INSTALLATION MANUAL

EN

STATYS

200 A to 1800 A Cabinet and Integrable Frame

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Innovative Power Solutions

EN INDEX

1. WARRANTY CERTIFICATE

The warranty terms are stipulated in the offer, by default the following clauses apply.

The SOCOMEC warranty is strictly limited to the product(s) and does not extend to equipment which may be integrated with this(these) product(s), nor the performance of this equipment.

The manufacturer guarantees its material to be free from manufacturing faults and defects in design, material or workmanship, subject to the limits set forth below.

The manufacturer reserves the right to modify the delivery with a view to fulfilling these guarantees or to replace defective parts. The manufacturer's warranty does not apply in the following cases:

- fault or defect in the design of parts added or supplied by the customer;
- fault due to unforeseen circumstances or force majeure;
- replacement or repair resulting from the normal wear of the modules or machinery;
- damage caused by negligence, lack of proper maintenance or misuse of the products;
- repair, modification, adjustment or replacement of parts performed by unqualified third parties or personnel without the express agreement of SOCOMEC.

The warranty period is twelve months commencing from the date of delivery of the product.

The repair, replacement or modification of the parts during the warranty period does not extend the warranty period.

In order to establish a valid warranty claim, the purchaser must notify the manufacturer in writing immediately after the discovery of any defects which are attributed to the material and provide any and all supporting evidence of the defects at the latest within eight days before the date of expiry of the warranty.

Defective parts which have been returned and replaced free of charge shall become the property of SOCOMEC.

The warranty is void if the purchaser has undertaken modifications or repairs on the devices on his or her own initiative and without the express consent of the manufacturer.

The manufacturer's responsibility is strictly limited to the obligations defined in this warranty (repair and replacement) excluding any other right to claim compensation or indemnity.

Any import tax, duty, fee or charge of any nature whatsoever imposed by European regulations or those of an importing country or of a transit country shall be paid by the purchaser.

CORPORATE HQ CONTACT: SOCOMEC SAS, 1-4 RUE DE WESTHOUSE, 67235 BENFELD, France.

2. SAFETY INSTRUCTIONS

2.1. Precautions

This document provides essential instructions regarding safety, handling and connections for STATYS cabinet-mounted and/or integrable units.

Carefully read this manual before operating STATYS.

Reference security information is in English language

Keep this manual in a safe place for future reference.

For other languages please contact SOCOMEC or relevant distributor,

⚠ **The manufacturer will not be held liable for failure to follow the instructions in this manual or available at www. socomec.com.**

CAUTION

For optimal use, it is recommended to maintain the ambient temperature and humidity at the values specified by the manufacturer.

Do not expose STATYS to rain or any other type of liquid. Do not introduce foreign bodies into the unit.

WARNING

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This document is not a specification. SOCOMEC reserves the right to modify the content of this document without notice.

This unit must be exclusively installed, commissioned and repaired by specialist technical personnel authorised by SOCOMEC.

The product which you have chosen taking into consideration its conditions of use, capacities and performance limits, is designed for commercial and industrial use only.

For use with so-called “critical applications”, the product may be required to comply with legal and regulatory obligations as well as specific local standards, and be adapted based on the recommendations of SOCOMEC. In all cases where the equipment is to be used for critical applications, you are advised to contact SOCOMEC in advance to confirm that the products are capable of meeting the required levels of safety, performance and reliability.

The term “critical applications” notably includes life support systems, medical applications, commercial transport, nuclear installations or any other system or application where the failure of the product is likely to cause substantial damage to persons or property.

The liability of SOCOMEC in relation with the product subject of these instructions is as stated in the applicable conditions of sales agreed between SOCOMEC and its client.

2.2. Warning plate symbols

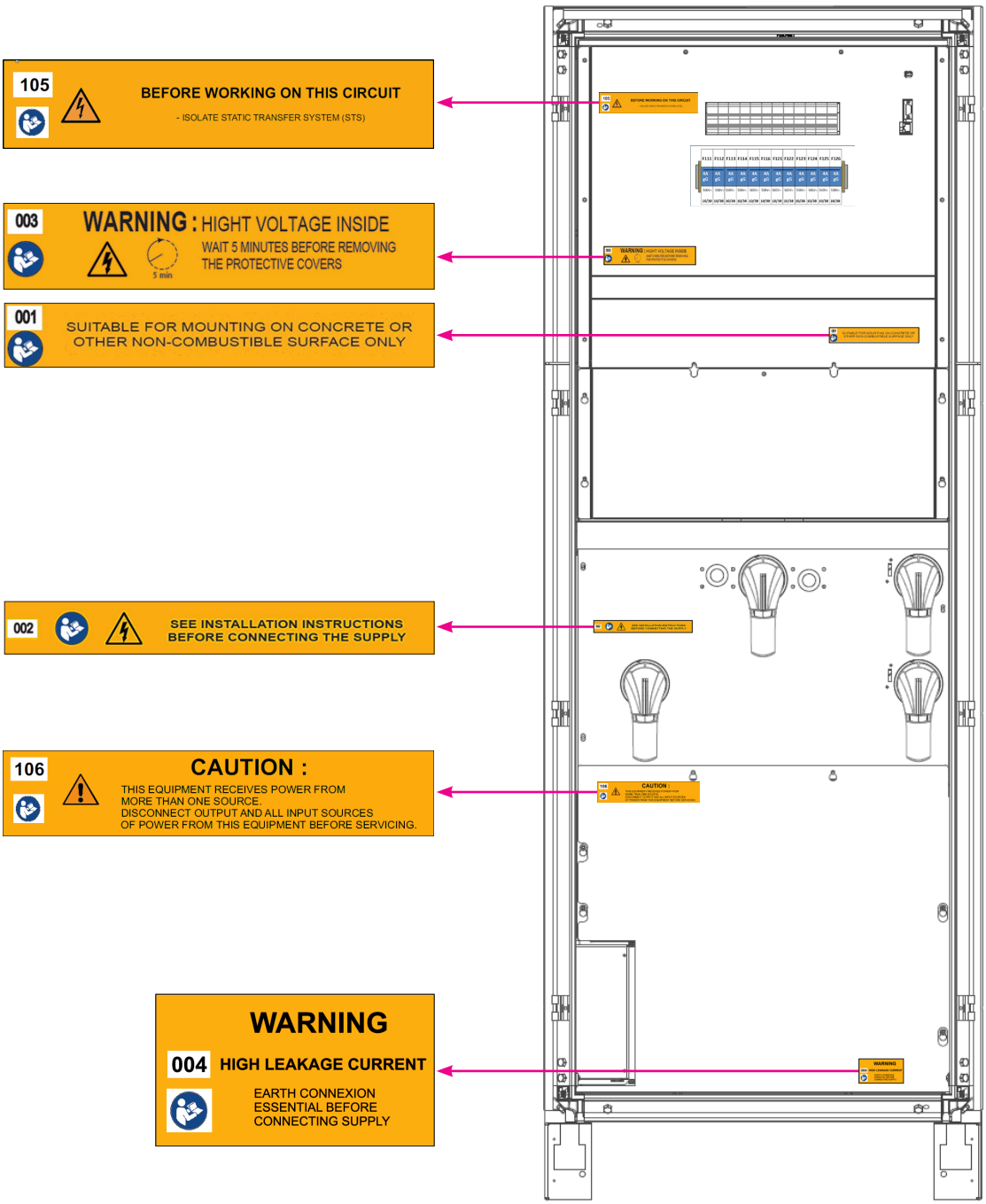
We remind you of the need to observe the safety recommendations and warnings shown on the labels located inside and outside of the unit.

Danger ! High voltage (black/yellow)

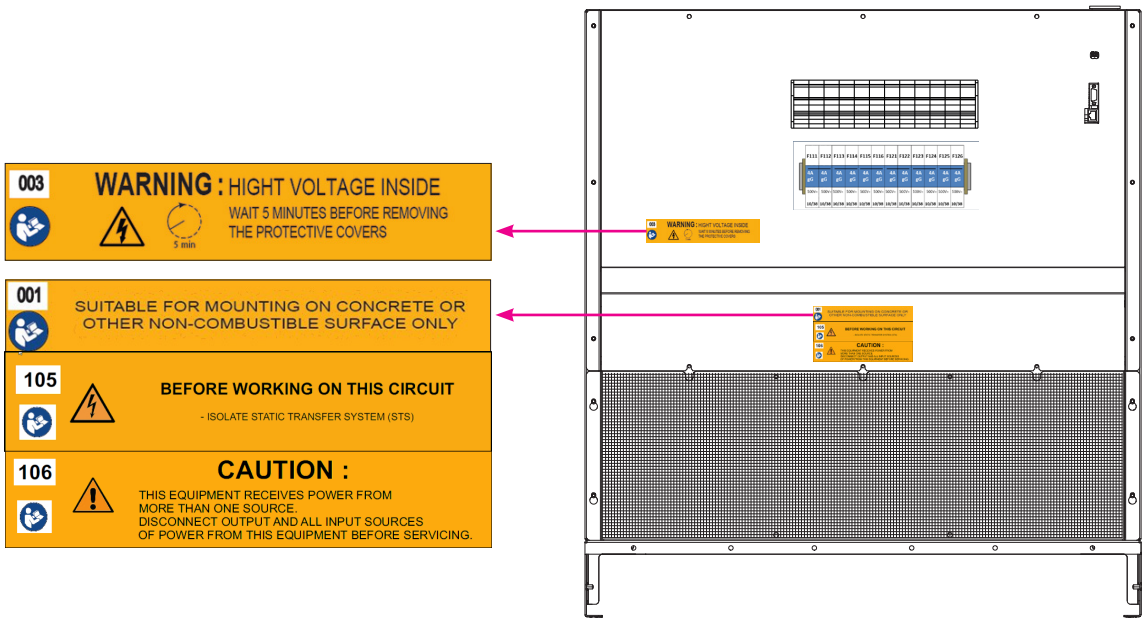
Ground terminal

Read the user manual before performing any operation

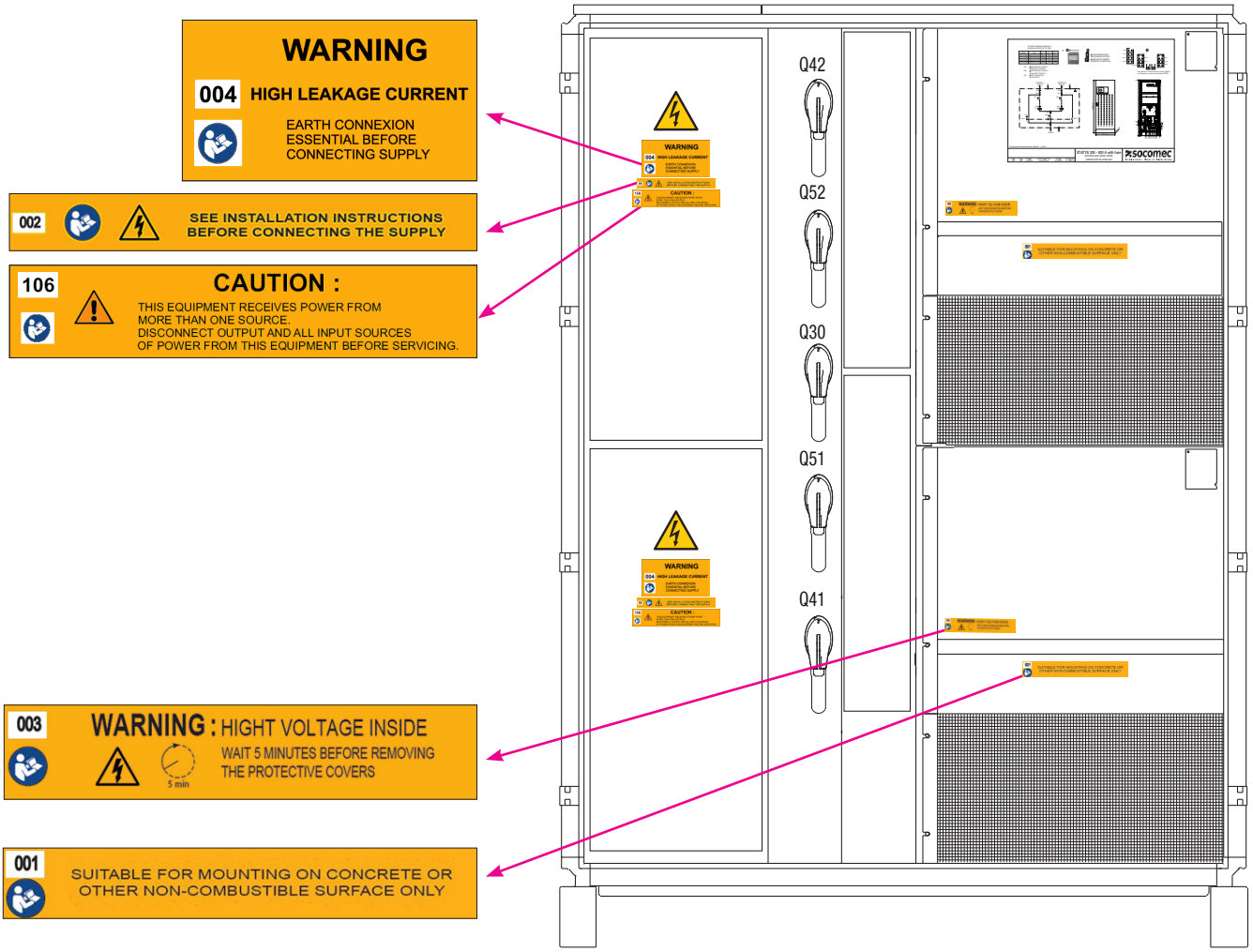
On 200A, 300A, 400A, 600A and 630A cabinet versions



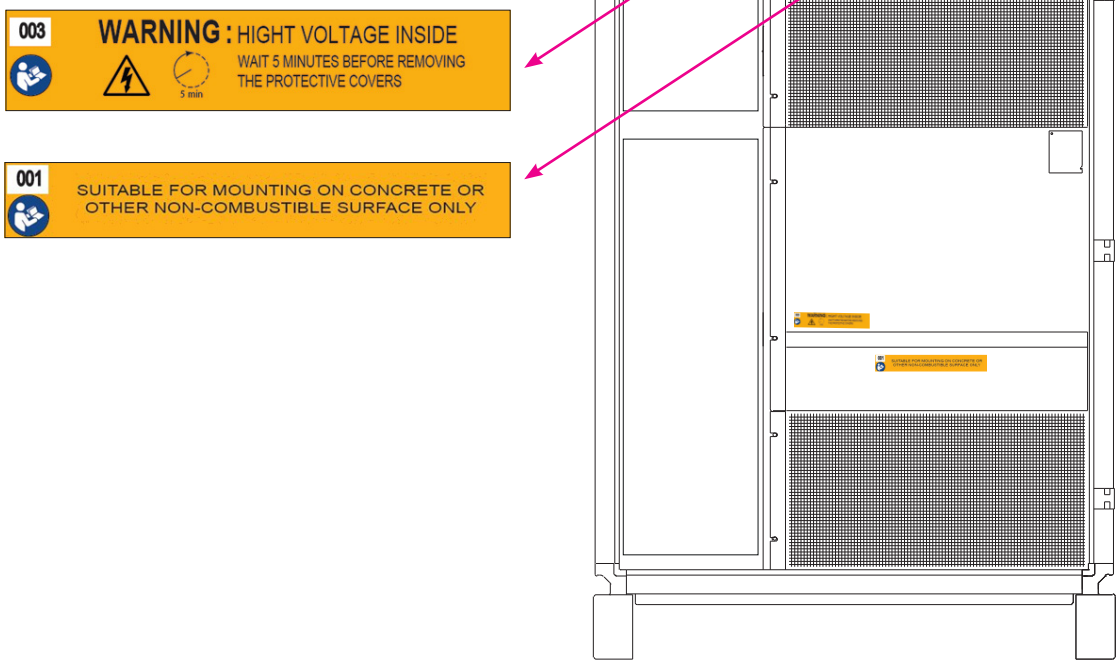
On 200A, 300A, 400A, 600A and 630A integrable chassis versions



