





## **WARNING**

The operation, installation and servicing of this product must be carried out by a qualified electrician, following installation standards and safety regulations. Check that you have the correct softstarter unit in regards to system voltage, rated motor data and type of connection.



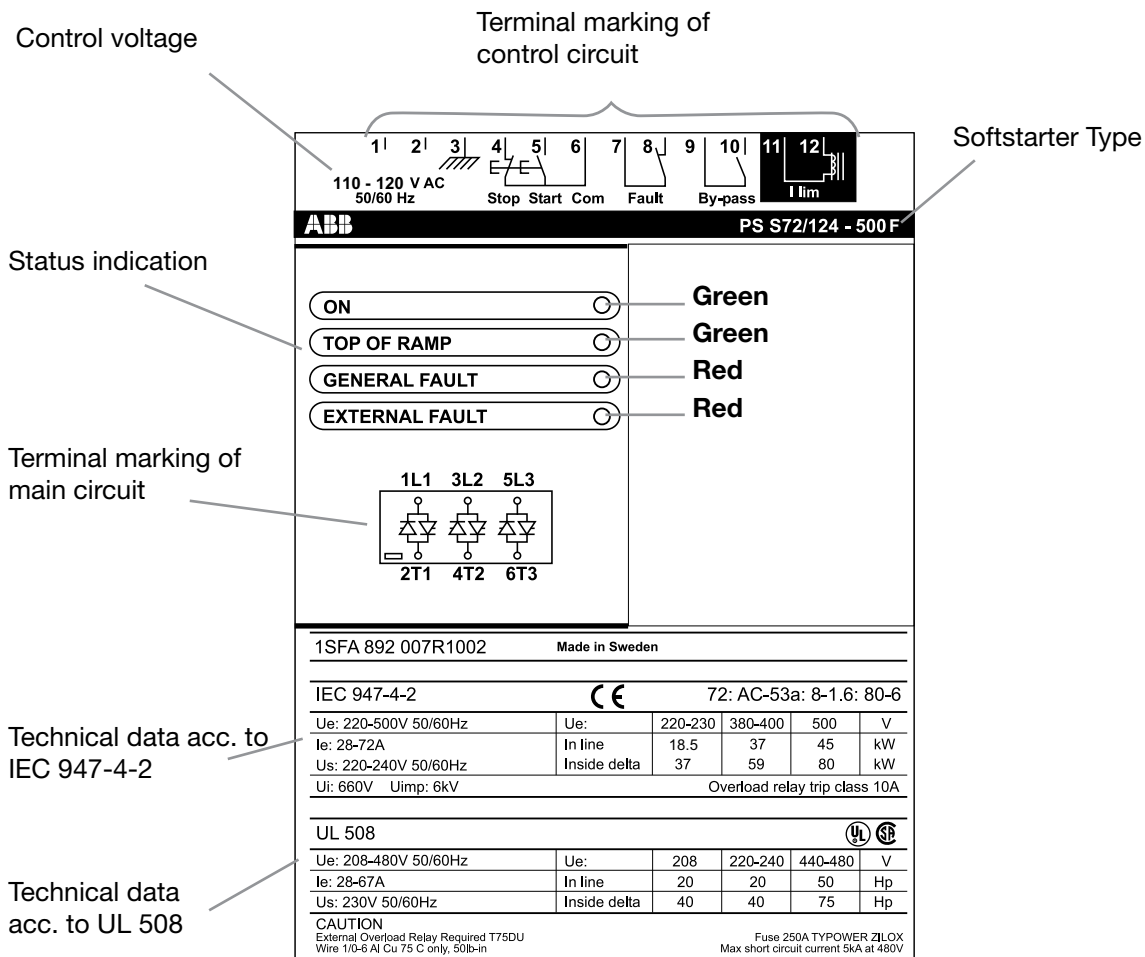
## Installation and maintenance

### PSS Softstarters for Hydraulic elevators

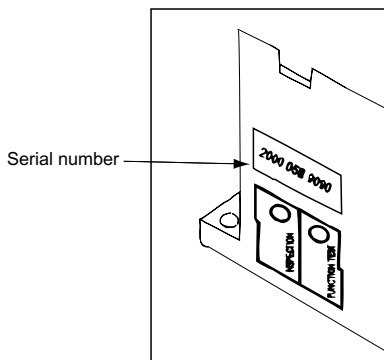
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# 1. Softstarter markings

! These softstarters fulfill the demands according to 89/336/EEC,  
 ■ EN 60947-4-2 / IEC 947-4-2, Equipment Class A and UL 508.



Picture 1.1



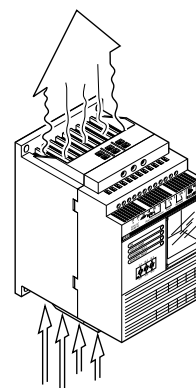
## 2. Mounting

To have suitable cooling, the softstarter should be mounted vertically, see picture 2.1.

The softstarter should not be mounted in a position that blocks the airways. Follow recommended distances according to section 2.1.

! All technical data for the softstarter is valid for an ambient temperature of 40°C. For temperatures above 40°C, up to max. 60°C, the rated current must be derated by 0.8% per °C.

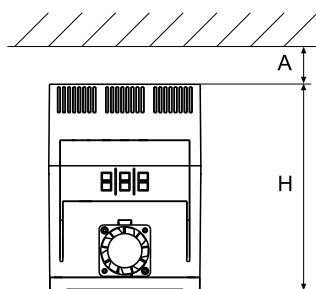
! A bypass contactor must be used when placing in any enclosure other than NEMA 1 ventilated.



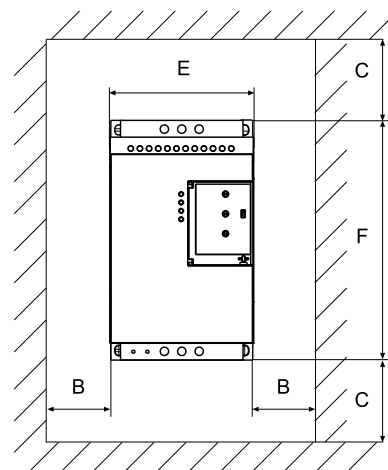
Picture 2.1

### 2.1 Minimum distance to wall/front

The following distances give enough clearance for airflow around the softstarter for suitable cooling. Please note that the values are minimum distances.



Picture 2.3



Picture 2.4

|                                   | Air gap (mm) |    |     | Outer dimensions of the softstarter (mm) |     |     |
|-----------------------------------|--------------|----|-----|------------------------------------------|-----|-----|
|                                   | A            | B  | C   | E                                        | F   | H   |
| PSS18/30-500...44/76-500          | 20           | 10 | 100 | 120                                      | 200 | 163 |
| PSS50/85-500...72/124-500         | 20           | 10 | 100 | 140                                      | 250 | 163 |
| PSS85/147-500F<br>PSS142/245-500F | 20           | 10 | 100 | 181                                      | 340 | 265 |

# 3. Connection

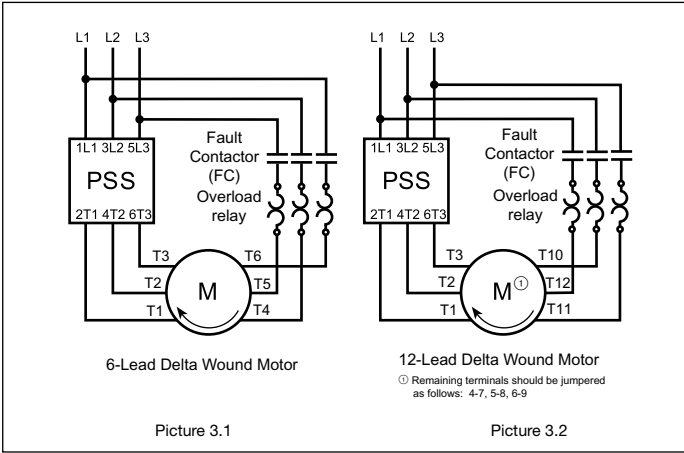
## 3.1 Line side and load side connections

The softstarters are wired "Inside Delta" (see pictures 3.1 and 3.2) with the motor.

