stranded	1 x mm ²	2.5
Solid/stranded	2 x mm ²	1.5
Tightening torque (recommended)	Nm	0.5

Fuse ratings and power losses

For Softstarter	Recommended ABB Overload protection		Max power loss at rated I _e		Max fuse rating - main circuit ¹⁾³⁾			Power requirements supply circuit Holding (VA) / Pull-in (VA)
	Type	Current range	without by-pass ²⁾	with by-pass	Bussmann Fuses, DIN43 620 (Knife)			
			W	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	170M6018 ⁴⁾	3	25/860
PSTB1050	Integrated	315...1207	N/A	170	1800	170M6020 ⁴⁾	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	170M6018 ⁴⁾	3	25/860
PSTB1050	Integrated	315...1207	N/A	170	1600	170M6019 ⁴⁾	3	25/860

¹⁾ For the supply circuit 6 A delayed, for MCB use C characteristics.

²⁾ See PSS page 24

³⁾ Max fuse rating independent if 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.

⁴⁾ DIN43 653

PST(B) – The advanced range

UL ratings

3-phase motor rating – In-Line

Softstarters		Motor power P (hp) and full load current FLA (A)			
Type	Max. FLA A	U _e 200V / 208 V hp	U _e 220 V / 240 V hp	U _e 440 V / 480 V hp	U _e 550 V / 600 V hp
PST30	28	7.5	10	20	25
PST37	34	10	10	25	30
PST44	42	10	15	30	40
PST50	54	15	20	40	50
PST60	60	20	20	40	50
PST72	68	20	25	50	60
PST85	80	25	30	60	75
PST105	104	30	40	75	100
PST142	130	40	50	100	125
PST175	156	50	60	125	150
PST210	192	60	75	150	200
PST250	248	75	100	200	250
PST300	302	100	100	250	300
PSTB370	361	125	150	300	350
PSTB470	480	150	200	400	500
PSTB570	590	200	250	500	600
PSTB720	720	250	300	600	700
PSTB840	840	300	350	700	800
PSTB1050	1062	400	450	900	1000

3-phase motor rating – Inside Delta

Softstarters		Motor power P (hp) and full load current FLA (A)			
Type	Max. FLA A	U _e 200 V / 208 V hp	U _e 220 V / 240 V hp	U _e 440 V / 480 V hp	U _e 550 V / 600 V hp
PST30	42	10	15	30	40
PST37	54	15	20	40	50
PST44	72	20	25	50	60
PST50	80	25	30	60	75
PST60	104	30	40	75	100
PST72	104	30	40	75	100
PST85	130	40	50	100	125
PST105	156	50	60	125	150
PST142	192	60	75	150	200
PST175	248	75	100	200	250
PST210	302	100	100	250	300
PST250	361	125	150	300	350
PST300	480	150	200	400	500
PSTB370	590	200	250	500	600
PSTB470	720	250	300	600	700
PSTB570	840	300	350	700	800
PSTB720	1247	400	500	1000	1200
PSTB840	1454	500	600	1200	1500
PSTB1050	1839	600	700	1500	1800