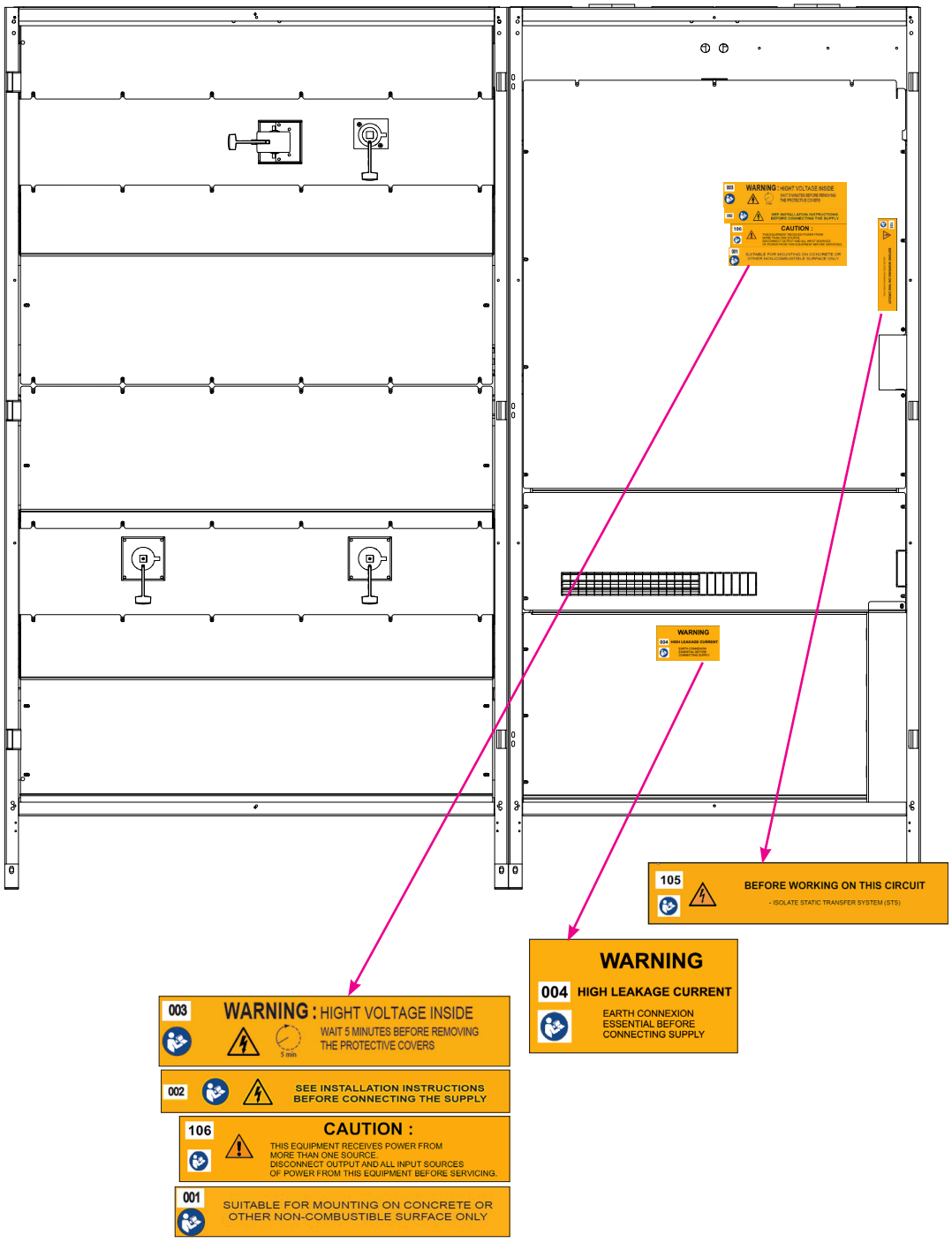
On 800A and 1000A cabinet versions



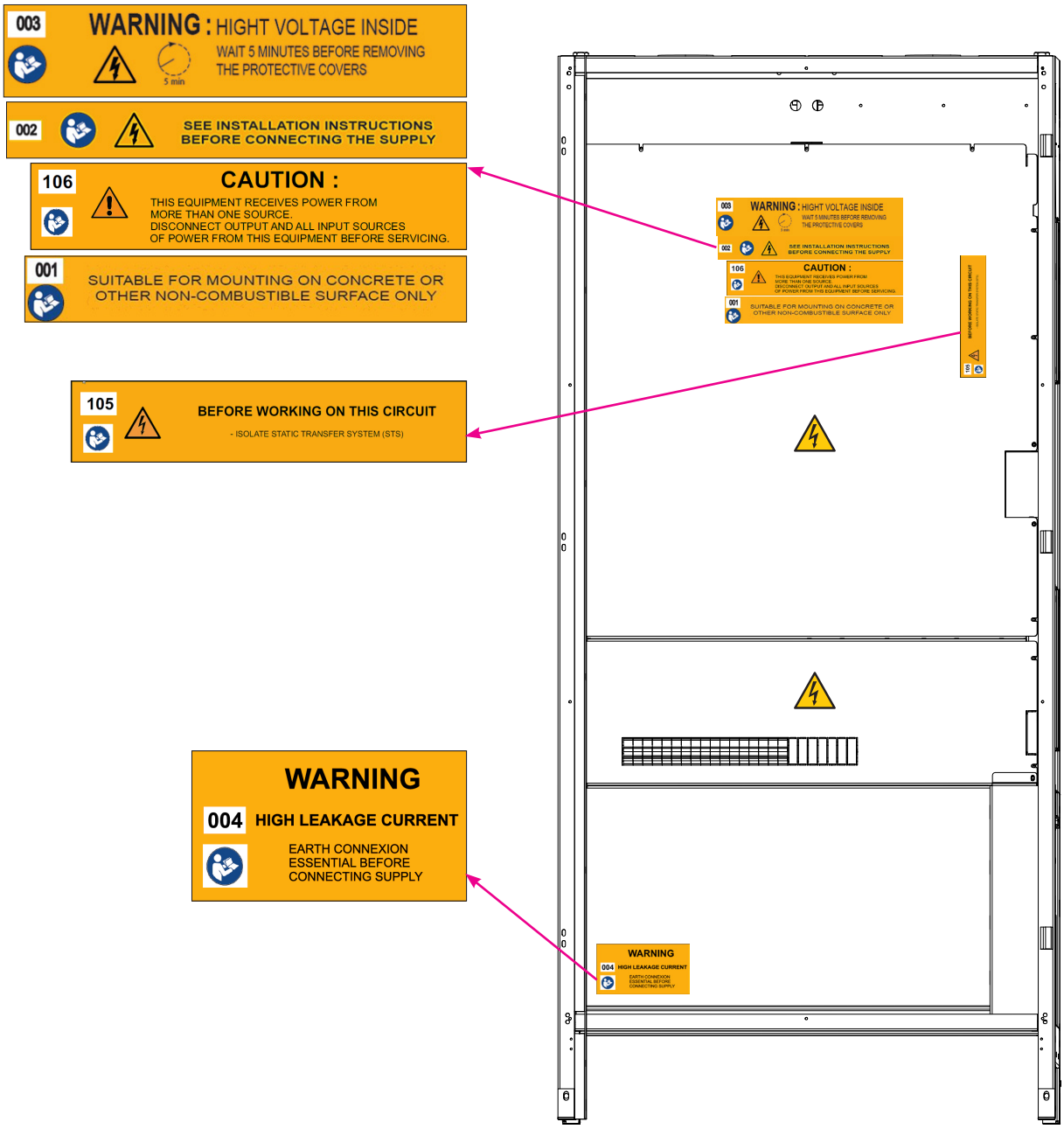
On 800A and 1000A integrable chassis versions



On 1250A, 1400A and 1600A cabinet versions



On 1250A, 1400A, 1600A and 1800A integrable chassis versions



2.3. Electrical risk

⚠ Risk of electric shock!

- Risk of electrocution !
- Only qualified and authorized personnel are allowed to intervene on the product.
- The instructions are valid in conjunction with the specific instructions of the product.
- The product is designed only for the application specified in the operating instructions.
- Accessories can be used with the product only if approved or specified by SOCOMEC.
- Before proceeding with the implementing, mounting, commissioning, configuration, cleaning, decommissioning, dismounting, wiring or maintenance operations, the product and the installation must be powered off. However, specific instructions for a product may allow live intervention under certain conditions, means, qualifications and authorizations.
- The product is not destined to be repaired by the user.
- Contact SOCOMEC for any questions regarding the disposal of the product.
- **Failure to follow the product instructions and this safety information may result in personal injury, electric shock, burns, death or property damage.**

WARNING

All operations and maintenance must be performed by authorised personnel who have undertaken suitable training.

Scrupulously follow the operating or maintenance instructions described in this manual.

Take maximum precautions and determine which parts are live:

- by following the load diagrams,
- by checking the presence of power with a voltmeter, for example.

⚠ DANGER

The cabinet is permanently powered by sources 1 and 2 if Q41 and Q42 are closed.

In normal operating conditions, there is no danger for personnel handling this equipment.

2.4. Risk of power cut

WARNING

Scrupulously follow the operating instructions described in this manual to prevent inadvertent power cuts which may pose a safety hazard to the user.

⚠ DANGER

Taking into account the presence of high leakage currents, it is essential to connect the ground cable before connecting the upstream and load sources.

Hazardous voltage may be present within STATYS after it is switched off.

In fact, the power supply voltage remains present at the input of each static contactor.

3. PRESENTATION

3.1. Foreword

Thank you for choosing the STATYS Static Transfer System from SOCOMEC.

3.2. The role of Statys

STATYS watches permanently both sources of supply and the output to insure the automatic transfer of the use on the alternate source in case of failure of the priority source and to allow a return of the use on that source when she will be exploitable.

STATYS is defined by the rating of the current which passes through it by phase (in Amps), irrespective of other electrical characteristics. The power for a given rating is a function of the nominal voltage used.

Two categories of STATYS unit are described in this manual:

- cabinet-mounted STATYS units,
- "integrable chassis" STATYS units, for installation in a custom environment such as distribution switchboards.

3.3. Operating principle

STATYS is an autonomous electrical device which permits the seamless transfer of the load between an alternate electrical source S1 and another alternate source S2 (see § 5.2 “Electrical diagram”).

Under normal operation, STATYS supplies the load from the prefered source. The priority source is selected by the user according to on-site restrictions.

Two transfer modes are possible:

- manual transfer mode, controlled by the operator locally or remotely by means of a BMS or other communicating system,
- automatic transfer mode, which occurs when an out-of-tolerance voltage is detected on the priority source. The break-before-make switching principle prevents source overlap.

NOTE: The priority source (source 1 or source 2) is selected using the keyboard and this selection is displayed on-screen.

3.4. Product range

STATYS is available in the following ratings: 200A, 300A, 400A, 600A, 630A, 800A, 1000A, 1250A, 1400A 1600A and 1800A

Some are available in two installation versions, cabinet or integrable chassis version.

Different options must be defined when the order is placed (with or without protection fuses, number of poles switched...).

3.5. Safety instructions

Standards and certificates of compliance

SOCOMEC designs and markets its products in accordance with the following European and international standards, in addition to meeting the requirements of manufacturers of sensitive electronic and IT equipment.

IEC 62310-1	STS: general requirements and safety regulations
IEC 62310-2	STS: electromagnetic compatibility (EMC) requirements

A comprehensive quality process certified to ISO 9001 ensures high-quality production and associated services.
Specifications are subject to change without prior notice.
Do not hesitate to contact your nearest SOCOMEC sales office for further details.

This equipment conforms to EC directives applicable to this type of product. This conformity is indicated by the CE mark:

CE

This equipment conforms to AS standards and bears the approval mark:

(E2376)

The regulations and standards applicable to the place of installation of the apparatus must also be observed to ensure the prevention of accidents.

4. POSITIONNING

4.1. Mechanical characteristics

Cabinet

<table>
<tr><th></th><th>Height (mm)</th><th>Width (mm)</th><th>Depth (mm)</th><th>Weight (kg)</th></tr>
<tr><td>200A</td><td rowspan="8">1930</td><td>500</td><td>640</td><td>195</td></tr>
<tr><td>300A</td><td rowspan="4">700</td><td rowspan="4">640</td><td rowspan="2">270</td></tr>
<tr><td>400A</td></tr>
<tr><td>600A</td><td rowspan="2">290</td></tr>
<tr><td>630A</td></tr>
<tr><td>800A</td><td rowspan="2">1400</td><td rowspan="2">995</td><td rowspan="2">685</td></tr>
<tr><td>1000A</td></tr>
<tr><td>1250A</td><td rowspan="3">1955</td><td rowspan="3">2010</td><td rowspan="3">815</td><td rowspan="3">1200</td></tr>
<tr><td>1400A</td></tr>
<tr><td>1600A</td></tr>
</table>

Integrable chassis

<table>
<tr><th></th><th>Height (mm)</th><th>Width (mm)</th><th>Depth (mm)</th><th>Weight (kg)</th></tr>
<tr><td>200A</td><td rowspan="5">765</td><td>400</td><td rowspan="5">586</td><td>70</td></tr>
<tr><td>300A</td><td rowspan="4">600</td><td rowspan="2">105</td></tr>
<tr><td>400A</td></tr>
<tr><td>600A</td><td rowspan="2">115</td></tr>
<tr><td>630A</td></tr>
<tr><td>800A</td><td rowspan="2">1930</td><td rowspan="2">1000</td><td rowspan="2">995</td><td rowspan="2">495</td></tr>
<tr><td>1000A</td></tr>
<tr><td>1250A</td><td rowspan="4">1955</td><td rowspan="4">910</td><td rowspan="4">815</td><td rowspan="4">570</td></tr>
<tr><td>1400A</td></tr>
<tr><td>1600A</td></tr>
<tr><td>1800A</td></tr>
</table>

Indicates overall dimensions (*including handle).

⚠ **See plans in §12 “Appendices”.**

4.2. Transport

STATYS is packaged using materials which keep it stable during transport and handling.

During transport and handling, STATYS must be kept in an upright position.

When handling the unit on inclined surfaces (even on surfaces with a minimal incline), use equipment fitted with suitable braking devices in order to prevent the risk of serious accidents.

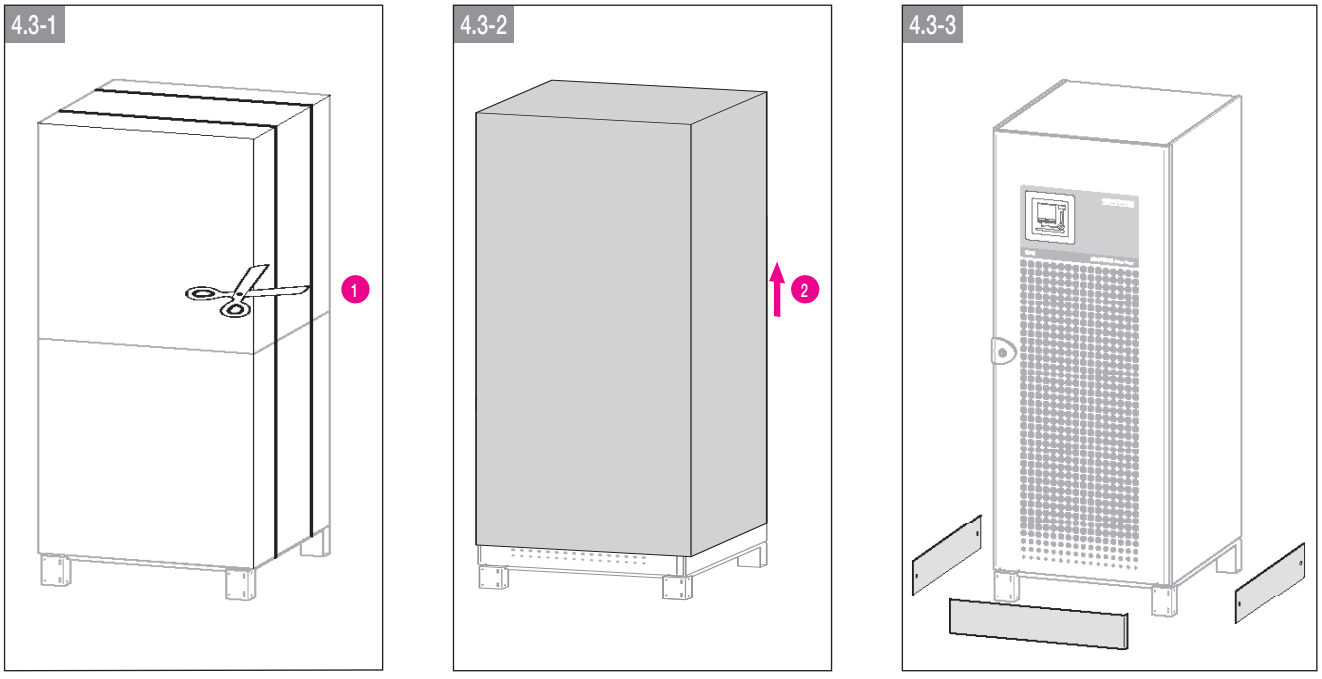
Transport the unit as close as possible to the connection area before removing the packaging.
Ensure that the floor can withstand the weight of STATYS.

When moving the unit, avoid supporting it by the front panels.

STATYS MUST be moved by at least two people. They MUST stand on either side of the STATYS unit according to the direction of movement.

4.3. Unpacking

If the packaging is damaged on receipt, its content must be immediately collected and isolated. The shipper or consignee must be contacted.