**!** Remember to set the Line/Delta switch S1 in the right position. See page 10.

Connect the incoming supply voltage to the terminal extension lugs installed on 1L1, 3L2 & 5L3. The terminal markings are printed on the front panel of the softstarter.

**!** The softstarter unit is not phase sequence sensitive.



Picture 3.1

Picture 3.2

**!** Always confirm correct lead markings with motor nameplate diagrams.

Connect the motor cables to the terminal extension lugs installed on 2T1, 4T2 & 6T3 of the softstarter and to 2T1, 4T2 & 6T3 of the overload relay. See Chapter 10 for details.

|                           |  |  |  |  |  |
|---------------------------|--|--|--|--|--|
| PSS18/30-500...44/76-500  |  |  |  |  |  |
|                           |  |  |  |  |  |
| PSS50/85-500...72/124-500 |  |  |  |  |  |
|                           |  |  |  |  |  |

# 3. Connection

## 3.2 Control voltage and control circuit

### 3.2.1 Control voltage, terminals 1 and 2

Connect neutral and phase to terminal 1 and 2. See picture 3.3.

**!** Check that you have the correct control voltage, 120VAC or 240VAC (optional)

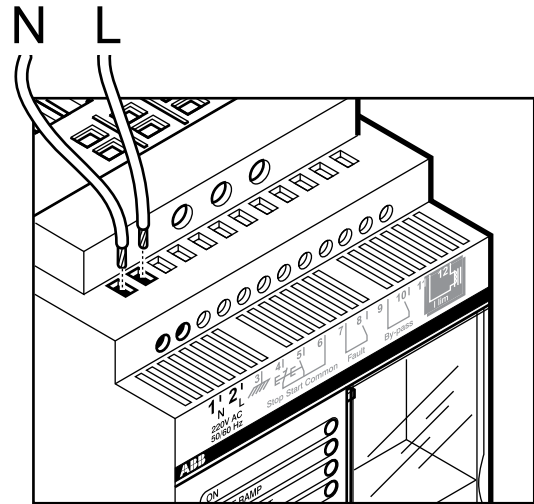
### 3.2.2 Grounding of the unit, terminal 3

Suitable cable: green/yellow , AWG12...16

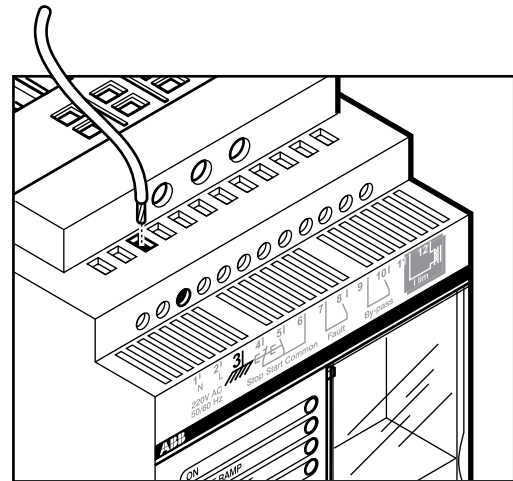
The cable should be as short as possible and shall be connected to a grounding point close to the softstarter. A suitable grounding point would be next to the softstarter on the mounting plate. See picture 3.5.

The ground cable has already been installed. The mounting plate should also be grounded.

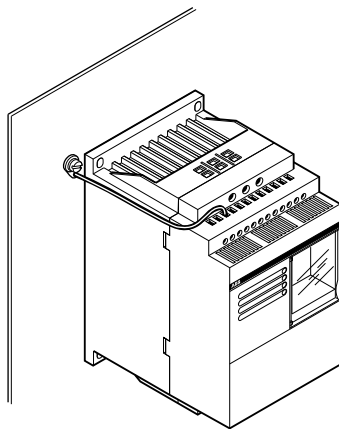
**!** The grounding cable should be as short as possible and should be connected to a grounding point close to the softstarter.



Picture 3.3



Picture 3.4



Picture 3.5

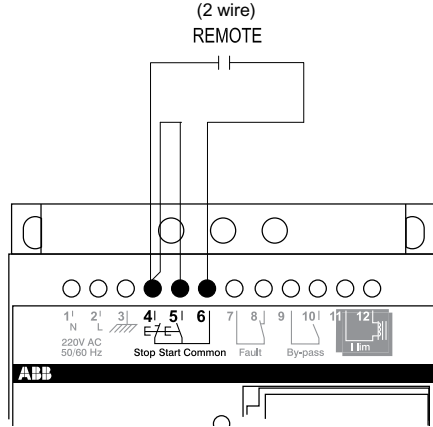
## Control Circuit Terminals

|                                                  |                                      |            |                                                                                          |
|--------------------------------------------------|--------------------------------------|------------|------------------------------------------------------------------------------------------|
| <p>Control Circuit Terminals</p> <p>1.....12</p> | <p>M 3</p> <p>0.5 Nm - 4.3 lb/in</p> | <p>ø 4</p> | <p>0.14 ... 2.5 mm<sup>2</sup></p> <p>AWG 12...22</p> <p>0.14 ... 2.5 mm<sup>2</sup></p> |
|--------------------------------------------------|--------------------------------------|------------|------------------------------------------------------------------------------------------|

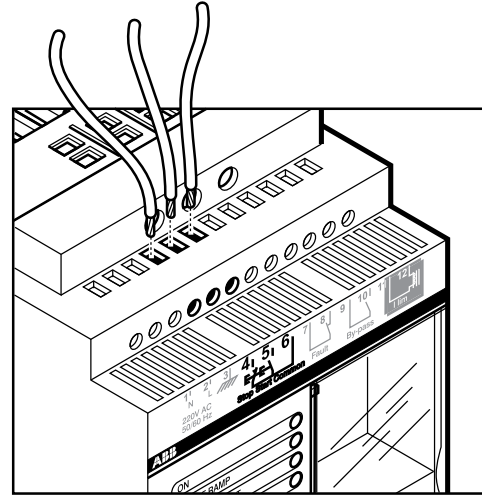
## 3. Connection

### 3.2.3 Control circuit for Start and Stop, Terminals 4, 5 and 6

The softstarter can be configured as 2-wire control or 3-wire control. See pictures 3.7 & 3.8.



Picture 3.7



Picture 3.6

### 3.2.4 Signal relay for fault. Terminals 7 and 8 : Fault

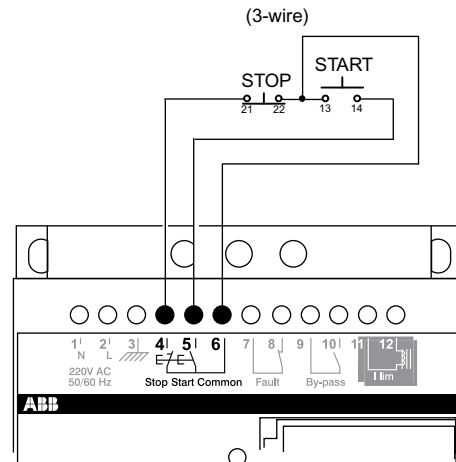
The built in contact provides a signal when a fault condition occurs. The fault contactor will open immediately when a fault occurs.

Technical data: max 250V / 1.5A, AC-15.

