Brochure panorama updated 2011-06-01
PSTB note 1) Busman fuse base type changed from 170M304 to 170H3004
Not printed only in PDF-format.
Latest printed version B, January 2011

Brochure panorama

Softstarters
The complete range

Power and productivity
for a better world™

Why soft start?

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 is 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 transient 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.

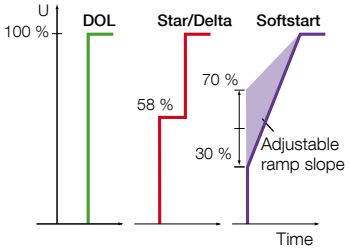
The financial consequences are considerable; every technical problem and every breakdown costs money in terms of repairs as well as lost production.

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

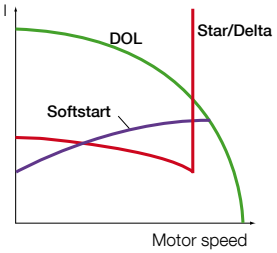
PSR	PSE	PST(B)	• Standard O Opional – Not available
•	•	• 1)	Built-in by-pass 1) on PSTB
–	–	•	Inside delta connection
–	•	O	Coated PCBs
–	•	•	Display and keypad
–	•	•	Torque control
–	•	•	Settable current limit function
–	•	•	Electronic motor overload protection
–	–	•	PTC input for motor protection
–	–	•	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

Differences between different starting methods

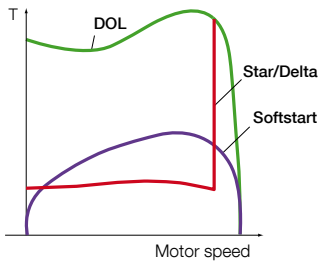
Motor voltage



Motor current



Torque



Graphs showing the basic differences between Direct-On-Line starting (DOL), star-delta starting and soft starting in terms of the motor voltage (U), motor current (I) and motor torque (T).

PSR — The compact range

	PSR3 ... PSR16					PSR25 ... PSR30		PSR37 ... PSR45		PSR60 ... PSR105			
Normal start In-Line connected	**PSR3**	**PSR6**	**PSR9**	**PSR12**	**PSR16**	**PSR25**	**PSR30**	**PSR37**	**PSR45**	**PSR60**	**PSR72**	**PSR85**	**PSR105**
(400 V) kW	1.5	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55
IEC, Max. A	3.9	6.8	9	12	16	25	30	37	45	60	72	85	105
(440-480 V) hp	2	3	5	7.5	10	15	20	25	30	40	50	60	75
UL, Max. A	3.4	6.1	9	11	15.2	24.2	28	34	46.2	59.4	68	80	104
	400 V, 40 °C												
Using manual motor starter or MCCB, type 1 coordination will be achieved.	Manual motor starters (50 kA)												
	MS116			MS132				MS450		MS495		–	
Using gG fuses, type 1 coordination will be achieved. To achieve type 2 coordination, semiconductor fuses must be used.	Fuse protection (50 kA) gG Fuse												
	10 A	16 A	25 A	32 A		50 A	63 A	100 A	125 A		200 A	250 A	
Suitable switch fuse for the recommended gG fuses or semiconductor fuses.	Switch fuse												
	OS32GD							OS125GD			OS250GD		
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	AF38	A50	A63	A75	A95	A110
Overload protection is always required to protect the motor	Thermal overload relay												
	TF42DU									TA75DU		TA110DU	
Using by-pass will reduce the power loss and allow more starts per hour	By-pass												
	Built-in												

Quick guide for selection	
Normal start Class 10	**Heavy duty start class 30**
• Bow thruster	• Centrifugal fan
• Centrifugal pump	• Crusher
• Compressor	• Conveyor belt (long)
• Conveyor belt (short)	• Mill
• Elevator	• Mixer
• Escalator	• Stirrer
Select size according to the motor kW ratings	Select one size larger softstarter compared to the motor kW ratings
If more than 10 starts/h ! Select <u>one</u> size larger than the standard selection	

PSR

LED indications:
- On/Ready
- Run/Top of ramp

Three potentiometers for settings:
-Start ramp (1–20 sec)
-Stop ramp (0–20 sec)
-Initial voltage (40–70 % of U_e)
(also set “end voltage”)

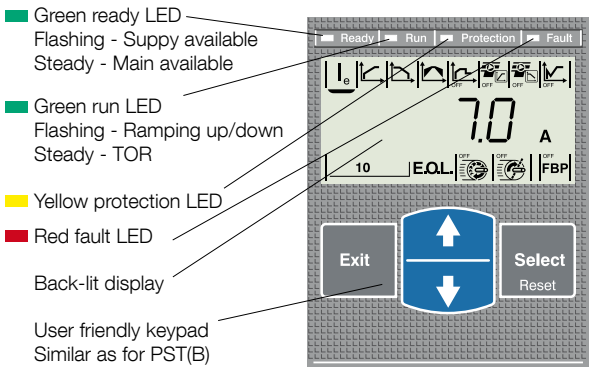
Built-in signal relays for
Run (PSR3 ... 105) and
TOR (PSR25 ... 105)