POSITION STATYS IN ITS INSTALLATION AREA.

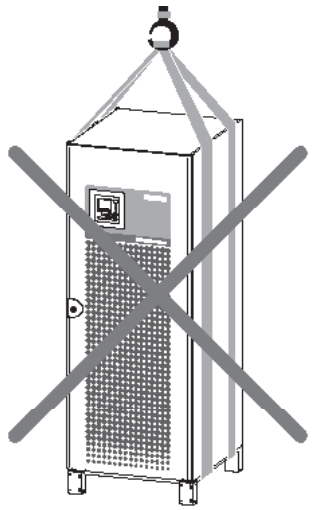
All packaging materials must be recycled in accordance with regulations in force in the country of installation.

4.4. Handling from above

⚠ The handling of integrable 200-630A units from above (using slings, spreader beam, straps...) is strictly prohibited.

⚠ The handling of 1250-1800A units from above is possible only with trusses, never use lifting slings.

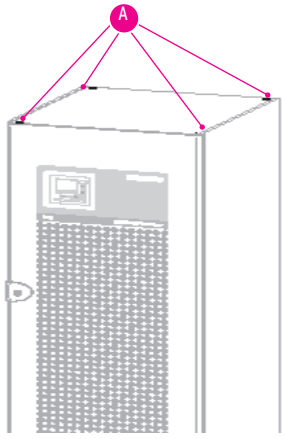
4.4-1



⚠ Never use general-purpose straps!

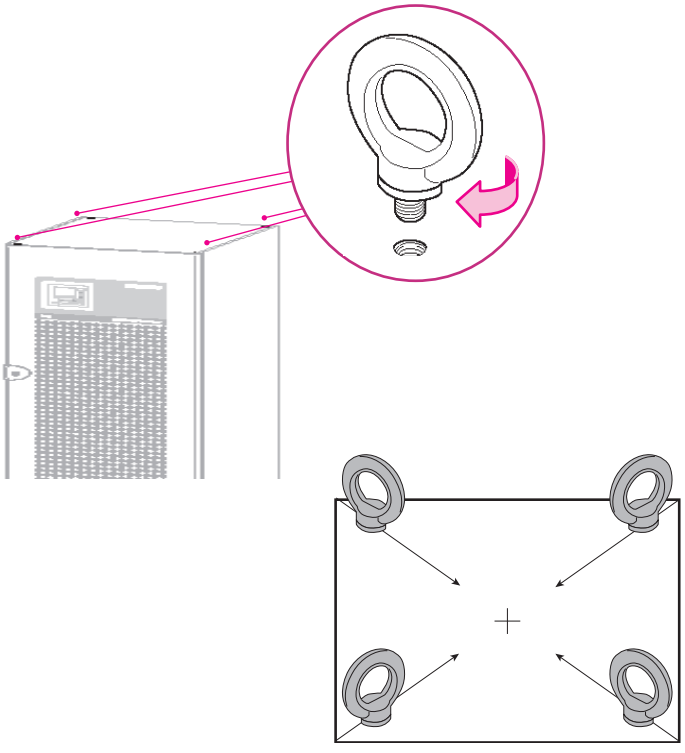
4.4-2

Remove the top screws A.

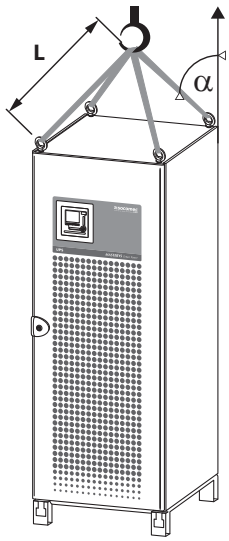


4.4-3

Fit the lifting rings [M12) supplied on request.

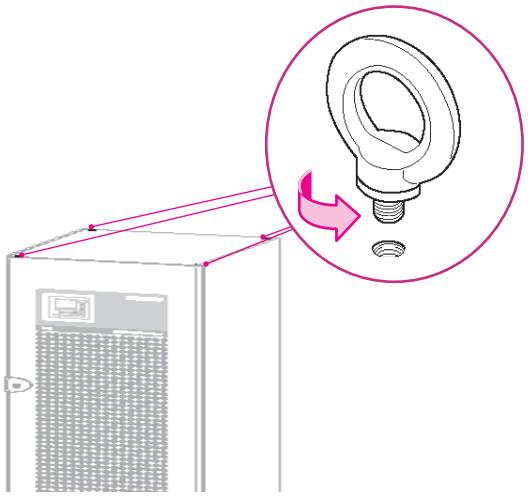


4.4-4



4.4-5

Remove the lifting rings (M12) supplied on request.



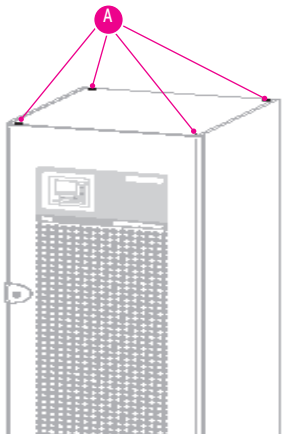
960 kg maximum

The length of the lifting slings must be:

	Cabinet	Integrable chassis
L (cm)	≥ 150	≥ 100
α	< 45°	

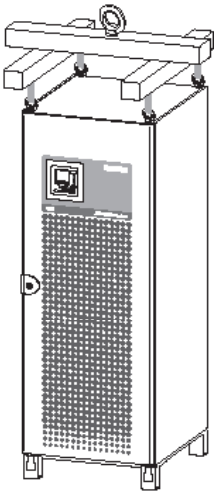
4.4-6

Refit the top screws A.



4.4-7

If the ceiling height is too low, trusses can be used.



4.5. Handling from underneath

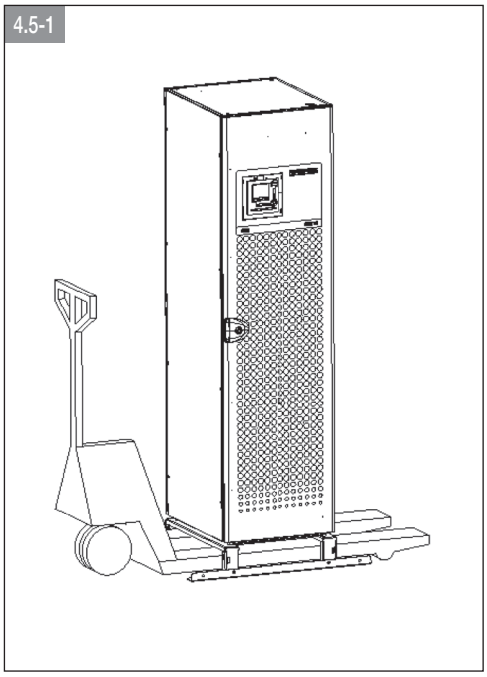
Given the cabinets are heavy, handling using a pallet truck on slopes or ramps –even only slightly inclined, is hazardous and can cause severe accidents.

Take all required precautions and use adapted means and tools.

The cabinets can be handled from underneath using a pallet truck or forklift truck. Remove the grids of the cabinet, then position the forks underneath it:

200A cabinet

4.5-1



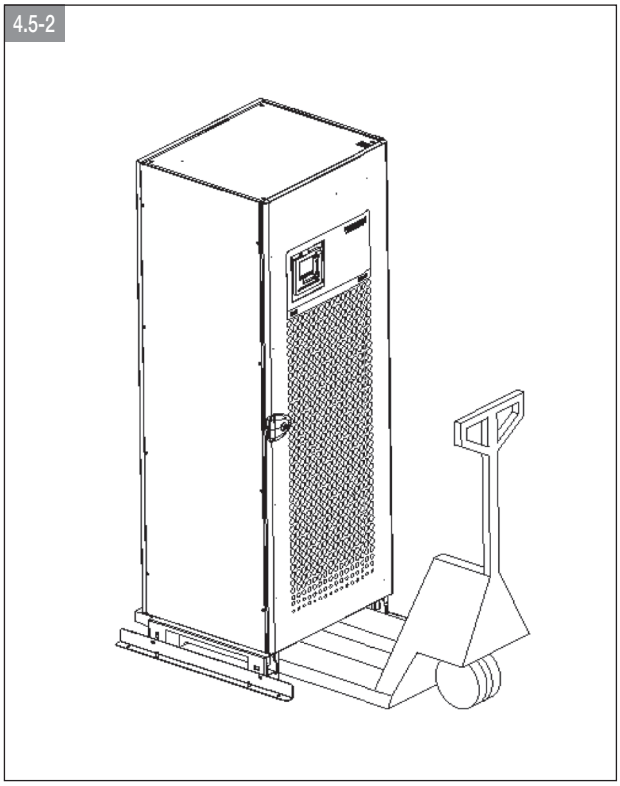
- **HANDLING FROM THE SIDES**

To facilitate handling, two yellow skis (700 mm) are screwed onto the feet, in the widthwise direction.

The cabinets can be handled from underneath using a pallet truck or forklift truck, with the forks introduced **from the sides only.** Remove the side grids of the cabinet, then position the forks underneath it.

300A/400A/600A/630A cabinet

4.5-2



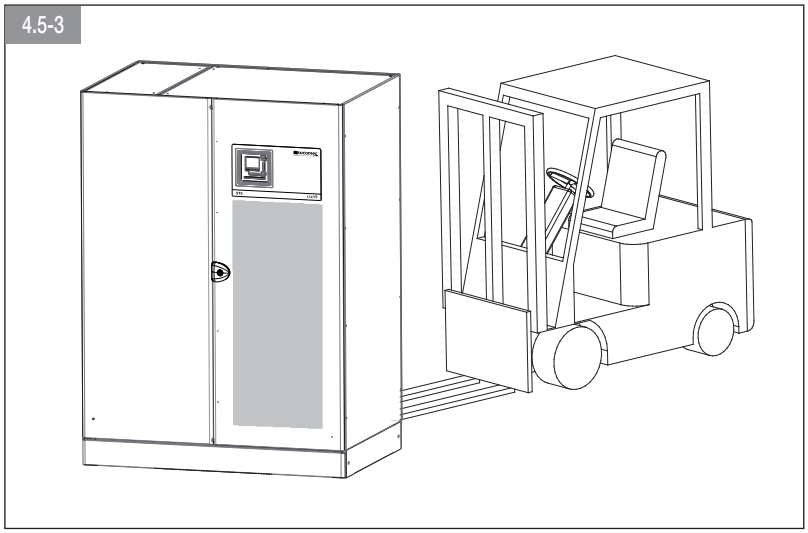
- **HANDLING FROM THE FRONT OR THE REAR**

To facilitate handling, two yellow skis (700 mm) are screwed onto the feet in the depthwise direction.

The cabinets can be handled from underneath using a pallet truck or forklift truck, with the forks introduced **from the front or rear only.**

The skis must be detached before the machine is installed in its final position.

4.5-3

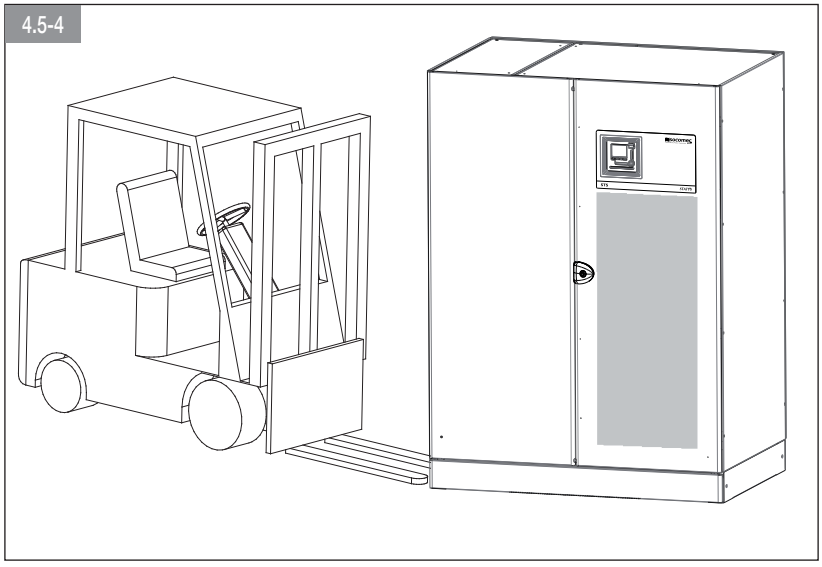


- **HANDLING FROM THE FRONT OR THE REAR**

Note :

the fork should be at least 1020 mm long

4.5-4



- **HANDLING FROM THE SIDES**

Lateral handling is also possible, provided that the bottom side panels are removed.

Note : the fork should be at least :

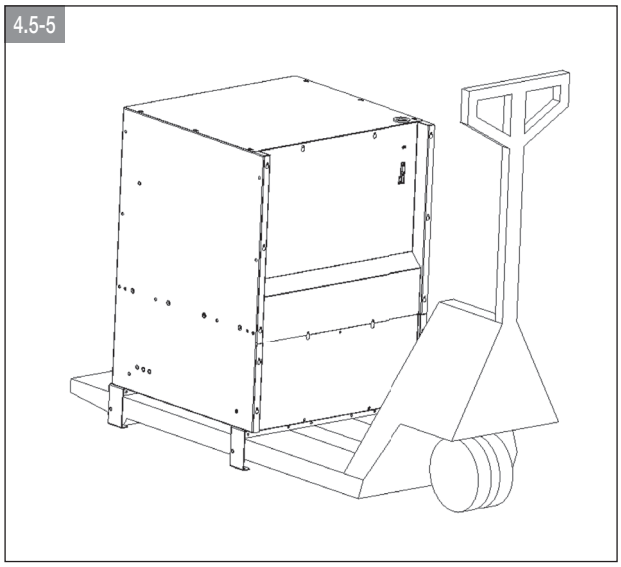
	Cabinet	Integrable chassis
L (mm)	1420	1020

200A/300A/400A/600A/630A integrable

To facilitate maintenance, two feet are screwed onto the underside of the body, along its width.

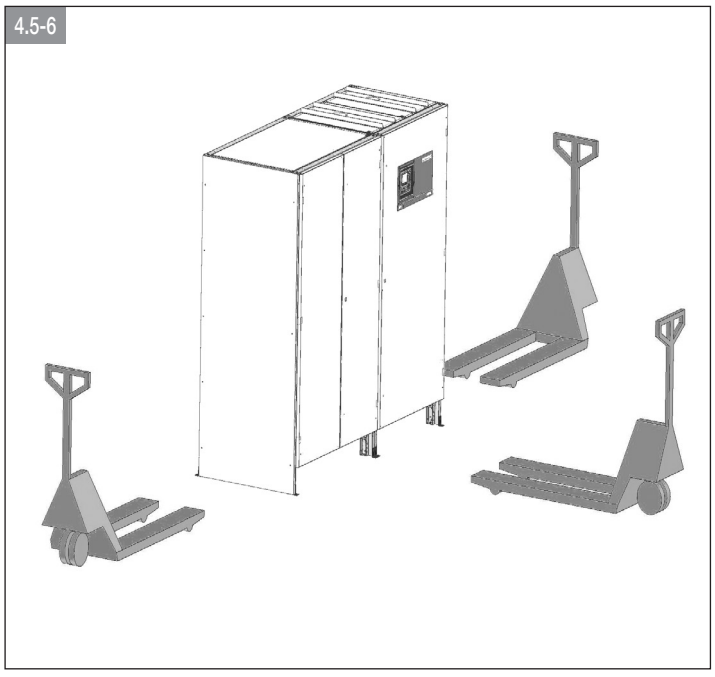
The integrable units can be handled from underneath by means of a pallet truck or forklift truck, with the forks introduced from the front or rear only (**except for STATYS 200A**). Remove the side grids of the cabinet, then position the forks under the unit.

4.5-5



1250A/1600A Cabinet

4.5-6



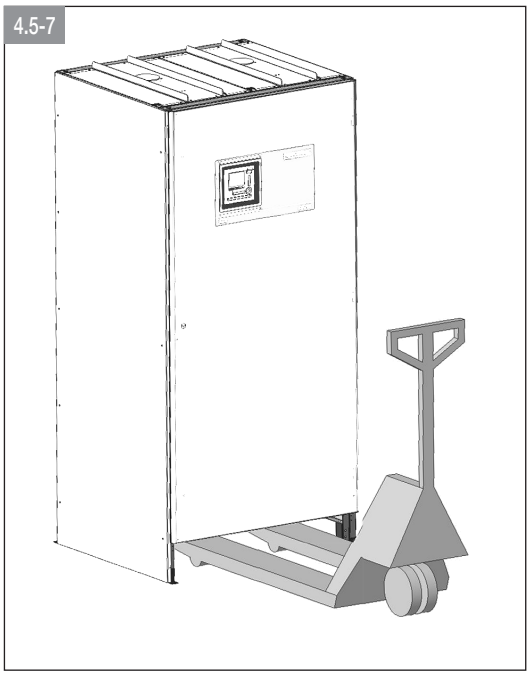
Note :

from the front or the rear, the fork should be at least 820mm from the side, the fork of 2 pallet trucks or forklift trucks should be at least 1150mm.