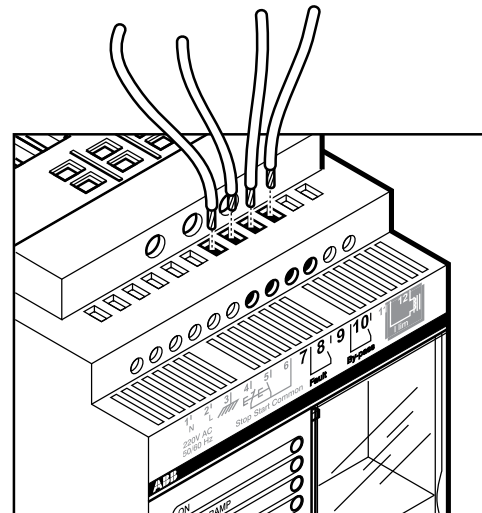
### 3.2.5 Signal relay for indication of completed start ramp. Terminals 9 and 10 : By-pass

The built in contact is closed when the start ramp is completed, and opened when a stop signal is given (closed only during continuous operation).

A bypass contactor should be used when ambient conditions may cause the softstarter to fault on over-temperature.



Picture 3.8



Picture 3.9

## 3. Connection

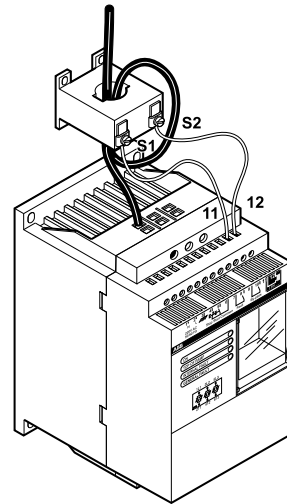
### 3.2.6 Connection of current transformer T2, Terminal 11 and 12

The "Current Limit" function requires a current transformer to be connected to terminals 11 and 12. The current transformer has already been installed. Refer to Table 3.1 for current transformer ratios, turn requirements and connection requirements.

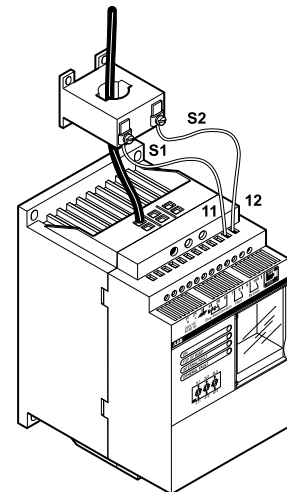
**!** Note that the current transformers provide a 1 amp maximum output.

Table 3.1

| For softstarter | Ratio | Turns | Connection<br>Picture No. |
|-----------------|-------|-------|---------------------------|
| PSS18/30        | 60/1  | 2     | 3.10                      |
| PSS30/52        | 40/1  | 1     | 3.11                      |
| PSS37/64        | 50/1  | 1     | 3.11                      |
| PSS44/76        | 60/1  | 1     | 3.11                      |
| PSS50/85        | 75/1  | 1     | 3.11                      |
| PSS60/105       | 75/1  | 1     | 3.11                      |
| PSS72/124       | 100/1 | 1     | 3.11                      |
| PSS85/147       | 125/1 | 1     | 3.11                      |
| PSS105/181      | 150/1 | 1     | 3.11                      |
| PSS142/245      | 200/1 | 1     | 3.11                      |



Picture 3.10



Picture 3.11

## 4. Setting

The softstarter has three rotating switches as well as one 2-position switch.

### 4.1 Start ramp

Sets the time for how fast the voltage will be increased during start. Adjustable in 16 steps between 1 and 30 seconds. See picture 4.2.

### 4.2 Stop ramp

Sets the time for how fast the voltage will be decreased during stop. Adjustable in 16 steps between 0 and 30 seconds. See picture 4.3.

### 4.3 Initial voltage ( $U_{INI}$ ) / Current Limit Function ( $I_{LIM}$ )

#### 4.3.1 Initial voltage ( $U_{INI}$ )

**WHITE** scale

Sets the starting voltage level for the start ramp, as well as the end voltage of the stop ramp.

Adjustable in 5 steps between 30% and 70% of full voltage.

#### 4.3.2 Current limit function ( $I_{LIM}$ )

A softstarter always reduces starting current.

The current limit function allows you to pre-set a maximum starting current which will never be exceeded.

**BLUE** scale

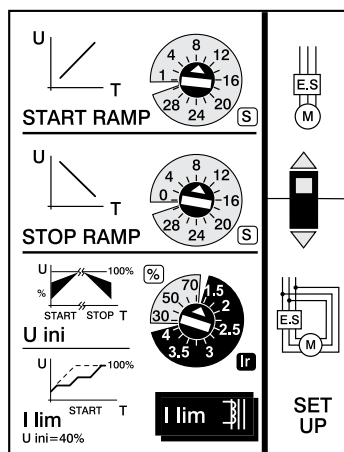
The same rotating switch as for initial voltage ( $U_{INI}$ ). Sets the current limit if a current transformer is connected to terminals 11 and 12 (see picture 4.4).

Adjustable in 11 steps between 1.5 and 4 times the current transformers ratio. When setting the parameter ( $I_{LIM}$ ) on the blue scale, the initial voltage ( $U_{INI}$ ) will always be a fixed value of 40%.

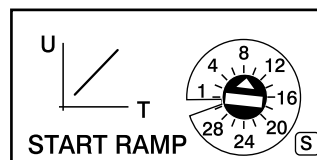
### 4.4 Basic settings for hydraulic pumps

The following settings have been found to work well with hydraulic elevator pumps:

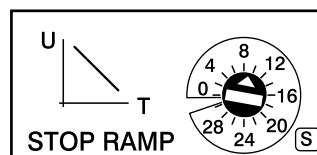
- Start Ramp: 3 - 5 seconds
- Stop Ramp: 0 seconds
- Current Limit: 2.5 ①



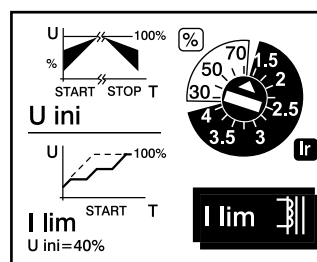
Picture 4.1



Picture 4.2



Picture 4.3



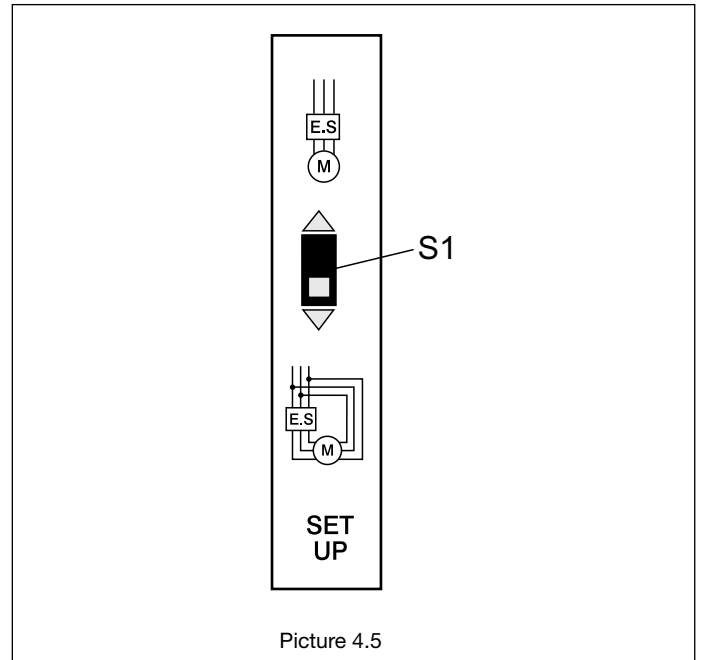
Picture 4.4

① Initial voltage is fixed at 40% when using current limit function.

## 4. Setting

### 4.5 Line/Delta switch S1

The softstarter panels are designed to operate "Inside Delta" with the motor. The Line/Delta switch must be placed in the down position as shown in Picture 4.5.



## 4. Setting

### 4.6 Overload relay

The overload relay is wired "Inside Delta" just like the softstarter. Therefore, the overload setting must be set to 58% of the motor nameplate FLA (for example, see footnote 2). If the actual motor FLA is unknown, please refer to Table 1 for typical overload settings.