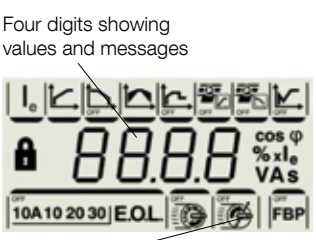
PSE — The efficient range

	PSE18 ... PSE105								PSE142 ... PSE170		PSE210 ... PSE370			
PSE18	**PSE25**	**PSE30**	**PSE37**	**PSE45**	**PSE60**	**PSE72**	**PSE85**	**PSE105**	**PSE142**	**PSE170**	**PSE210**	**PSE250**	**PSE300**	**PSE370**
7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200
18	25	30	37	45	60	72	85	106	143	171	210	250	300	370
10	15	20	25	30	40	50	60	75	100	125	150	200	250	300
18	25	28	34	42	60	68	80	104	130	169	192	248	302	361
400 V, 40 °C														
MCCB (50 kA)														
T2S160								T3S250			T4S320	T5S400	T5S630	
Fuse protection (85 kA), Semiconductor fuses, Bussmann														
170M1563	170M1564	170M1566	170M1567	170M1568	170M1569	170M1571	170M1572	170M3819	170M5809	170M5810	170M5812	170M5813	170M6812	170M6813
Switch fuse														
OS32GD03P			OS63GD03P			OS125GD03P		OS250D03P	OS400D03P				OS630D03P	
Line Contactor														
AF26	AF30	AF38	A50	A63	A75	A95	A110	A145	A185	A210	A260	A300	AF400	
Electronic overload relay														
Built-in														
By-pass														
Built-in														

PSE

Settings





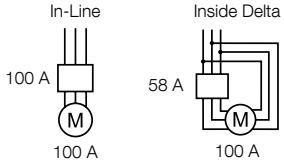
PST(B) — The advanced range

	PST30 ... PST72					PST85 ... PST142			PST175 ... PST300			
PST30	**PST37**	**PST44**	**PST50**	**PST60**	**PST72**	**PST85**	**PST105**	**PST142**	**PST175**	**PST210**	**PST250**	**PST300**
15	18.5	22	25	30	37	45	55	75	90	110	132	160
30	37	44	50	60	72	85	105	142	175	210	250	300
20	25	30	40	40	50	60	75	100	125	150	200	250
28	34	42	54	60	68	80	104	130	156	192	248	302
400 V, 40 °C												
MCCB (50 kA)												
T2S160							T3S250		T4S250		T5S400	
Fuse protection (65 kA), Semiconductor fuses, Bussmann												
170M1566	170M1568	170M1569		170M1570	170M1571	170M1572	170M3819	170M5809	170M5810	170M5812	170M5813	170M6813
Switch fuse												
OS32GD03P	OS63GD03P				OS125GD03P		OS250D03P	OS400D03P				OS630D03P
Line contactor												
AF30	AF38	A50		A63	A75	A95	A110	A145	A185	A210	A260	A300
Electronic overload relay												
Built-in												
By-pass												
AF16	AF26		AF30	A40	A50		A63	A95	A145			A210

PST(B)

In-Line or Inside Delta for PSS and PST(B)

Softstarters type PSS18/30 ... 300/515 and PST30 ... 300, PSTB370 ... 1050 can be connected inside the motor delta (compare the connection for standard Star-Delta starters). In this case the current through the softstarter is reduced by 42 %. It will then be possible, for example, to run a 100 A motor using a 58 A PSS/PST(B) Softstarter.



	PSTB370 ... PSTB470		PSTB570 ... PSTB1050			
	PSTB370	**PSTB470**	**PSTB570**	**PSTB720**	**PSTB840**	**PSTB1050**
	200	250	315	400	450	560
	370	470	570	720	840	1050
	300	400	500	600	700	900
	361	480	590	720	840	1062
	T5S630		T6S630	T6S800	T7S1250	T7S1600
	170M5813	170M6813		170M8554	170M6018	170M6020[2)]
	OS400D03P	OS630D03P		OS800D03P	1)	
	AF400	AF580		AF750	AF1350	AF1650
	Built-in					

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

Also Avaliable - PSS - The flexible range

Covers motor currents from 18 to 300 A and offers a flexible solution with easy installation and set-up.

For more information, see catalog 1SFC132005C0201.

ABB Softstarters – The complete range

The most compact softstarter solution

PSR - The compact range, 3 to 105A

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

Built-in by-pass reduces the energy loss and makes the connection easier and 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.

The world's first compact softstarter with torque control

PSE – The efficient range, 18 to 370A

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.

All the most advanced functionality for all applications

PST(B) – The advanced range, 30 to 1050 A

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 absolutely best possible stop of pumps without water hammering and pressure surges.

Contact us

ABB AB
Cewe-Control
S-72161 Västerås, Sweden
Phone: +46 21 32 07 00
Fax: +46 21 12 60 01

www.abb.com/lowvoltage

©Copyright 2010 ABB. All rights reserved.
Specification sublject to changes without notice.

Panorama 1SFC132009B0201, rev.C. June 2011. Prod ABB AB, Cewe-Control/XM

Power and productivity
for a better world™