⚠ **the side panels must be removed.**

1250A/1800A Integrable

4.5-7



Note :

from the front or the rear, the fork should be at least 820mm from the side, the fork should be at least 920mm.

⚠ **the bottom side panels must be removed.**

4.6. Environmental conditions

Avoid dusty atmospheres or environments containing dust from conductive or corrosive materials (e.g. dust from metal or chemical solutions).

In case of corrosive or industrial atmospher environment, please, consult us.

Use STATYS only in a closed indoor environment.

Do not expose STATYS to direct sunlight or excessive heat sources.

STATYS has been designed for use in an environment defined as follows:

Cabinet

	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A
Transport and storage temperature	-20 °C -- +70 °C									
Humidity (transport and storage)	0% -- 95%(2)									
Operating temperature	From 0 °C up to +40 °C(1)									
Operating relative humidity	0% -- 95%(2)									
Altitude	maximum 1000m without derating									
Degree of protection	IP 20									
Sound pressure dB (A)	70		76			61		84		

(1) +30 °C for 630 A

(2) Non-condensing

If necessary, cooling and air conditioning systems should be used.

STATYS provides front access to the breaker components; leave a minimum space of 1.5 metres in front of STATYS to allow for maintenance work.

The skis (if available) must be detached before the machine is installed in its final position.

Integrable

	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A	1800A
Transport and storage temperature	-20 °C -- +70 °C										
Humidity (transport and storage)	0% -- 95%(2)										
Operating temperature	From 0 °C up to +40 °C(1)										
Operating relative humidity	0% -- 95%(2)										
Altitude	maximum 1000m without derating										
Sound pressure dB (A)	70(3)		73			61		84			

(1) +30 °C for 630 A

(2) Non-condensing

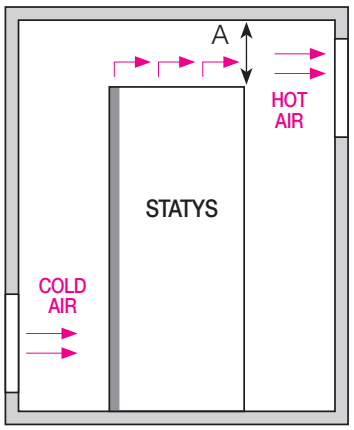
(3) based on standard integration

If necessary, cooling and air conditioning systems should be used.

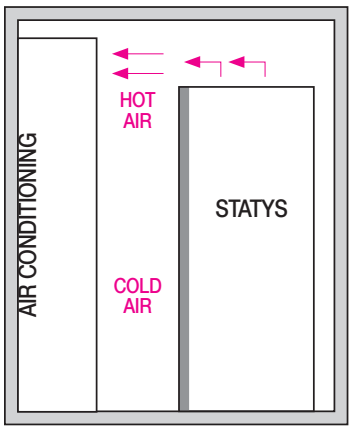
The detachable feet must be removed before the machine is installed in its final position.

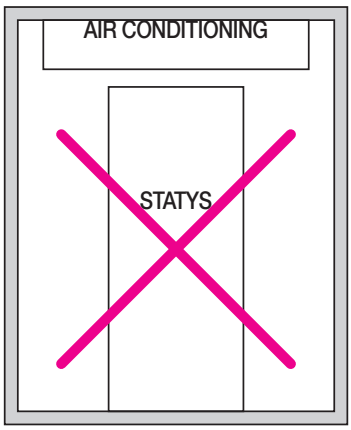
4.6.1. Cooling and air conditioning

4.6.1-1 Cooling.



4.6.1-2 Air conditioning.





A = minimum distance of 200 mm for 200-1000A and 400 mm for 1250-1800A between the roof grid of STATYS and the roof grid of the cabinet.

Cabinet

	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A
Cooling	forced cooling (redundant)									
Air flow (m^3 / h)	800	1600				1950		3000		
Max Dissipation (W)	1330	1690	2530	3730	3990	4272	5597	6705	7238	7905

When fitting the modules in their environment, ensure that there is sufficient space to allow for unrestricted air flow and heat dispersal.

Integrable

Air inflow:

If the underside of the integrable chassis is not obstructed, air is drawn through it.

If the underside of the integrable chassis is obstructed, air is drawn through the front panel.

To prevent impaired thermal performance of the STATYS unit mounted in a cabinet with the underside obstructed or blocked, it must be raised by 200 mm (for 200-630A and 1250-1800A) so that the fans draw air from the front panel at door level.

Air outflow:

Air flows out through the top surface of the integrable chassis

	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A	1800A
Cooling	forced cooling (redundant)										
Air flow (m^3 / h)	800	1600				1950		3000			
Max Dissipation (W)	1090	1430	1990	3020	3230	4133	5380	6705	7238	7905	8971

When fitting the modules in their environment, ensure that there is sufficient space to allow for unrestricted air flow and heat dispersal.

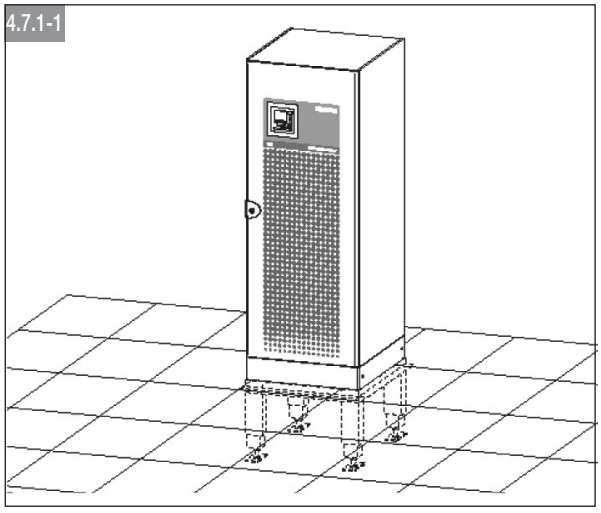
4.7. Floor mounting

STATYS should only be installed on a concrete surface or other non-combustible surface.

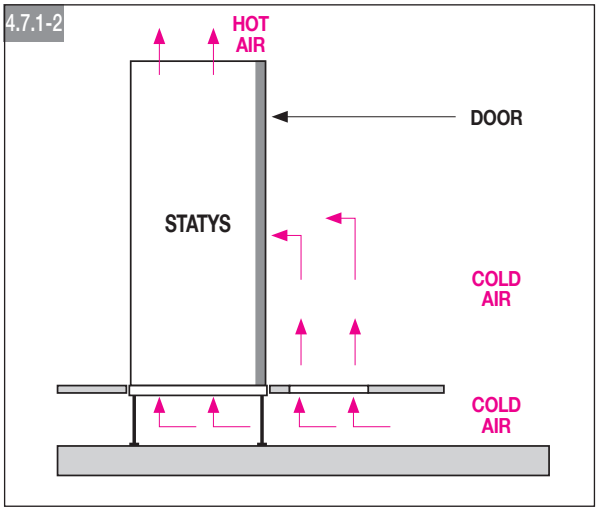
4.7.1. Installation on raised technical flooring

In the event of installation on technical flooring, a frame must be used to support the weight of the unit (figure 4.7.1-1).
The cold air is drawn in through the front (except 1250-1600A unit) and below the cabinet and hot air exits from the top of the unit.

4.7.1-1

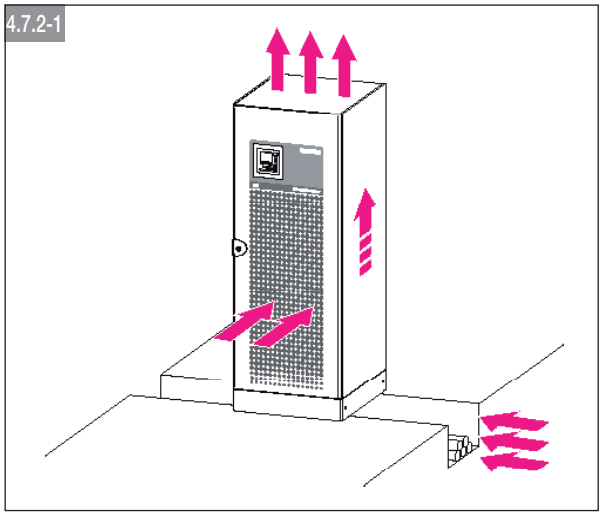


4.7.1-2



4.7.2. Installation above air duct

4.7.2-1



The cold air is drawn in through the front (except 1250-1600A unit) and below the cabinet and hot air exits from the top of the unit.

4.7.3. Integrable-mounted installation of STATYS 200-630A

The integrable chassis can be installed in one of two ways:

- Placed on crossbeams and fastened from underneath using screws (see plan 3 in §12 “Appendices”)
- Fastened on the sides by 4 x M6 threaded inserts on each side (see plan 3 in §12 “Appendices”). You can also use the brackets supplied on request (see plan 5 in §12 Appendices).

Do not fasten the integrable chassis using the front and rear panels.

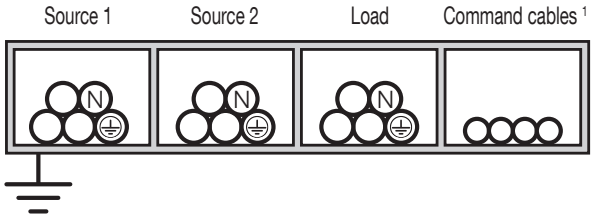
When fitting the modules in their environment, ensure there is sufficient space to allow for unrestricted air flow and heat dispersal (200 mm under chassis).

Multiple integrable units can be installed in the same cabinet. Nevertheless, air flowing out from the top panel of an integrable unit must not be used to cool other integrable units.

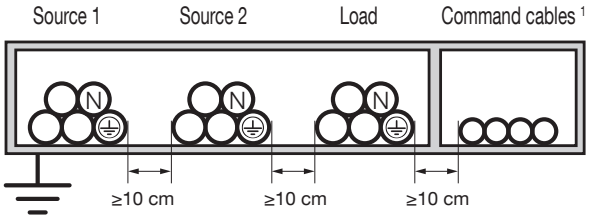
5. ELECTRICAL POWER INSTALLATION

5.1. Cable routing

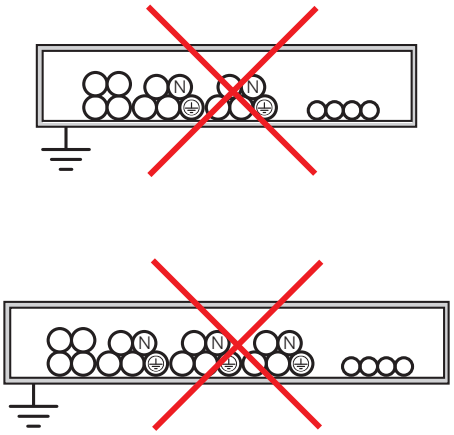
5.1-1 Correct installation.



5.1-2 Authorised installation.



5.1-3 Incorrect installation.



(1) Control cables: connections between the cabinets and each unit, alarm messages, remote mimic panel, BMS connection, emergency stop, connection to breaker components...

⚠ **Power cables and control cables must never be installed in the same raceway.**

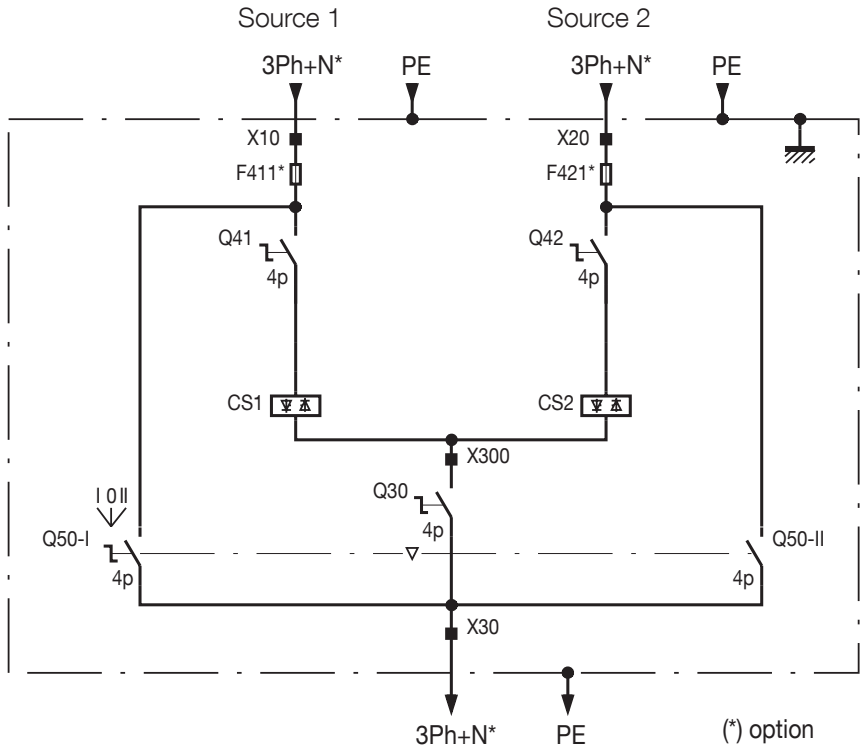
⚠ **Power cables near to sensitive equipment must not be exposed to electromagnetic fields.**

5.2. Electrical diagram

5.2.1. Cabinet

(see §12 “Appendices”)

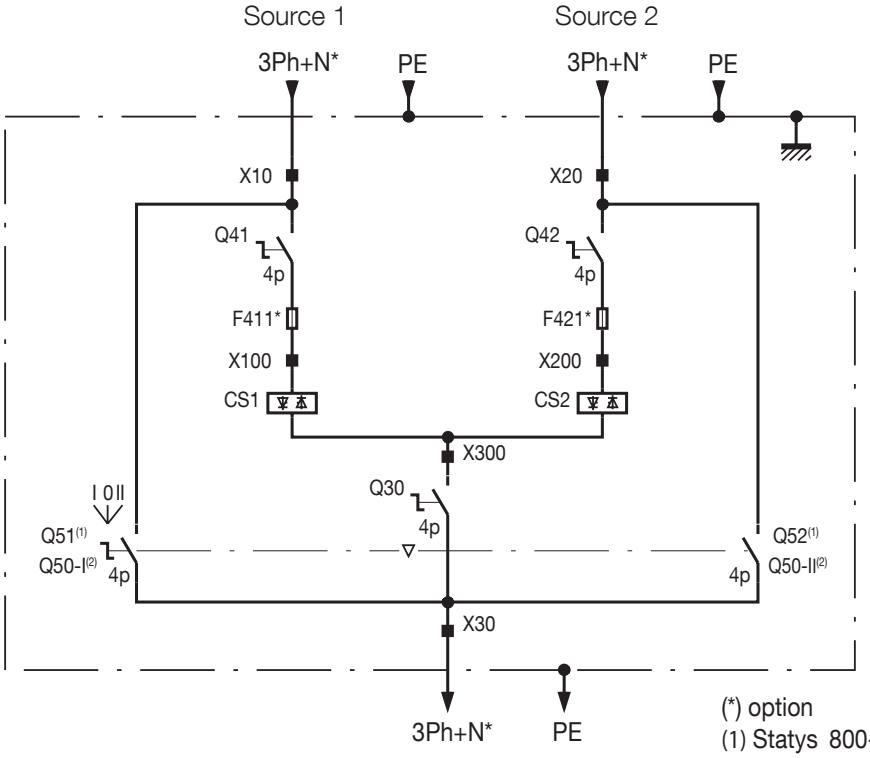
Schematic diagram 200-630A:



Key:

Q41 = Source 1 input switch,
Q42 = Source 2 input switch,
Q30 = Output switch,
Q50-1/Q50-2 = Switches, for source 1 or 2 maintenance bypasses,
CS1 = Switch 1,
CS2 = Switch 2,
F = Protection by Fuse (optional).

Schematic diagram 800-1600A:



Key:

Q41 = Source 1 input switch,
Q42 = Source 2 input switch,
Q30 = Output switch,
Q50-1/Q50-2 = Switches, for source 1 or 2 maintenance bypasses,
or Q51/Q52 for 800-1000A
CS1 = Switch 1,
CS2 = Switch 2,
F = Protection by Fuse (optional).

(*) option
(1) Statys 800-1000
(2) Statys 1200-1600

Connection terminals

Description	Load
X10	Source 1 phases input
X20	Source 2 phases input
X30	Load phases output

Description	Load
Q41 / Q42	Input switch
Q30	Output switch
Q50 (I-0-II) - 200-630A 1250-1600A	Maintenance bypass
Q51 / Q52 - 800-1000A	

⚠ **Remember to connect the ground at the marked point** ⏚.