**!** Table 1 has already been adjusted for "Inside Delta" operation. No further calculations are required. Set overload to values shown in Table 1.

**Table 1** — Overload Settings Chart

"Inside" Delta Ampere Ratings of 3-Phase, AC Induction Motors ①②

| Horsepower | Current |      |          |          |          |          |
|------------|---------|------|----------|----------|----------|----------|
|            | 200V    | 208V | 220-240V | 380-415V | 440-480V | 550-600V |
| 1/2        | 1.4     | 1.4  | 1.3      | 0.8      | 0.6      | 0.5      |
| 3/4        | 2.1     | 2.0  | 1.8      | 1.0      | 0.9      | 0.8      |
| 1          | 2.8     | 2.7  | 2.4      | 1.3      | 1.2      | 1.0      |
| 1 1/2      | 4.0     | 3.8  | 3.5      | 1.9      | 1.7      | 1.4      |
| 2          | 4.5     | 4.3  | 3.9      | 2.5      | 2.0      | 1.6      |
| 3          | 6.4     | 6.1  | 5.5      | 3.5      | 2.8      | 2.3      |
| 5          | 10      | 9.6  | 8.8      | 5.6      | 4.4      | 3.5      |
| 7 1/2      | 15      | 14   | 13       | 8.1      | 6.4      | 5.2      |
| 10         | 19      | 18   | 16       | 10.4     | 8.1      | 6.4      |
| 15         | 28      | 34   | 24       | 16       | 12       | 9.8      |
| 20         | 36      | 43   | 31       | 20       | 16       | 13       |
| 25         | 45      | 43   | 39       | 25       | 20       | 16       |
| 30         | 53      | 51   | 46       | 29       | 23       | 18       |
| 40         | 69      | 66   | 60       | 38       | 30       | 24       |
| 50         | 87      | 83   | 75       | 48       | 38       | 30       |
| 60         | 102     | 98   | 89       | 59       | 44       | 36       |
| 75         | 128     | 122  | 111      | 74       | 55       | 44       |
| 100        | 165     | 158  | 143      | 95       | 72       | 57       |
| 125        | 207     | 198  | 180      | 120      | 90       | 72       |
| 150        | 239     | 229  | 208      | 139      | 104      | 83       |
| 200        | —       | —    | —        | 185      | 139      | 111      |
| 250        | —       | —    | —        | 233      | 174      | 140      |
| 300        | —       | —    | —        | 278      | 208      | 167      |
| 350        | —       | —    | —        | —        | 239      | 194      |
| 400        | —       | —    | —        | —        | —        | 221      |

① Ratings are compiled from Table 430.150 of NEC 2002. Use actual FLA if known (see footnote 2 below).

② If actual FLA is known, set the overload relay to motor FLA times 0.58.

Example:

Motor Voltage 480V

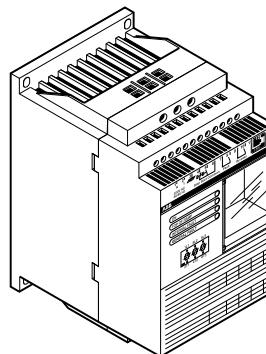
Motor HP: 100

Motor FLA: 120

Overload setting:  $120 \times 0.58 = 69.6A \sim 70A$

## 5. Maintenance

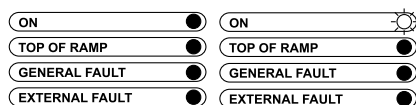
Check that the cooling airways of the softstarter unit are free from dirt and dust. Check also that the fan is working and rotating freely. The fan can be checked when voltage is not applied. The fan blades should rotate freely without heavy resistance when voltage is not applied.



## 6. Troubleshooting

### Motor humming / starts without given start signal

#### Status / Indication

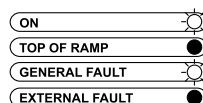
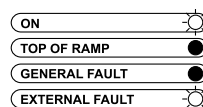
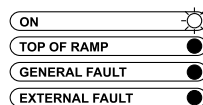
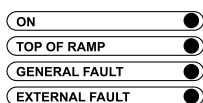


#### Check

- One or several thyristors can be shorted / broken.
- Is the by-pass contactor stuck in closed position?

### Motor does not start

#### Status / Indication



#### Check

- Is control voltage connected to terminals 1 and 2?

- Is start signal given (closed circuit between terminals 5 and 6)?
- Is the circuit closed between terminals 6 and 4?
- Verify that start and stop signals are not given at the same time.
- Is the Line/Delta switch S1 in the right position?

- Is the correct frequency connected?
- Is the Line/Delta switch S1 in the right position?
- Is the Inside Delta connection wired properly?
- Is supply voltage connected to terminals 1L1, 3L2 and 5L3?
- Has the thermal overload relay tripped and opened the main contactor?
- Check all connections.

**RESET:** Give stop signal or disconnect voltage from terminals 1 and 2.

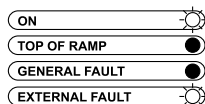
- Is the Line/Delta switch S1 in the right position?
- Is there an overtemperature in the softstarter? The same fault will occur again after RESET, if the softstarter is still too warm. Check that the fans are working properly. Also check that cooling airways are free from dirt and dust.
- If it is not possible to RESET the fault, then the processor is faulty.
- If a fault occurs approx. 60-70 sec after start signal is given, then the softstarter tries to ramp up but is not succeeding. Check all connections.
- Is the current limit setting high enough? Is the ratio of the current transformer right?
- Is the motor circuit closed and are the connections correct?

**RESET:** Give stop signal or disconnect voltage from terminals 1 and 2.

## 6. Troubleshooting

### Motor stops during start / continuous operation

#### Status / Indication

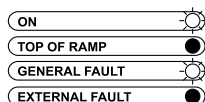


#### CHECK:

- Phase loss in the main circuit? Has the thermal overload relay tripped and opened the main contactor? Has a fuse blown?
- Check all connections.

**RESET:** Give stop signal or disconnect voltage from terminals 1 and 2.

#### Status / Indication



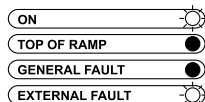
#### CHECK:

- Is there an overtemperature in the softstarter? The same fault will occur again after RESET, if the softstarter is still too warm. Check that the fans are working properly. Also check that cooling airways are free from dirt and dust.
- If it is not possible to RESET the fault, then the processor is faulty.
- If a fault occurs approx. 60-70 sec after start signal is given, then the softstarter is trying to ramp up but is not succeeding. Check all connections.
- Phase loss between softstarter and motor? Check connections.
- One or more thyristor pairs are shorted / broken.
- Is the Line/Delta switch S1 in position "In Line", even though the softstarter is connected "Inside Delta"?
- Is the motor circuit closed and are the connections correct?
- Check overload relay.

**RESET:** Give stop signal or disconnect voltage from terminals 1 and 2.

### Fault at stop

#### Status / Indication

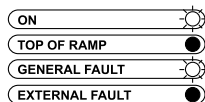


#### CHECK:

- Phase loss in the main circuit? Has main contactor opened before stop ramp has finished? Has a fuse blown?
- Is the by-pass contactor stuck in closed position?

**RESET:** Give both start and stop signal or disconnect voltage from terminals 1 and 2.

#### Status / Indication



#### CHECK:

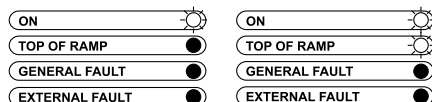
- Phase loss on load side? Check connections.
- Check overload relay.

**RESET:** First give start signal, then stop signal or disconnect voltage from terminals 1 and 2.

## 6. Troubleshooting

### Bad motor sound during start and operation

#### Status / Indication

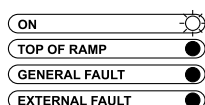


#### Check

- Is the motor too small?
- Is the Line/Delta switch S1 in the right position?
- Is the "Inside Delta" connection wired properly?
- Phase loss on line or load side? Check connections.

### Bad motor sound during stop or stop ramp finishes too early

#### Status / Indication

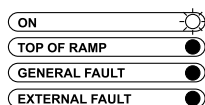


#### Check

- Try a different ramp time for stop (some adjustment may be necessary for best result).
- Phase loss on line or load side? Check connections.
- Is the Line/Delta switch S1 in the right position?
- Check overload relay

### Current limit function not adjustable (only valid for start)

#### Status / Indication



#### Check

- Is a current transformer connected to terminals 11 and 12?
- Is the rotating switch for parameter  $I_{LIM}$  turned to the blue scale?
- Is the correct current transformer used?
- Is the current transformer connected correctly?
- Is the motor suitable for the softstarter (motor too small)?

### Other combination of LEDs than above:

- View LEDs straight from the front, otherwise the neighboring LED may seem to be lit.
- The printed circuitboard in the softstarter is faulty

## 7. Changing Thyristor modules

### General

The life span of electronics can be affected by damage caused by electrostatic discharge. This can happen if a component is touched by a charged tool or person. Therefore it is very important that all tools and personnel are discharged by touching a grounded point before the printed circuit board or any of the components are touched. It is equally important to discharge the package with the new component before opening it.

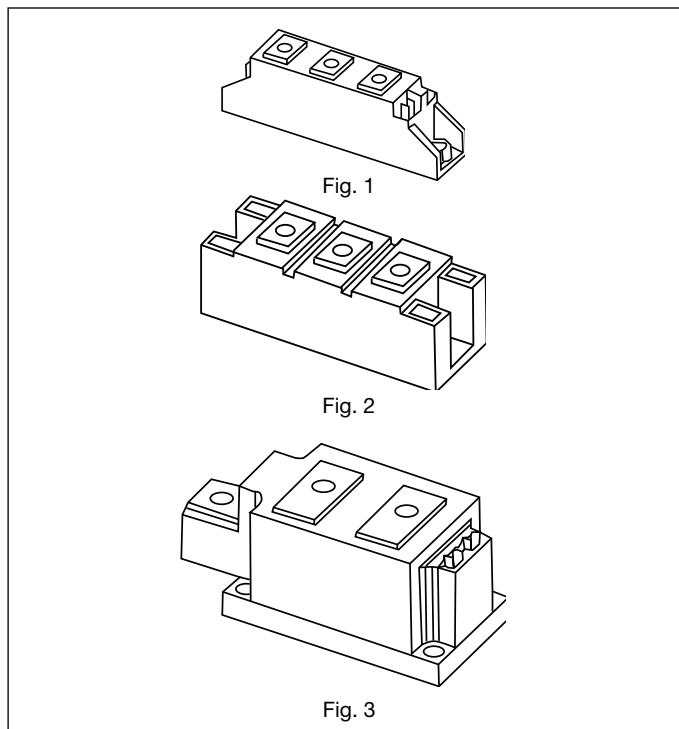
A person walking on a carpet can be charged with up to fifteen thousand volts (15000V). Some sensitive components can be destroyed when discharged on a much lower level (about 100V). Please pay notice to this as this is vital information in ensuring the life span of the product.

### Handling

Modules and heat sinks are to be handled carefully to avoid scratches and other marks. Avoid touching the contact surfaces.

### Steps to change thyristors:

1. Disconnect the voltage from terminals 1L1, 3L2, and 5L3 (supply voltage).
2. Disconnect all cable from terminals 1-12.
3. Remove the front cover.
4. Discharge the tools and yourself by touching a grounded system.
5. Disconnect the electrical connection on the thyristors.
6. Remove the thyristors.
7. Clean the contact surface on the heat sink and modules with Ethanol.  
Use lint-free cloth (paper or linen cloth).
8. Place a very thin layer of heat transfer compound on the contact surfaces of the modules with a lint-free cloth. Too much compound between the module and heat sink will give bad thermal conduction and cause risk of overheating the thyristors.
9. Mount the new thyristors (Use the torque in table 1).
10. Mount the electrical connections to the thyristors.
11. Mount the front cover



**Table 1**

| Figure No. | Hardware torque | Wire torque |
|------------|-----------------|-------------|
| 1          | 26 lb/in        | 26 lb/in    |
| 2          | 26 lb/in        | 43 lb/in    |
| 3          | 26 lb/in        | 77 lb/in    |

## 8. Changing a printed circuit board

### General

The life span of electronics can be affected by damage caused by electrostatic discharge. This can happen if a component is touched by a charged tool or person. Therefore it is very important that all tools and personnel are discharged by touching a grounded point before the printed circuit board or any of the components are touched. It is equally important to discharge the package with the new component before opening it.

A person walking on a carpet can be charged with up to fifteen thousand volts (15000V). Some sensitive components can be destroyed when discharged on a much lower level (about 100V). Please pay notice to this as this is vital information in ensuring the life span of the product.

### Step by step.

1. Disconnect the voltage from terminals L1, L2, and L3 (supply voltage).
2. Disconnect all cable from terminals 1....12.
3. Remove the front cover.
4. Discharge the tools and yourself by touching a grounded system.
5. Remove the old printed circuit board (PCB).
6. Disconnect thyristor, fan and thermal switch cables from the PCB.
7. Discharge the package with the new PCB by touching it to ground.
8. Mount thyristor, fan and thermal switch cables to the PCB. See Fig. 1
9. Mount the new PCB.
10. Mount the front cover.