⚠ **Connection «arrival by the top» possible on 800A and 1000A.**

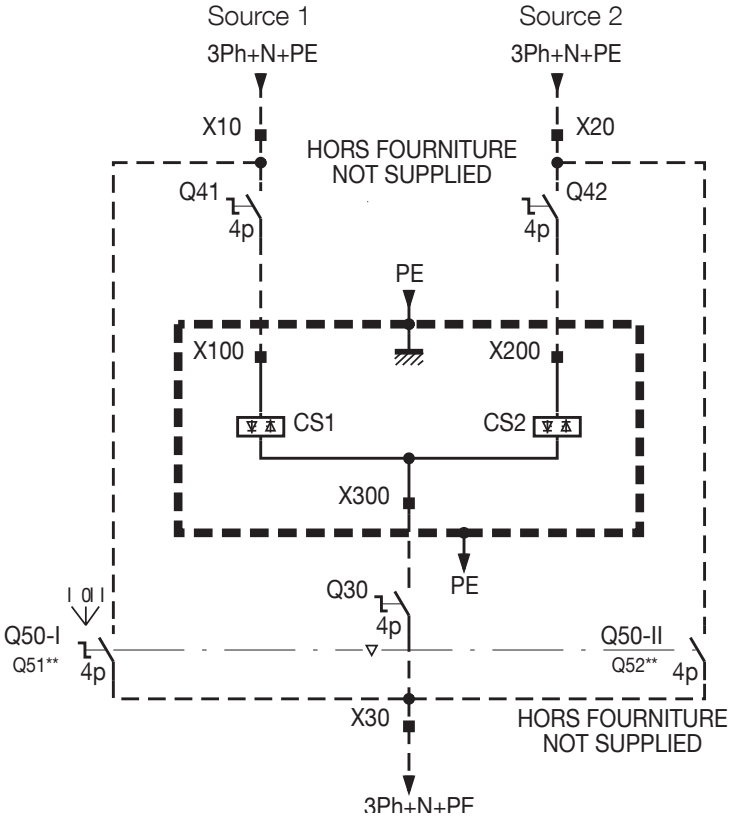
Min. distance between centre of connection pad and the floor

	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A
X10	240 mm	255 mm				359		340 / 392		
X20						899 / 936 (L2)				
X30						1476		292		

5.2.2. Integrable Chassis

(see §12 “Appendices”)

Schematic diagram



Key:

Q41 = Source 1 input switch[1],

Q42 = Source 2 input switch[1],

Q30 = Output switch[1],

Q51/Q52 = Switches, for source 1 or 2 maintenance bypasses[1],

CS1 = Switch 1,

CS2 = Switch 2,

F = Protection by Fuse (optional).

(1) Supplied by customer in Integrable Chassis version.

Connection terminals

Description	Load
X100	Source 1 input
X200	Source 2 input
X300	Load output

Remember to connect the ground at the marked point ⏚.

Connection «arrival by the top» possible on 800A and 1000A.

Min. distance between centre of connection pad and the bottom of the chassis

	200A	300A	400A	600A	630A
X100	70 mm	35 mm			
X200	70 mm	35 mm			
X300	65 mm	57 mm			

	800 / 1000A				1250 / 1400 / 1600 / 1800A
	N	L1	L2	L3	L3 / L2 / L1 / N
X10	446	479	512	545	373
X30	996	1029	1062	1095	335
X20	1546	1579	1612	1645	423

5.3. Devices for protecting persons and property

5.3.1. Backfeed protection

In order to comply with the standard, STATYS is fitted with a control for backfeed protection devices. In case of default on one input, STATYS delivers a voltage signal on terminal block XB2 (see § 6.1.4 “XB1 / XB2 terminal block (F)”) to triggers the upstream protection devices by means of a pulse-type shunt trip coil.

In the integrable chassis version, the L1/ L3 voltage must be returned to the level of the fuse holder.

It is a phase to phase voltage.

Backfeed cabling is mandatory.

The breaker components triggered by the shunt trip coils must be marked with a warning label.

SOCOMEC declines all responsibility if the signal for triggering upstream protection devices is not connected up.

5.3.2. Internal protective device (Cabinet model only)

Depending on the STATYS model ordered, an internal protective device may be present:

Current A	200A	300A	400A	600A	630A	800A	1000A	1250A	1400A	1600A
Calibre fusible UR (A)	400	630		1000		1800		2 x 1400		
I^2t pre-arc at 1ms (kA^2s)	19	54		240		800		888		
I^2t total at 440V (kA^2s)	65	182		812		3900		5888(*)		

* at 415 V

If possible, replace using an identical model of the same brand.

In any case the neutral is not protected (never broken).

The internal protective does not provide external upstream protection.

5.3.3. External upstream protection

These protective devices need to be selected and configured taking into account the size of the STATYS unit, the installation and the diameter of cable used.

The installation's short-circuit current must not exceed that permitted by STATYS (see § 5.5).

If a differential switch is installed on the mains power switch, it must be inserted upstream from the distribution panel; it must be type B.

Circuit breaker

The values below are indicative and subject to the following conditions:

- the upstream voltage of the STATYS is 3 x 400 V, with an overload of 200%,
- the cable length between the circuit breaker and the STATYS is < 10 meters.

Current A	200	300	400	600	630	800	1000	1250	1400	1600	1800
Circuit breaker rating A	250(1)	630	630	800	800	1000	1250	1600	1600	2000	2000

(1) Must be a NSX 250F TDM 200A 4P3D.

Note 1: the upstream protection ensures the protection of cables, but not the (I^2T) thyristors.

Note 2: Check that the tripping curve of the circuit breaker takes account of any overloads, see § 5.5.

5.4. Earthing diagrams

The STATYS range is compatible with all earthing systems (IT consult us). Nevertheless you should ensure that you have a suitable safety device (3-pole breaker or 4-pole breaker) installed.

Available optional, a connecting bar kit fitted in factory allow to connect each neutrals with the ground in the case of a connecting on an installation using the plan of TNC connection.

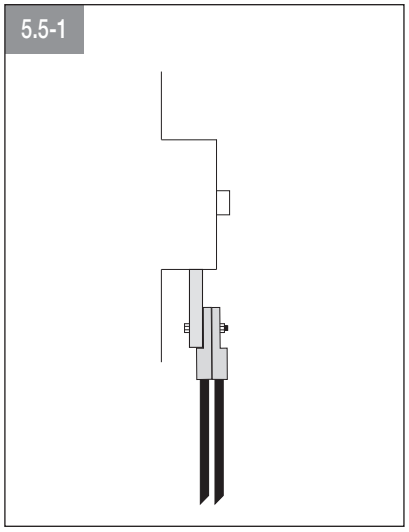
5.5. Electrical environment

	Voltage		Overload 40°C		Frequency		Short circuit withstanding
Rating	(V)	tolerance	1h	2 minutes	(Hz)	tolerance	
200A	208 (1) / 230 (1) / 380 / 400 / 415 / 440 (1)	+/- 10 %	110%	150%	50 or 60	Configurable +/- 10%	50kA Fused 10kA Fuseless
300A							65kA Fused 10kA Fuseless
400A							
600A							65kA Fused 12kA Fuseless
630A			105%(3)	150%(3) 1min			
800A			110%	150%			35kA Fused & Fuseless
1000A	208 (1) / 230 (1) / 380 / 400 / 415			144%			
1250A			140%	192%(2)			36kA Fused & Fuseless
1400A			125%	171%(2)			
1600A			110%	150%(2)			
1800A			110%	150%			

(1) Option (2) 35 °C (3) 30°C

2 terminals connection

5.5-1



5.6. Cable sizing

5.6.1. Ground cable connection

Failure to observe grounding procedures may lead to the risk of electrical shock, or the risk of fire if a ground fault occurs.

Remember to connect the ground at the marked point ⏚.

Ground connections must be in compliance with local regulations and applicable standards.

5.6.2. Statys 200/300/400/600/630A

Phases, Neutral (N or PEN)

	Cabinet					Integrable				
Rating [A]	200	300	400	600	630	200	300	400	600	630
Permissible current A)	200	300	400	600	630	200	300	400	600	630
Hole diameter (mm)*	1 x 11	2 x 13				/				
Screw	M10	M12				1 x M10	1 x M12			
Tightening torque (Nm)	40	50				40	50			
Max cross (mm²)	240									
Cross section (mm²)	1 x 150	1 x 240	2 x 185			1 x 150	1 x 240	2 x 185		
Recommended cable	H07 RN-F 90 °C							H07 BN4F 90 °C		

* it is possible to connect up to two terminals following the diagram 5.5-1.

5.6.3. Statys 800 / 1000A

Phases, neutral (N or PEN)

	Cabinet		Integrable chassis	
Rating [A]	800	1000	800	1000
Permissible current A)	800	1000	800	1000
Hole diameter (mm)*	4 x 13		5 x M12	
Screw	M12			
Tightening torque (Nm)	70			
Max cross (mm²)	300			
Cross section (mm²)	3 x 185	3 x 240	3 x 185	3 x 240
Recommended cable	H07 RN-F 90 °C			

* it is possible to connect up to two terminals following the diagram 5.5-1.

5.6.4. Statys 1250/1400/1600/1800A

Phases, neutral (N or PEN)

	Cabinet			Integrable chassis			
Rating [A]	1250	1400	1600	1250	1400	1600	1800
Permissible current A)	1600			1600			1800
Hole diameter (mm)*	2 x 2 x 13			2 x 13			
Screw	M12						
Tightening torque (Nm)	70						
Max cross (mm^2)	300			300			
Cross section (mm^2)	3 x 300	4 x 240	4 x 300	3 x 300	4 x 240	4 x 300	4 x 240
Recommended cable	H07 RN-F 90 °C						H07 BN4-F 90 °C

* it is possible to connect up to two terminals following the diagram 5.5-1

5.7. Cabling procedure

5.7.1. Preliminary checks

Ensure that STATYS is correctly installed in its final position.
Check that the installation is isolated.

Set all switches to position 0.

5.7.2. Cabinet cabling

Remove the protective devices to gain access to the power connections.

Check that the ground connector is clamped in firm contact with ground.

Check that the other installation devices are securely attached to this ground.

The diameter of the cable must comply with table § 5.6.

Fit a cable linking the ground connector to the PE terminal block.

Wire the source 1 phases on terminal block X10. Pay attention to the direction of rotation of the phases.

Wire the source 2 phases on terminal block X20. Pay attention to the direction of rotation of the phases.

Wire the output on terminal block X30. Pay attention to the direction of rotation of the phases.

⚠ **Comply with the specified neutral-to-neutral connection.**

Note: Whether or not the neutral is wired on terminal block depends on your neutral condition.

⚠ **Ensure that phases are correctly configured between source 1 and source 2.**

Refit the protective panels.

5.7.3. Integrable chassis cabling

Remove the protective panels to gain access to the power connections.

Check that the ground connector is clamped firmly in contact with ground.

Check that the other installation devices are securely attached to ground.

The diameter of the cable must comply with table 5.6.

Wire the ground connector to the PE terminal block.

Wire the source 1 phases on terminal block X100. Pay attention to the direction of rotation of the phases.

Wire the source 2 phases on terminal block X200. Pay attention to the direction of rotation of the phases.

Wire the output on terminal block X300. Pay attention to the direction of rotation of the phases.

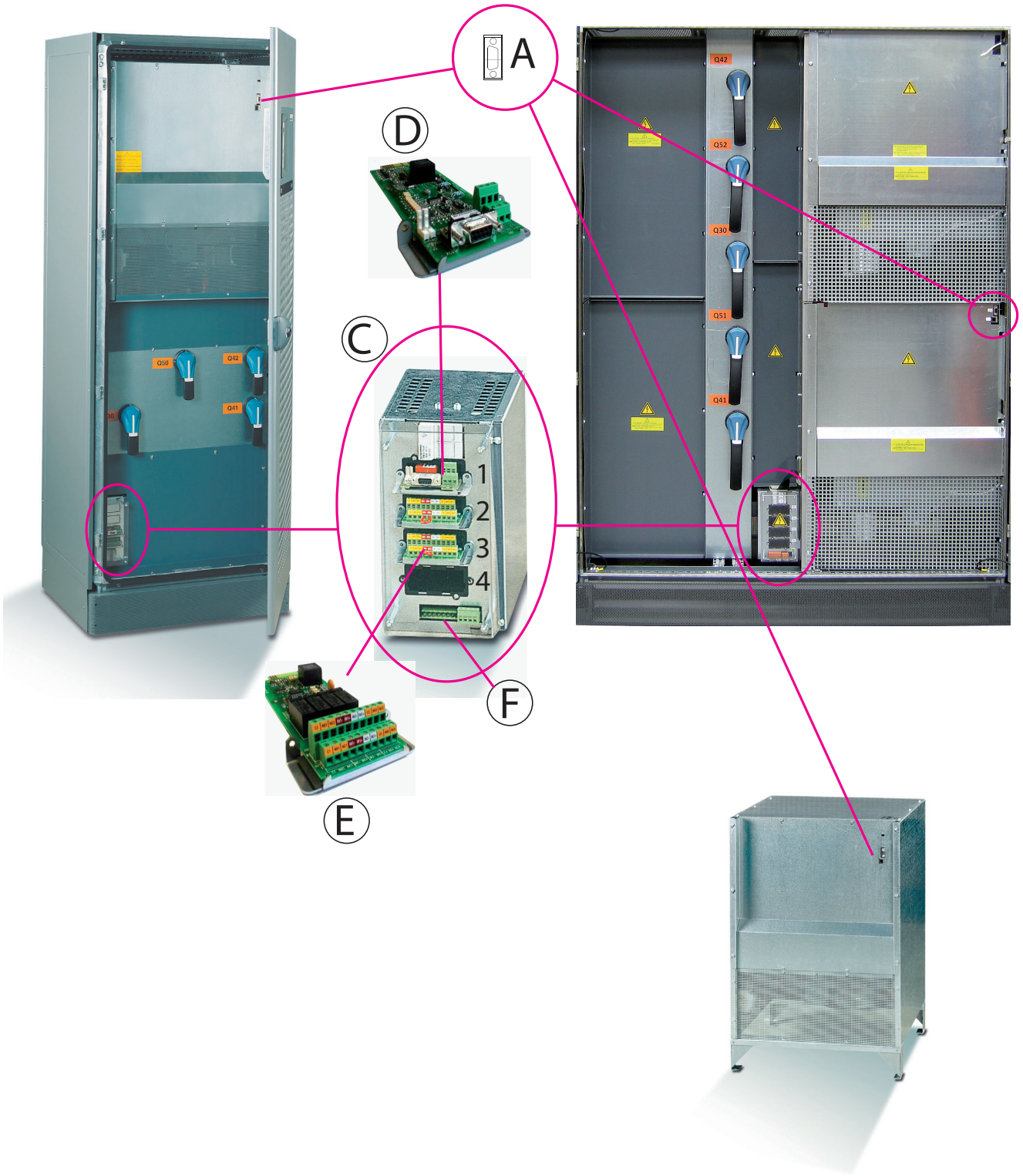
⚠ **Comply with the specified neutral-to-neutral connection.**

Note: Whether or not the neutral is wired on terminal block depends on your neutral condition.

⚠ **Ensure that phases are correctly configured between source 1 and source 2.**

Refit the protective panels.

6. ELECTRICAL INSTALLATION OF AUXILIARY CONNECTIONS



A = port reserved for SOCOMEC maintenance.

C = 4 slot rack for boards D (see § 6.2) and E (see § 6.3) in addition to a relay terminal block F (see § 6.1.4).