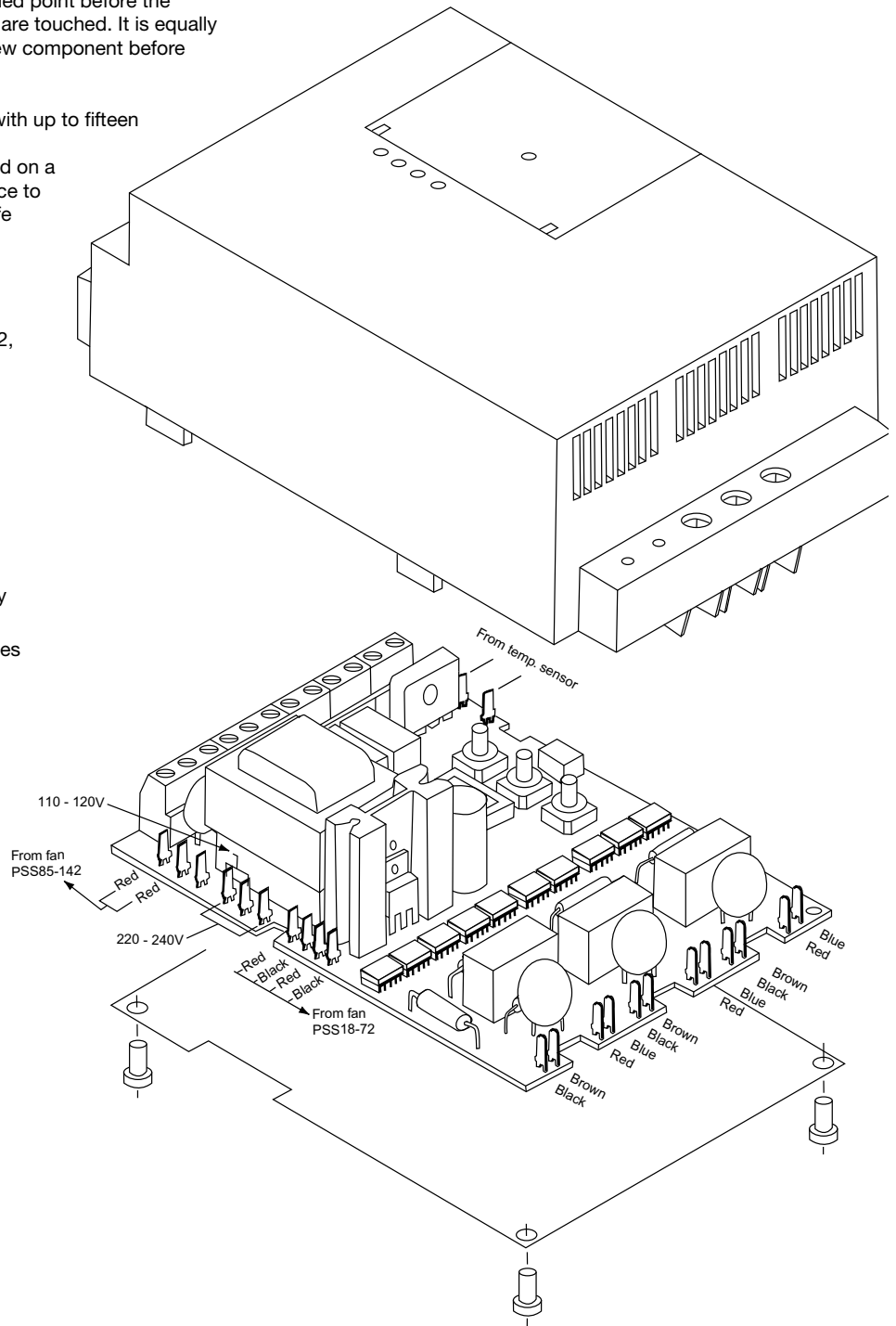


Fig. 1

## 9. Spare parts

### Printed circuit boards

| Softstart type | Fig No. | Main PCB<br>230V - 500V<br>Catalog number | Main PCB<br>380V - 690V<br>Catalog number |
|----------------|---------|-------------------------------------------|-------------------------------------------|
| PSS18 - 72     | 1       | PSPCB -500/S                              | PSPCB -690/S                              |

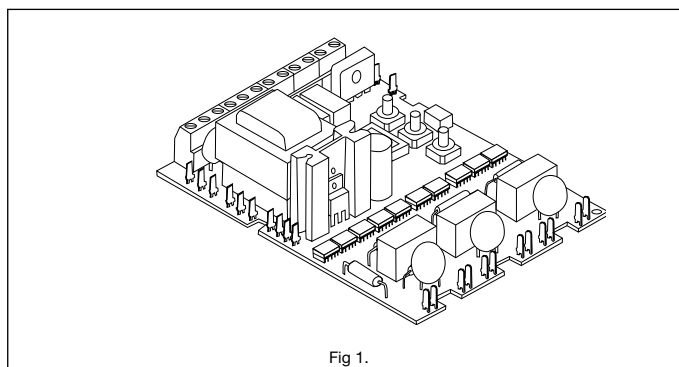


Fig. 1.

### Cooling fan

| Softstart type | Voltage | Pcs per softstart | Fig. no. unit | Catalog number |
|----------------|---------|-------------------|---------------|----------------|
| PSS18 - 44     | 500V    | 1                 | 2             | PSFA-12        |
| PSS50 - 72     | 500V    | 2                 | 2             | PSFA-12        |
| PSS18 - 72     | 690V    | 2                 | 2             | PSFA-12        |
| PSS85 - 142    | 500V    | 2                 | 3             | PSFA-115       |

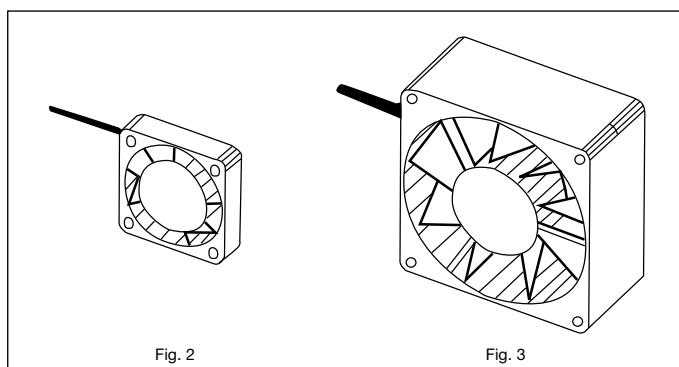


Fig. 2

Fig. 3

### Thyristors

| Softstart type | Pcs per softstart unit | Fig no | Thyristor <=500V<br>Catalog number |
|----------------|------------------------|--------|------------------------------------|
| PSS18          | 3                      | 4      | PSTM-27/16                         |
| PSS30          | 3                      | 4      | PSTM-42/16                         |
| PSS37          | 3                      | 4      | PSTM-57/16                         |
| PSS44          | 3                      | 4      | PSTM-92/16                         |
| PSS50          | 3                      | 4      | PSTM-92/16                         |
| PSS60          | 3                      | 5      | PSTM-132/16                        |
| PSS72          | 3                      | 5      | PSTM-172/16                        |
| PSS85          | 3                      | 5      | PSTM-172/16                        |
| PSS105         | 3                      | 6      | PSTM-210/16                        |
| PSS142         | 3                      | 6      | PSTM-250/16                        |

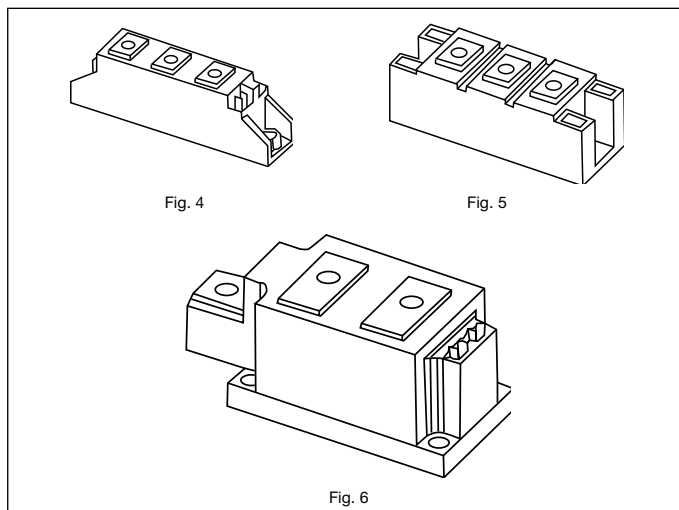


Fig. 4

Fig. 5

Fig. 6

### Kit for changing thyristors

| Softstart type | Fig No. | Kit<br>Catalog number |
|----------------|---------|-----------------------|
| PSS18 - 142    | 7       | PSPB-1                |

Sufficient for replacing 10 thyristor blocks.

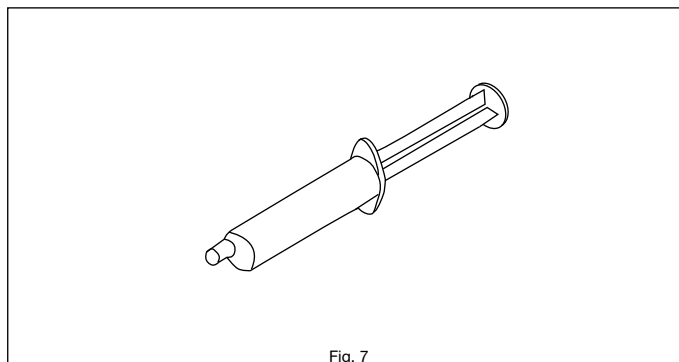


Fig. 7

# 10. Specifications

## 10.1 Electrical ratings

**Table 1**

| Part number   | HP@208V<br>(Inside Delta) | HP@240V<br>(Inside Delta) | HP@480V<br>(Inside Delta) |
|---------------|---------------------------|---------------------------|---------------------------|
| S18/30-501P   | 5 or 7.5                  | —                         | —                         |
| S18/30-501Q   | —                         | 7.5                       | 15                        |
| S18/30-501R   | —                         | 10                        | 20                        |
| S30/52-501R   | 10                        | —                         | —                         |
| S30/52-501S   | —                         | 15                        | 25 or 30                  |
| S30/52-501T   | 15                        | —                         | —                         |
| S37/64-501C   | 20                        | 20                        | 40                        |
| S44/76-501C   | 20                        | 25                        | 50                        |
| S50/85-501D   | 25                        | 30                        | 60                        |
| S60/105-501E  | 30                        | 30                        | 75                        |
| S72/124-501F  | 40                        | 40                        | —                         |
| S85/147-501A  | 50                        | 50                        | 100                       |
| S105/181-501B | 60                        | 60                        | 125 or 150                |
| S142/245-501C | 75                        | 75                        | —                         |

**NOTES:**

- All units are designed for 110-120V control voltage. 220-240V control voltage is also available. Consult factory.
- All units are supplied with Class 10 overloads. Consult factory for Class 20 or Class 30 requirements.
- Consult factory for higher HP ratings.