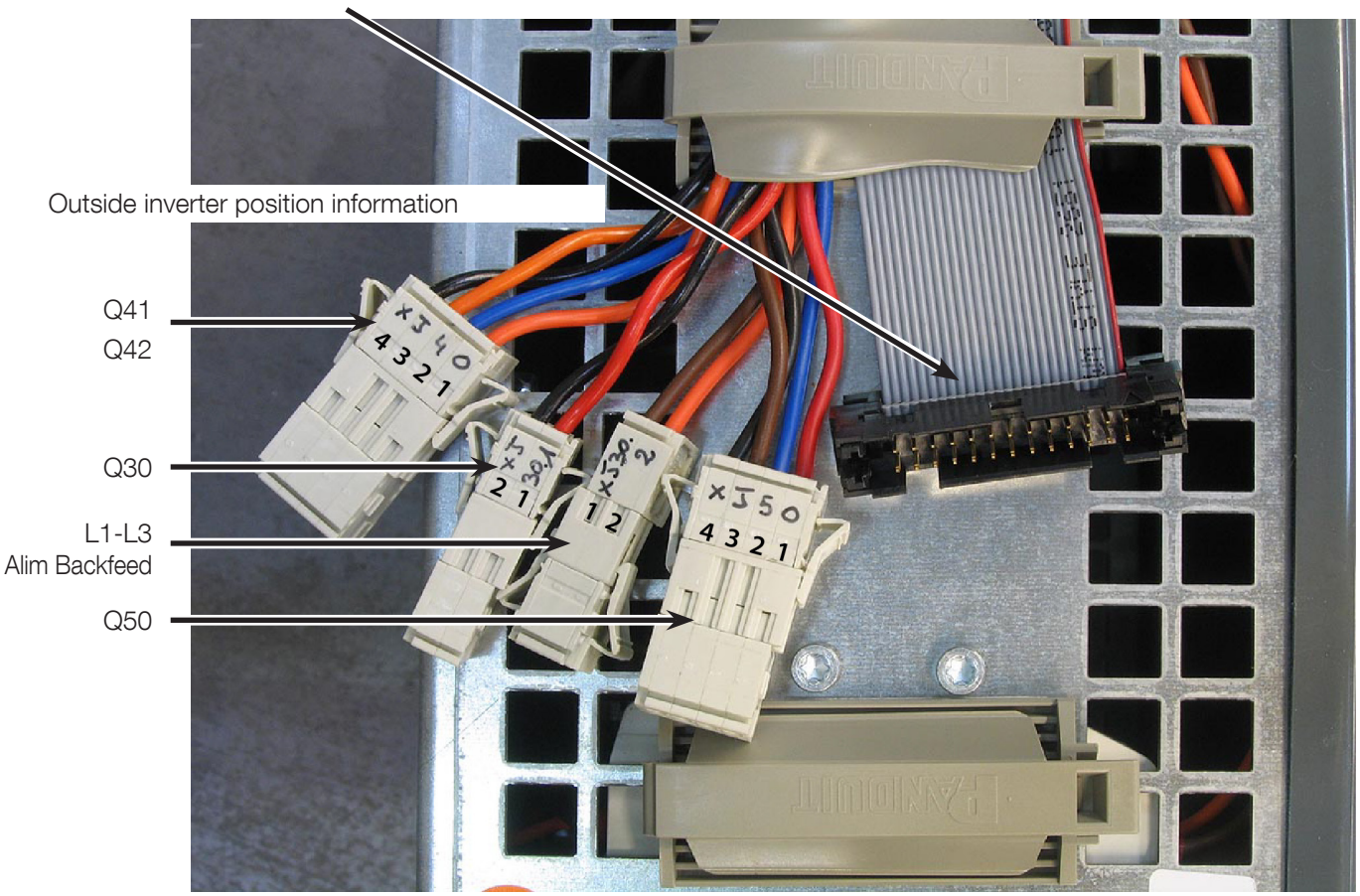
6.1. Rack Slot

Footprint and mounting: see plan in §12 “Appendices”.

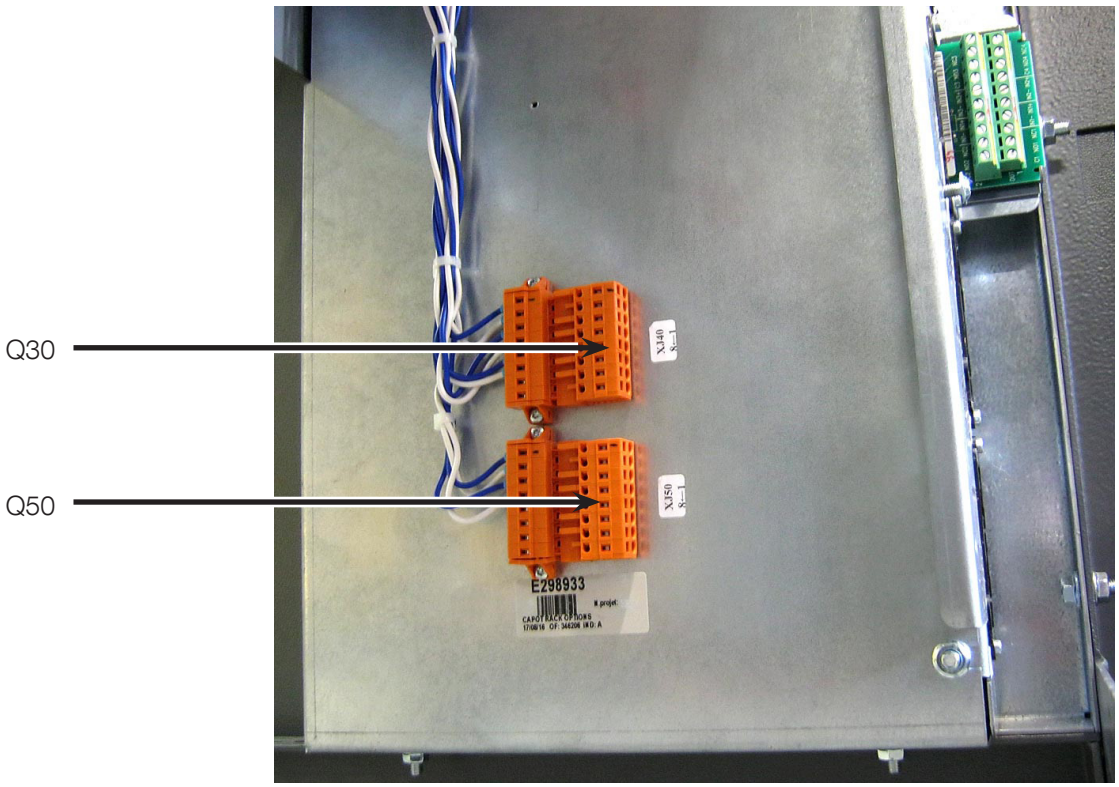
6.1.1. Connection (outside integrable chassis)

Connection from Integrable Chassis

Statys 200-1000A



Statys 1250-1800A



6.1.2. Rack slot connectors / information states of the inverters correspondence

Statys 200-630A

Info Q41/42	
XJ40/1	Q41/1
XJ40/2	Q41/2
XJ40/3	Q42/1
XJ40/4	Q42/2

Info Q50	
XJ50/1	Q50-I/1
XJ50/2	Q50-I/2
XJ50/3	Q50-II/1
XJ50/4	Q50-II/2

Info Q30	
XJ30.1/1	Q30/1
XJ30.1/2	Q30/2
Alim Backfeed	
XJ30.2/1	out L1
XJ30.2/2	out L3

Statys 800-1000A

Info Q41/42	
XJ40/1	Q41/1
XJ40/2	Q41/4
XJ40/3	Q42/1
XJ40/4	Q42/4

Info Q50	
XJ50/1	Q51/1
XJ50/2	Q51/2
XJ50/3	Q51/1
XJ50/4	Q51/2

Info Q30	
XJ30.1/1	Q30/1
XJ30.1/2	Q30/4

Alim Backfeed	
XJ30.2/1	out L1
XJ30.2/2	out L3

Statys 1250-1800A

Info Q41/42	
XJ40/1	Q41/1
XJ40/2	Q41/2
XJ40/3	Q42/1
XJ40/4	Q42/2

Info Q50	
XJ50/1	Q50-I/1
XJ50/2	Q50-I/2
XJ50/3	Q50-II/1
XJ50/4	Q50-II/2

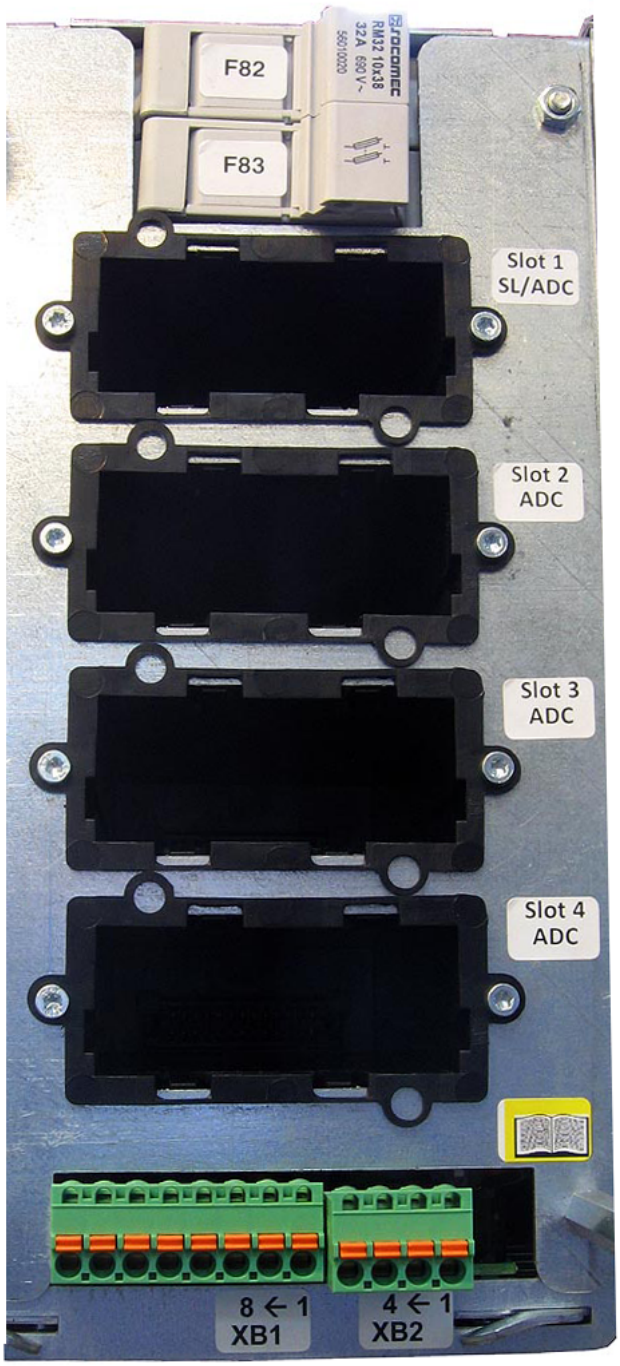
Info Q30	
XJ40/5	Q30/1
XJ40/6	Q30/2

Alim Backfeed	
XJ30.2/1	out L1
XJ30.2/2	out L3

6.1.3. Card Compatibility / Com Slot:

	Slot 1	Slot 2	Slot 3	Slot 4
Serial link	•			
ADC	•	•	•	•

6.1.4. XB1 / XB2 terminal block (F)



XB 1

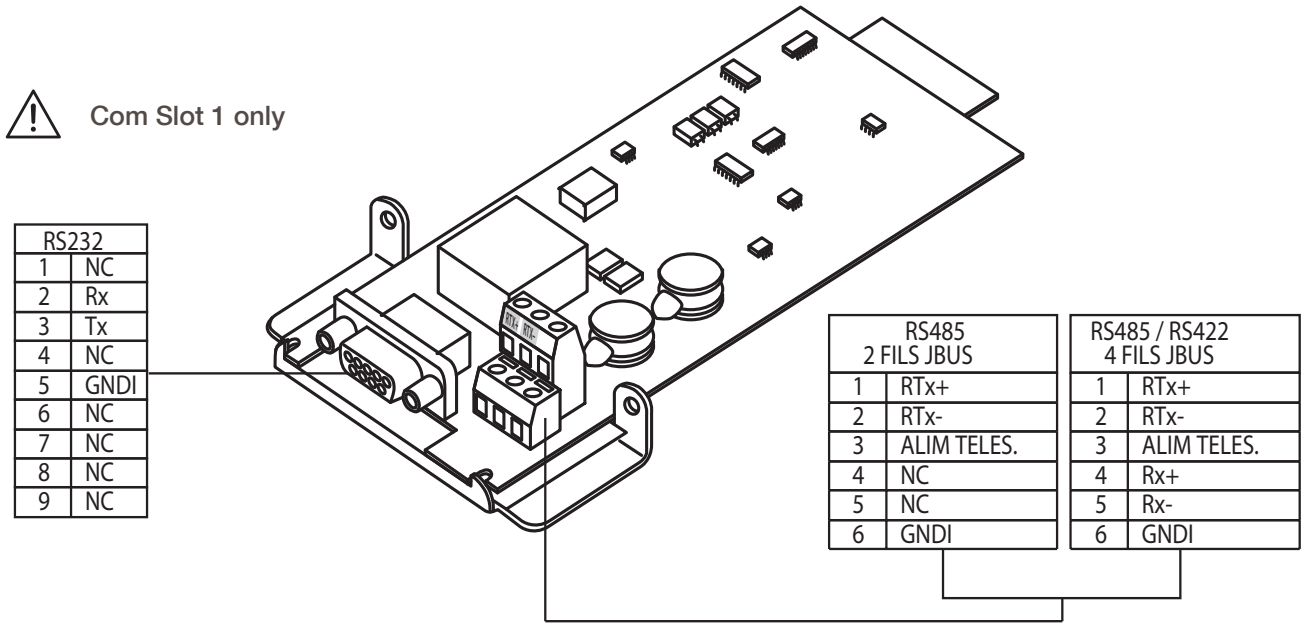
- 1 output general alarm, contact 1 = normally open, 2 = Common, 3 = normally closed,
- 1 output alarm of preventive maintenance , 4 = normally open, 5 = Common, 6 = normally closed,
- 1 input for Emergency Shutdown Device (Not supplied), contact 7 and 8, normally open (configurable to normally closed).

XB 2

- 1 output for cut off of upstream protection source 1, contact 1 and 2 (see § 5.3.1),
- 1 output for cut off of upstream protection source 2, contact 3 and 4 (see § 5.3.1).

6.2. Serial link card

D = RS485 or RS232 serial port board



Serial link RS485 must be privilegiate to RS232 because of its robustness in industrial environment.

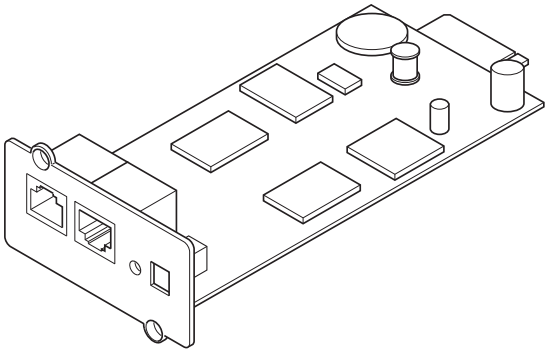
RS232 is not qualified according IEC 62310-2.

Use of braided shield is required for cable connection.

6.3. Net Vision card

NET VISION is a communication and management interface designed for business networks. STATYS behaves exactly like a networked peripheral. It can be managed remotely, and allows the shutdown of network workstations.

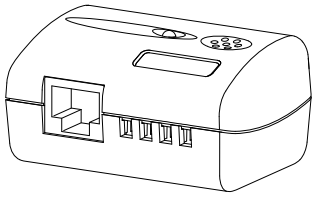
NET VISION provides a direct interface between STATYS and LAN network avoiding dependence on the server and supports SMTP, SNMP, DHCP and many other protocols. It interacts via the web browser.



6.3.1. EMD

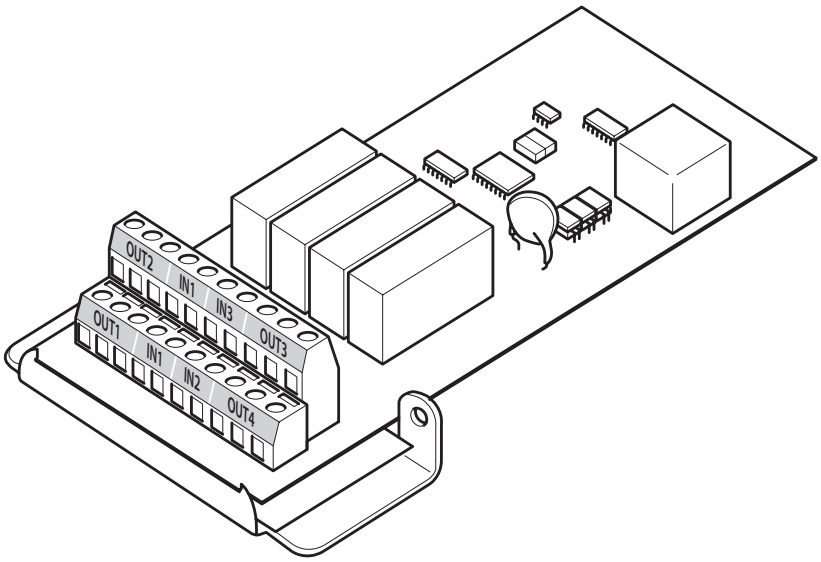
The EMD (Environmental Monitoring Device) is a device to be used in conjunction with the NET VISION interface and provides the following features:

- Temperature and humidity measurements + dry contact inputs.
- Alarm thresholds configurable via a web browser.
- Notification of environmental alarms via email and SNMP traps.



6.4. Information card report (ADC card)

E = alarm board



Description of the output (normally open) alarm according to chosen Com Slot:

Relay	SLOT 1	SLOT 2	SLOT 3	SLOT 4
OUT 1	Load on preferred source	Source 1 OK	Electronic alarm	Load not supplied
OUT 2	Load on alternate source	Source 2 OK	Overload alarm	Output OK
OUT 3	Transfer impossible	Sources are synchronised	Imminent stop	Load on manual by pass 1
OUT 4	Auto re-transfer impossible	S1 is the preferred source	Consecutive detection	Load on manual by pass 2

These values can be modified (by a SOCOMEC Service technician) by those one (depending on product):

STS STATUS

Source 1 OK	Source 1 critical	Source 1 out of tolerance	Source 1 absent
PowerPath 1 OK	Source 2 OK	Source 2 critical	Source 2 out of tolerance
Source 2 absent	PowerPath 2 OK	Srcs perm. Synchronised	Sliding Sources
Srcs perm. Not Synchron.	Srcs Instant. Synchron.	S1 is preferred source	Load on preferred source
Load on auxiliary source	Load not supplied	Load on manual by-pass1	Load on manual by-pass2
Load on S1	Load on S2	Transfer locked ext.	Output OK
Output out of tolerance	Output absent	ESD input active	Q41 closed
Q42 closed	SS1 closed	SS2 closed	Q30 closed
Q51 closed	Q52 closed	Remote controls enabled	Maintenance alert
User mode.			

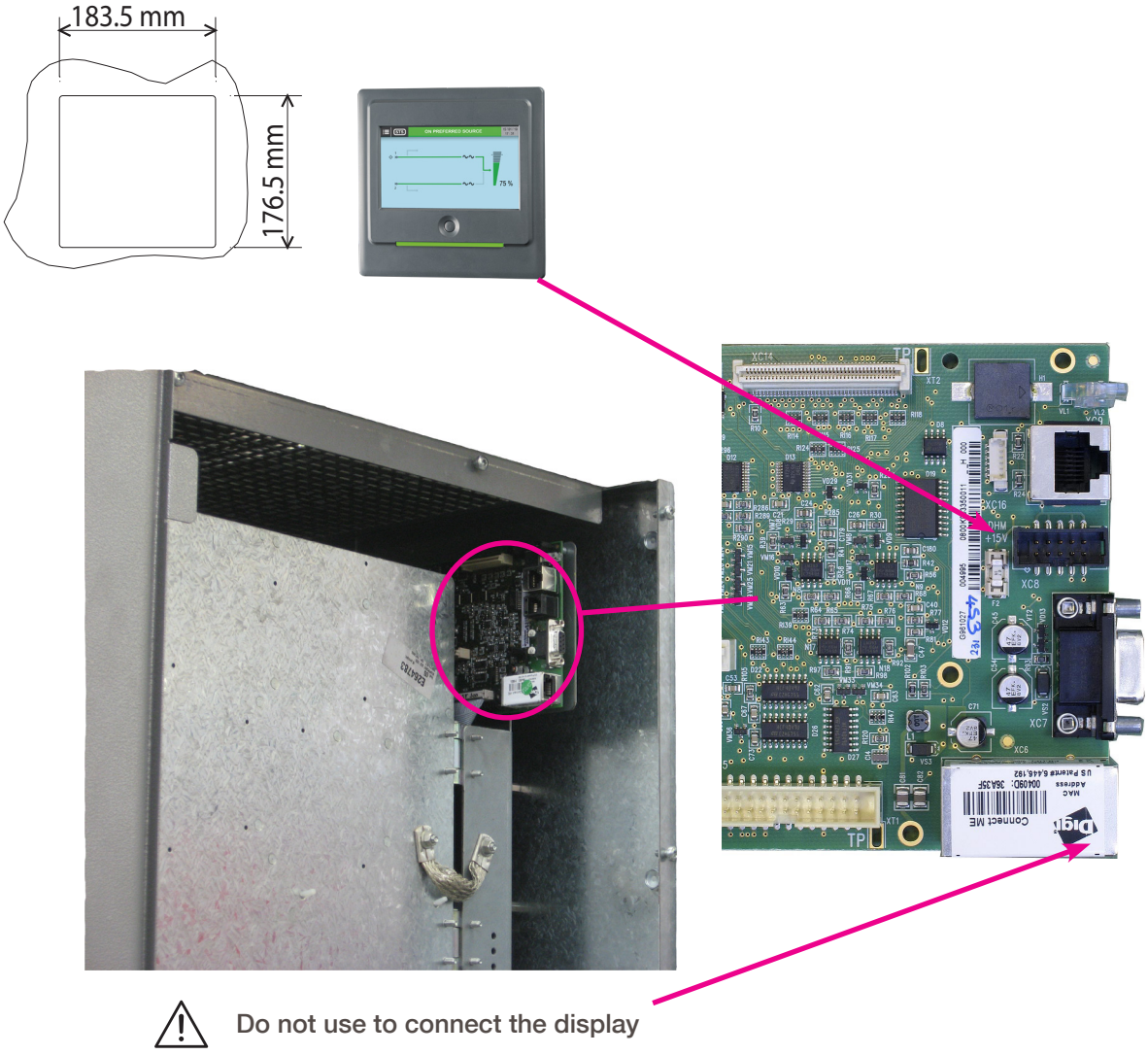
STS ALARMS

Imminent stop	Output Isc detection	Manual By-Pass	Overload
Consecutive Detections	Switchback impossible	Transfer impossible	PowerPath1 deteriorated
PowerPath1 short circuit	PowerPath1 in failure	PowerPath2 deteriorated	PowerPath2 short circuit
PowerPath2 in failure	Backfeed1 protection open	Backfeed2 protection open	Ambient temperature max
Insufficient resources	HMI Alarm	Electronics	Custom input alarm
Preventive alarm	General Alarm.		

7. DISPLAY CONNECTION (INTEGRABLE CHASSIS)

STATYS 200 - 630A

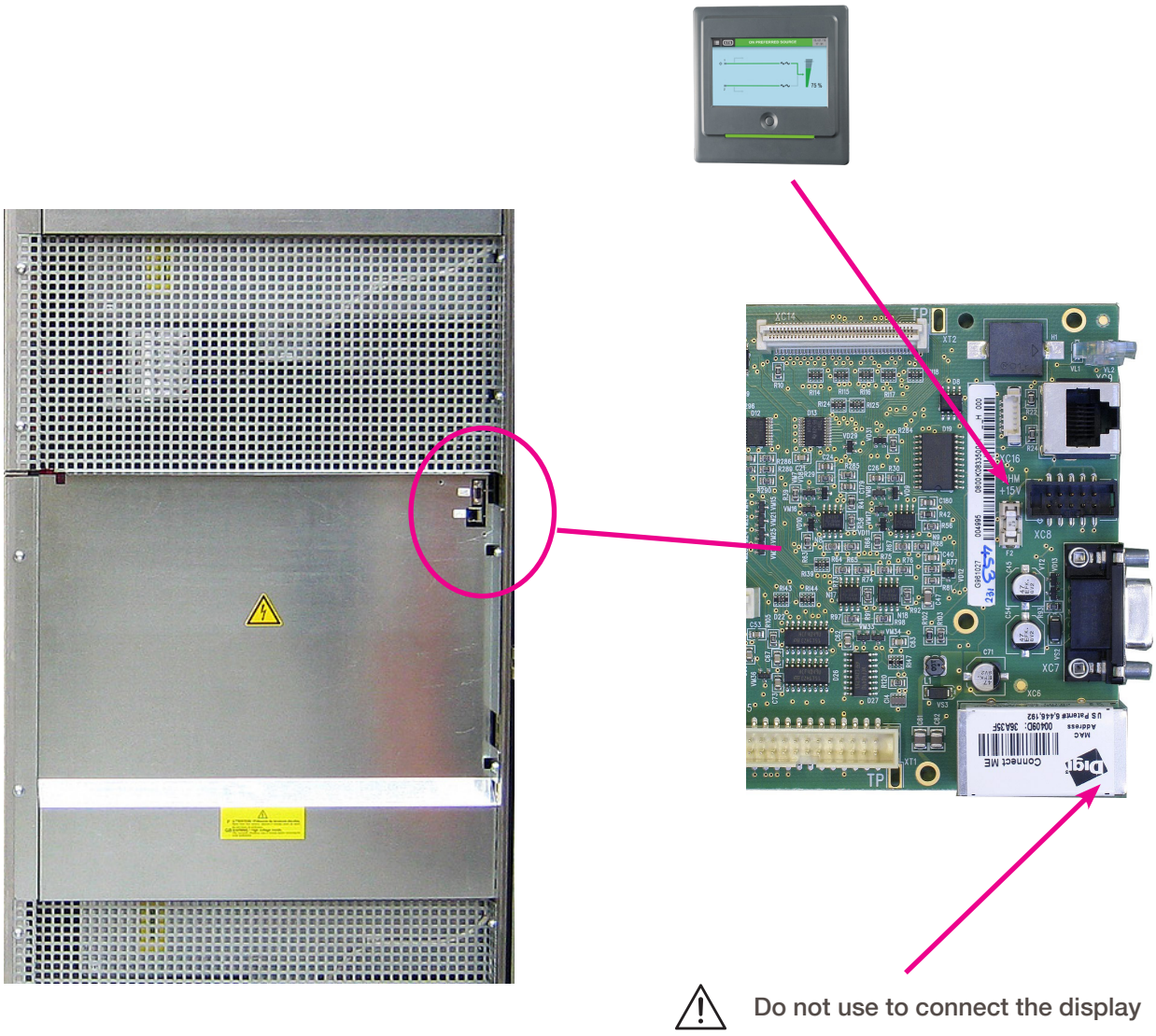
The remote display must be connected to STATYS. In order to do this, remove the screws securing the front plate. You will then have access to a HE-10 connector for connecting the Touchscreen, depending on the option selected.



The display connection cable must pass through the grommet located at the top left of the integrable chassis.

STATYS 800 - 1800A

The remote display must be connected to STATYS. In order to do this, remove the screws securing the front plate. You will then have access to a HE-10 connector for connecting the Touchscreen.



8. COMMISSIONING

8.1. Start conditions

- source 1 and Source 2 voltages are present.

In the case of a standard cabinet installation:

- switches Q41, Q42, Q30 are open,
- inverter Q50 is set to position "0" (or Q51 and Q52 are open for Statys 800-1000A).

8.2. Power-up of STATYS

- Close switches Q41 and Q42.

At this stage, the mimic panel lights up and the control electronics are powered ON. According to the autorestart configuration (see Operating Manual) conduction can then be activated on the output.

8.3. Priority source selection

Note: According to the factory default setting, the priority source is source 1.

Under normal operation, the load is supplied by the priority source.

REMINDER: automatic transfer switches the supply from the priority source to the alternate source. It is therefore important that the user defines the priority source.

The priority source is selected in "programming" mode (see Operating Manual).

8.4. Load supply

If conduction is not activated, the user may force the conduction (see in Operating Manual the § “Monitoring mode”).

When STATYS is in conduction state, close switch Q30.

8.5. Transfer to maintenance bypass

STATYS is equipped with two bypasses (except the "integrable" model) which enable it to directly supply the load from source 1 or 2 without interrupting your application's power supply.

This function is entirely secure, the switches are equipped with mechanical and electronic locks to minimise the risk of human error.

Since each source has its own maintenance bypass, two cases may be considered:

a. The load is supplied by source 1:

- set inverter Q50 to position I (or close Q51 for Statys 800-1000A),
- open switches Q30, Q41 and Q42.

At this stage, the static contactors and the electronics are powered OFF.

b. The load is supplied by source 2:

- set inverter Q50 to position II (or close Q52 for Statys 800-1000A),
- open switches Q30, Q41 and Q42.

At this stage, the static contactors and the electronics are powered OFF.

8.6. Maintenance bypass return

Since each source has its own maintenance bypass, two cases may be considered:

a. Inverter Q50 is set to position I:

- close Q41,
- switch conduction onto source 1,
- visually check on the HMI that static switch 1 is conducting,
- once the static switch 1 is conducting, close Q30,
- set Q50 to position "0" (or open Q51 for Statys 800-1000A),
- also close Q42 to enable a further switch.

b. Inverter Q50 is set to position II:

- close Q42,
- switch conduction onto source 2,
- visually check on the HMI that static switch 2 is conducting,
- once the static switch 2 is conducting, close Q30,
- set Q50 to position "0" (or open Q52 for Statys 800-1000A),
- also close Q41 to enable a further switch.

9. PREVENTIVE MAINTENANCE

⚠ **All operations on the equipment must be carried out solely by SOCOMEC personnel or by authorised service personnel.**

Maintenance requires accurate functionality checks of the various electronic and mechanical parts and, if necessary, the replacement of parts subject to wear and tear (fans and capacitors). It is recommended to carry out periodic specialised maintenance (annually), in order to keep the equipment at the maximum level of efficiency and to avoid the installation being out of service with possible damage/risks. Moreover, attention should be paid to any requests for preventive maintenance that the equipment may automatically display with alarm/warning message.

Fans

The life of the fans used to cool the power parts is dependent on the using and environmental conditions (temperature, dust).

Preventive replacement by an authorised technician is recommended within 4 years (in normal operating conditions).

⚠ **When needed, fans must be replaced as per specifications by SOCOMEC.**

10. COMMUNICATION

10.1. Multiple communication options

STATYS can manage various serial, contact and Ethernet communication channels at the same time. The 2 communication slots available allow the use of signalling accessories and cards.

Each communication channel is independent; you can set up simultaneous connections for various levels of remote signalling and monitoring.

The table below shows the possible connections between STATYS communication channels and the external devices.

Possible options

	slot 1	slot 2	slot 3	slot 4
ADC + Serial Link interface	•	•	•	•
Serial Link interface	•			
Modbus RTU RS485 interface	•			
NetVision	•			
Modbus TCP	•			

For details, please see § 6 “Electrical installation of auxiliary connections”.

11. ADVANCED DIAGNOSTICS AND PARAMETERS

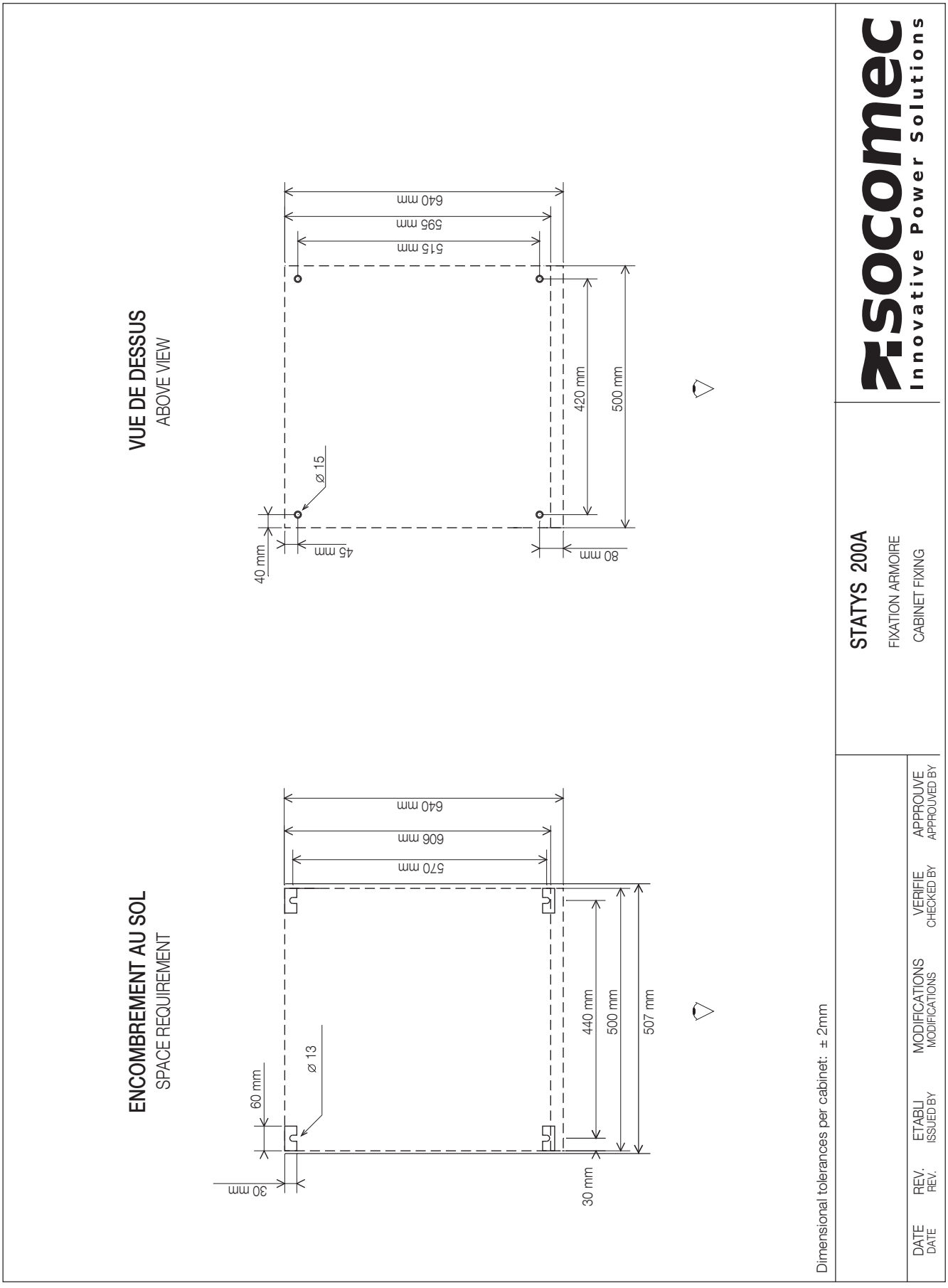
STATYS is equipped with a diagnostic card* for connection to a maintenance computer. This link can be used for adjusting the advanced parameters and other settings according to specific operational needs. Maintenance personnel can also use this link to download the event log, statistics and comprehensive information for rapid and complete diagnostics.