**!** All softstarters listed in this manual have been tested and have passed requirements according to UL508 Section 46 — Elevator Endurance Test.

## 10.2 Connections

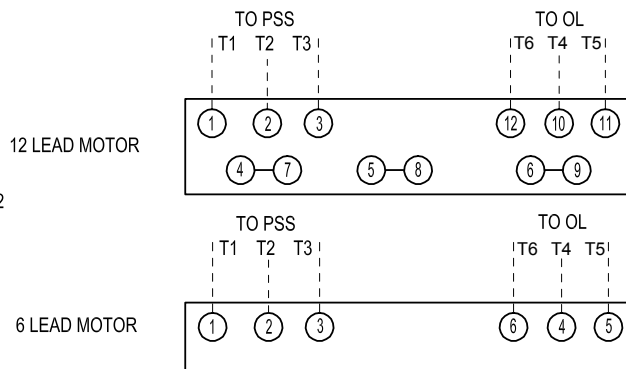
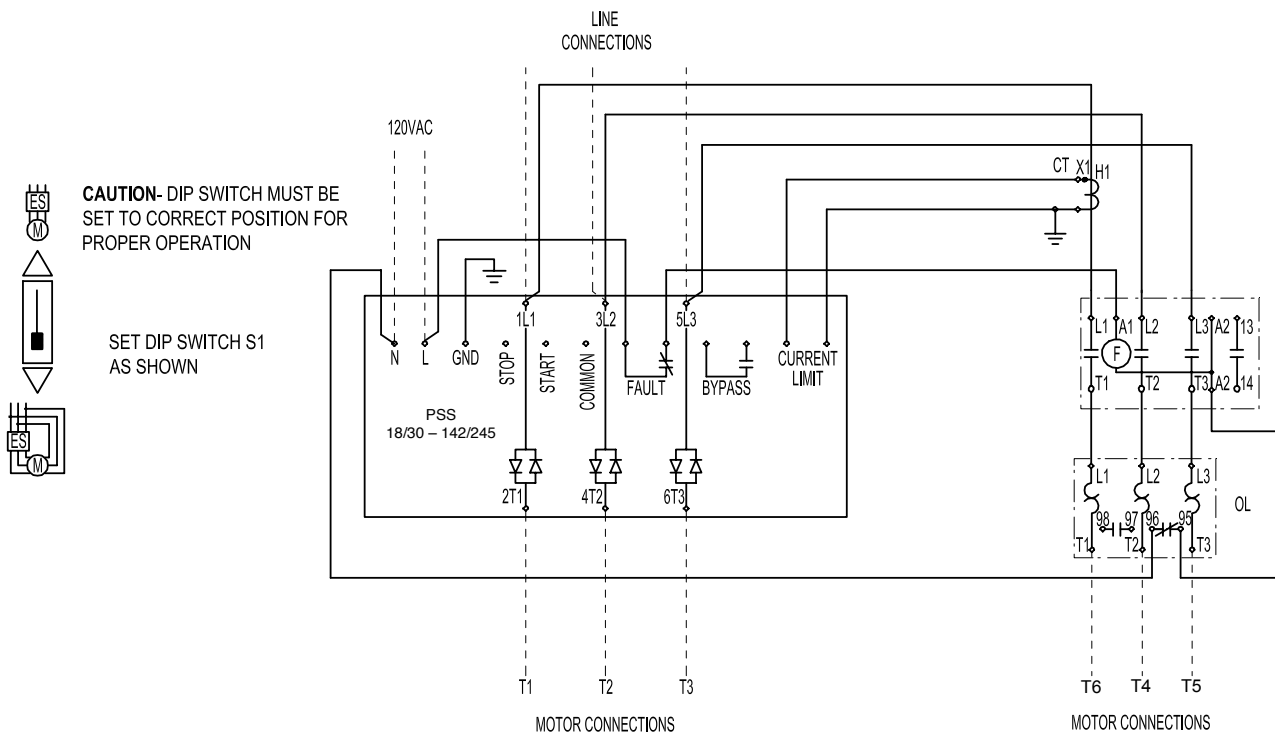
### Cross section of connection cables PSS18/30 – PSS72/124-690

| Type PSS                                         | PSS18/30-500 –<br>PSS44/76-500 | PSS50/85-500 –<br>PSS72/124-500 | PSS85/147 –<br>PSS142/245 |
|--------------------------------------------------|--------------------------------|---------------------------------|---------------------------|
| <b>Main circuit</b>                              |                                |                                 |                           |
| Connection clamp                                 |                                |                                 |                           |
| Rigid solid/rigid stranded      1x               | AWG 4 - 8                      | AWG 1 - 8                       | #6 – 250 MCM              |
| Rigid solid/rigid stranded      2x               | AWG 4 - 8                      | AWG 4 - 8                       | —                         |
| Tightening torque (for guidance only)max. lb./in | 23                             | 40                              | 300                       |
| <b>Supply and control circuit</b>                |                                |                                 |                           |
| Connection clamp                                 |                                |                                 |                           |
| Rigid solid/rigid stranded      1x               | AWG 12                         | AWG 12                          | AWG 12                    |
| Tightening torque (for guidance only)max. lb./in | 4.3                            | 4.3                             | 4.3                       |

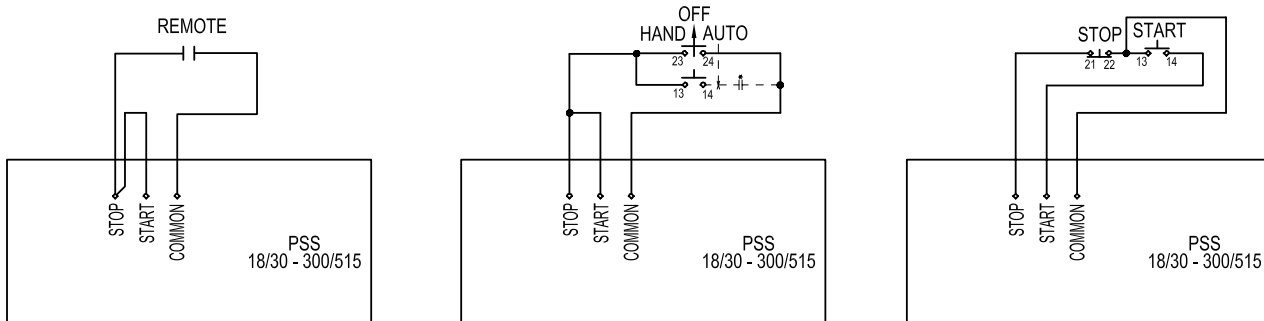
# 11. Circuit diagram

## 6 & 12 Lead delta wound motors

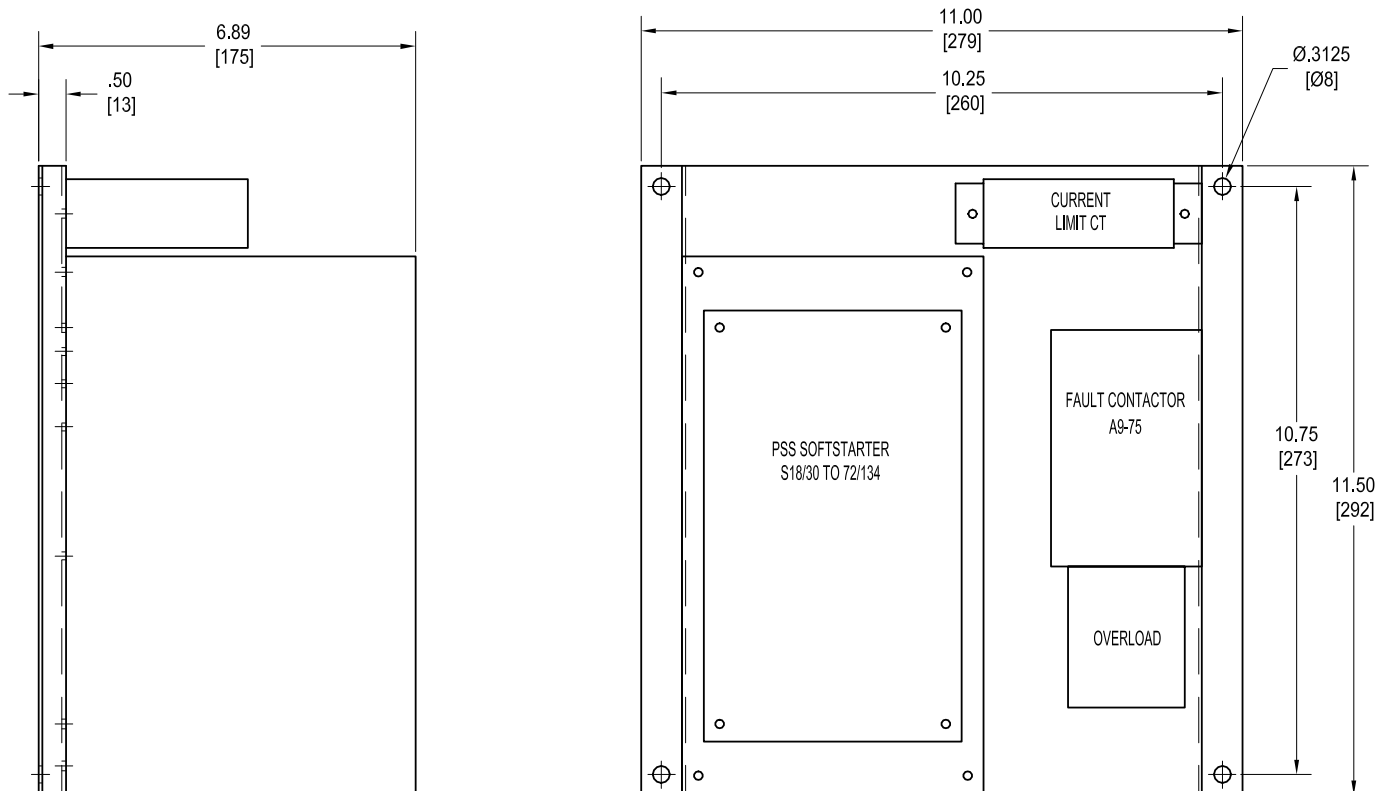
### 11.1 Circuit diagram – 6 & 12 Lead delta wound motors



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.



## 12. Approximate dimensions

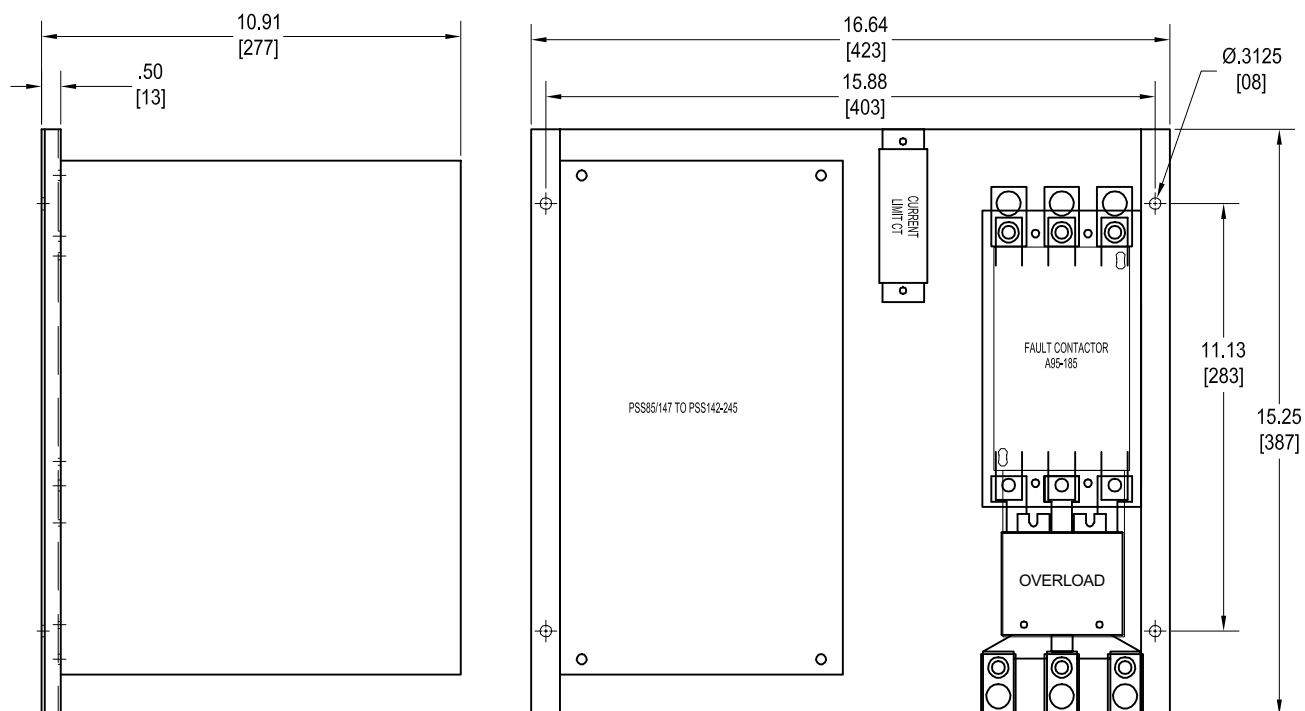


| Part number  | HP@208V<br>(Inside Delta) | HP@240V<br>(Inside Delta) | HP@480V<br>(Inside Delta) |
|--------------|---------------------------|---------------------------|---------------------------|
| S18/30-501P  | 5 or 7.5                  | —                         | —                         |
| S18/30-501Q  | —                         | 7.5                       | 15                        |
| S18/30-501R  | —                         | 10                        | 20                        |
| S30/52-501R  | 10                        | —                         | —                         |
| S30/52-501S  | —                         | 15                        | 25 or 30                  |
| S30/52-501T  | 15                        | —                         | —                         |
| S37/64-501C  | 20                        | 20                        | 40                        |
| S44/76-501C  | 20                        | 25                        | 50                        |
| S50/85-501D  | 25                        | 30                        | 60                        |
| S60/105-501E | 30                        | 30                        | 75                        |
| S72/124-501F | 40                        | 40                        | —                         |

### NOTES:

1. All units are designed for 110-120V control voltage. 220-240V control voltage is also available. Consult factory.
2. All units are supplied with Class 10 overloads. Consult factory for Class 20 or Class 30 requirements.
3. Consult factory for higher HP ratings.

## 12. Approximate dimensions



| Part number   | HP@208V<br>(Inside Delta) | HP@240V<br>(Inside Delta) | HP@480V<br>(Inside Delta) |
|---------------|---------------------------|---------------------------|---------------------------|
| S85/147-501A  | 50                        | 50                        | 100                       |
| S105/181-501B | 60                        | 60                        | 125 or 150                |
| S142/245-501C | 75                        | 75                        | —                         |

### NOTES:

1. All units are designed for 110-120V control voltage. 220-240V control voltage is also available. Consult factory.
2. All units are supplied with Class 10 overloads. Consult factory for Class 20 or Class 30 requirements.
3. Consult factory for higher HP ratings.

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## Notes

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