⚠ **Access restricted to Socomec personnel.**

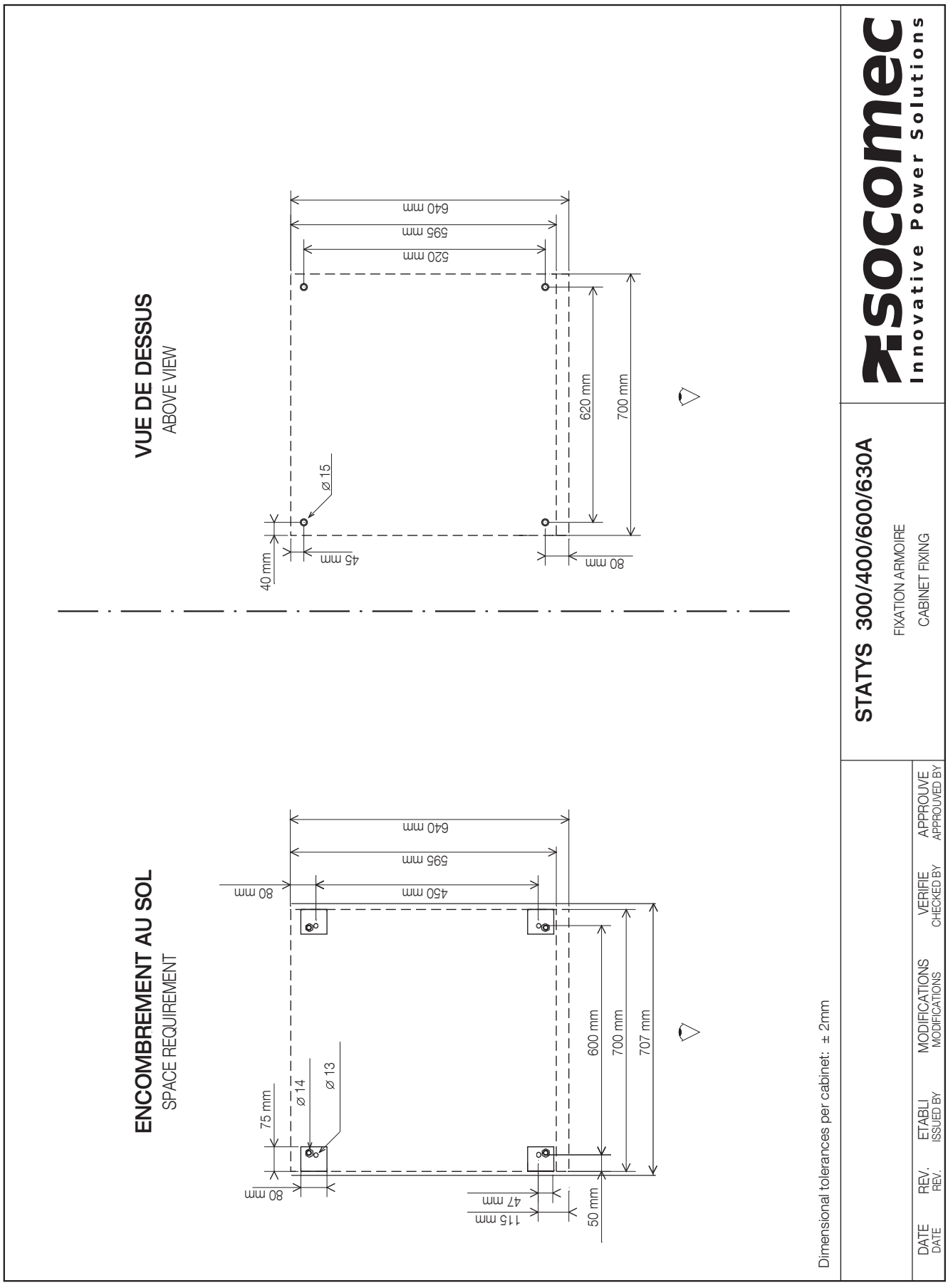
***in case of electrical network IT neutral condition, the direct use of this connection is not permitted.**

12. APPENDICES

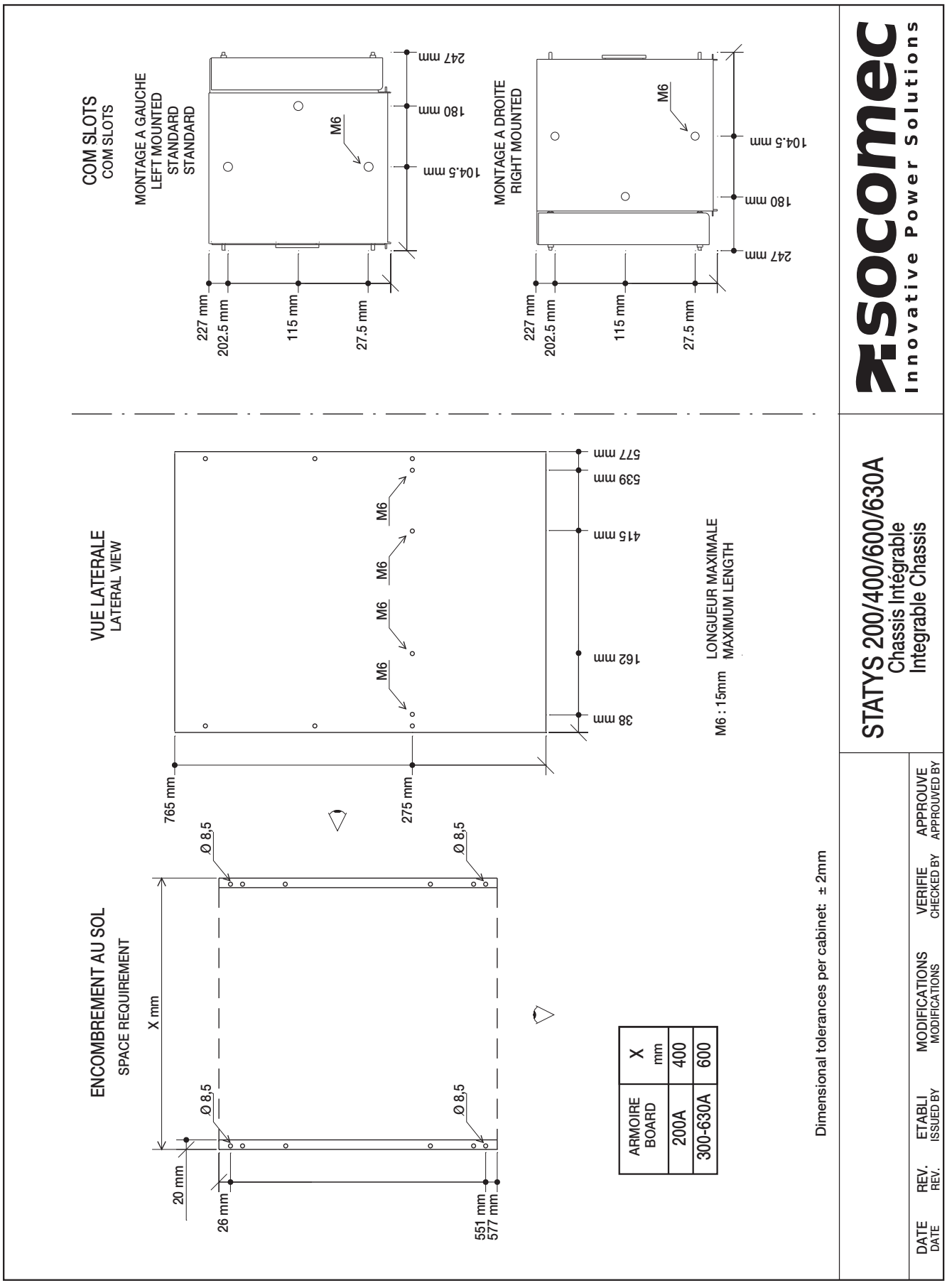
12.1. Plan 1: 200A Cabinet footprint and mounting



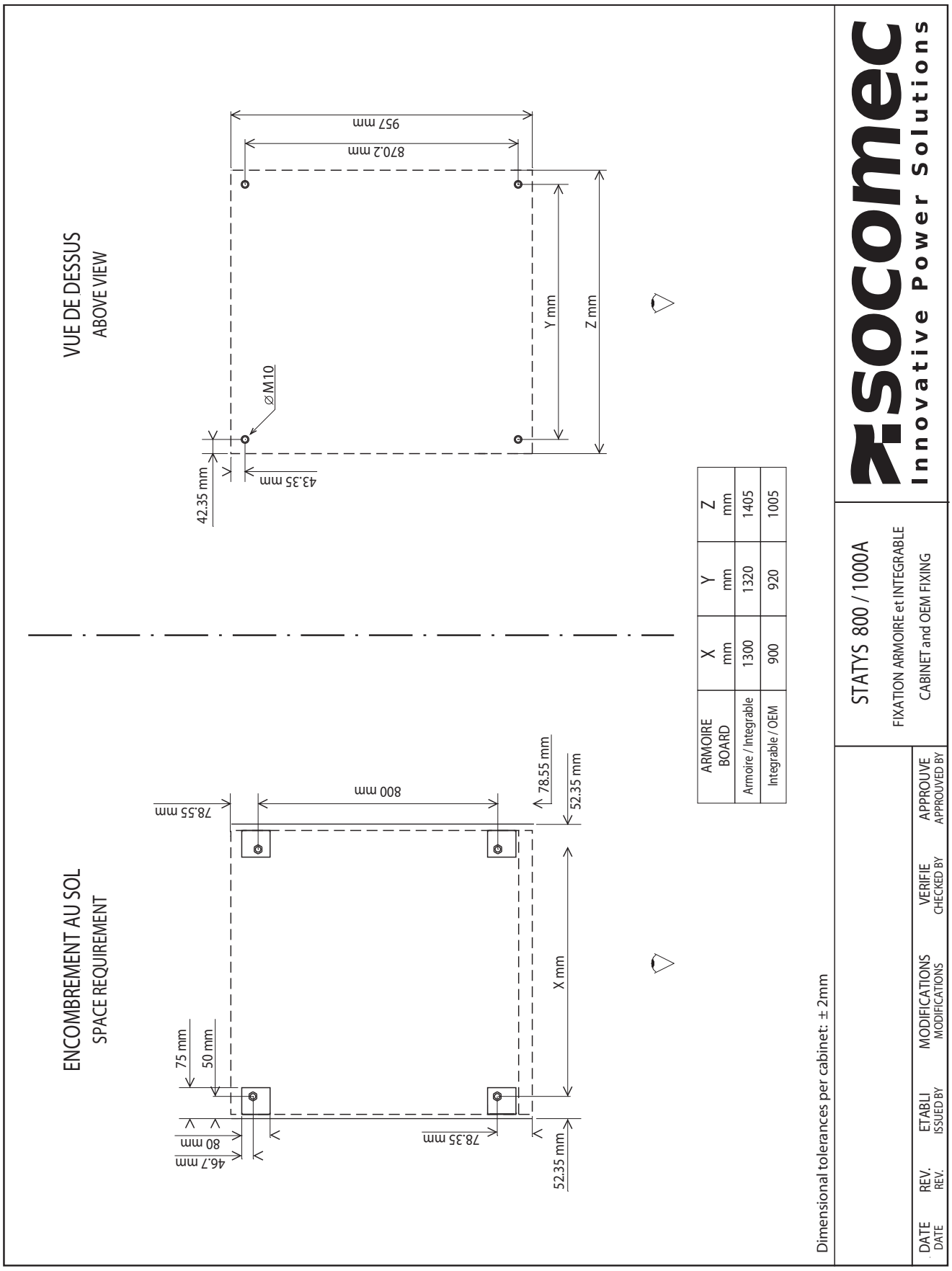
12.2. Plan 2: 300/400/600/630A Cabinets footprints and mounting



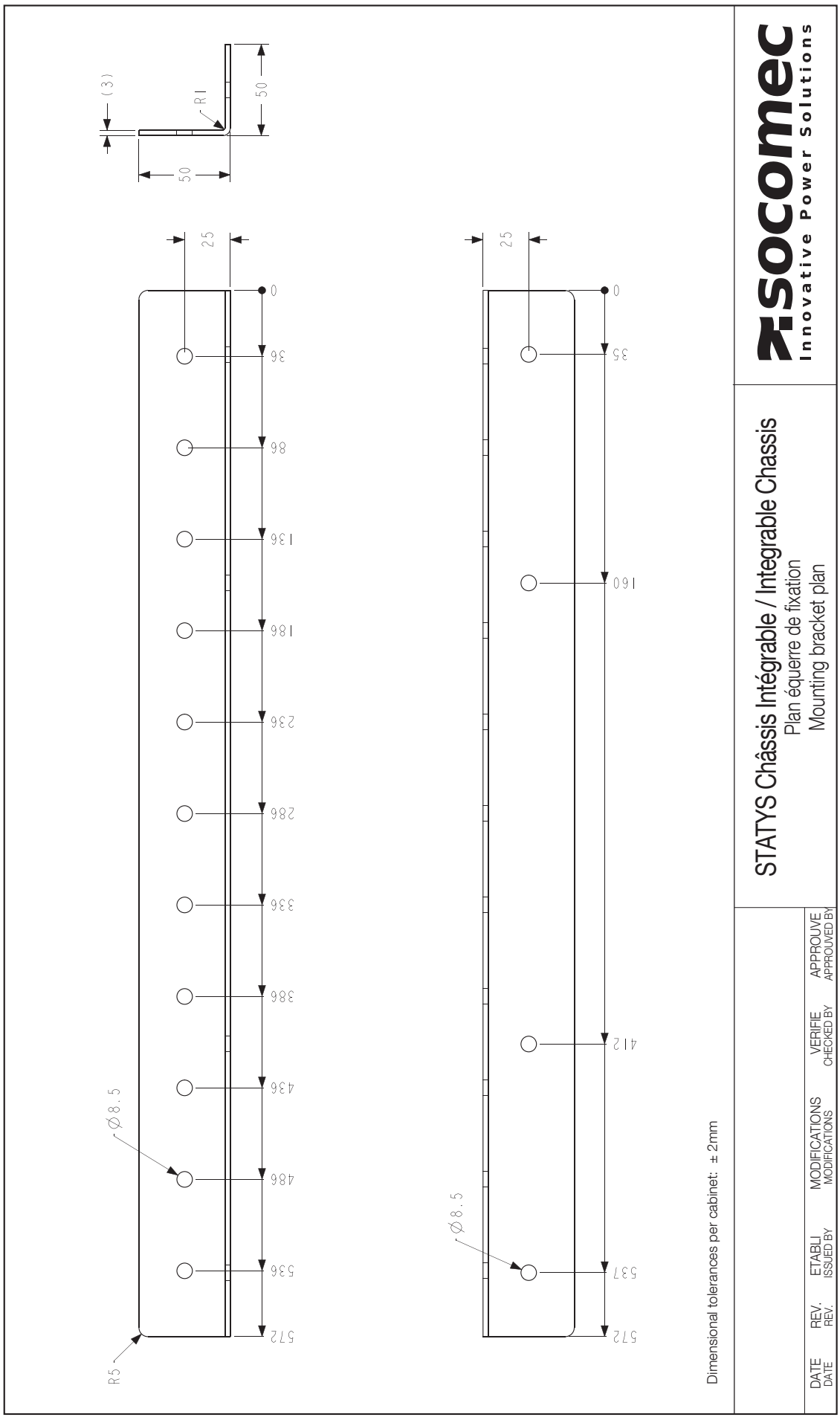
12.3. Plan 3: 200/400/600/630A Integrable Chassis and rack slots footprints and mounting



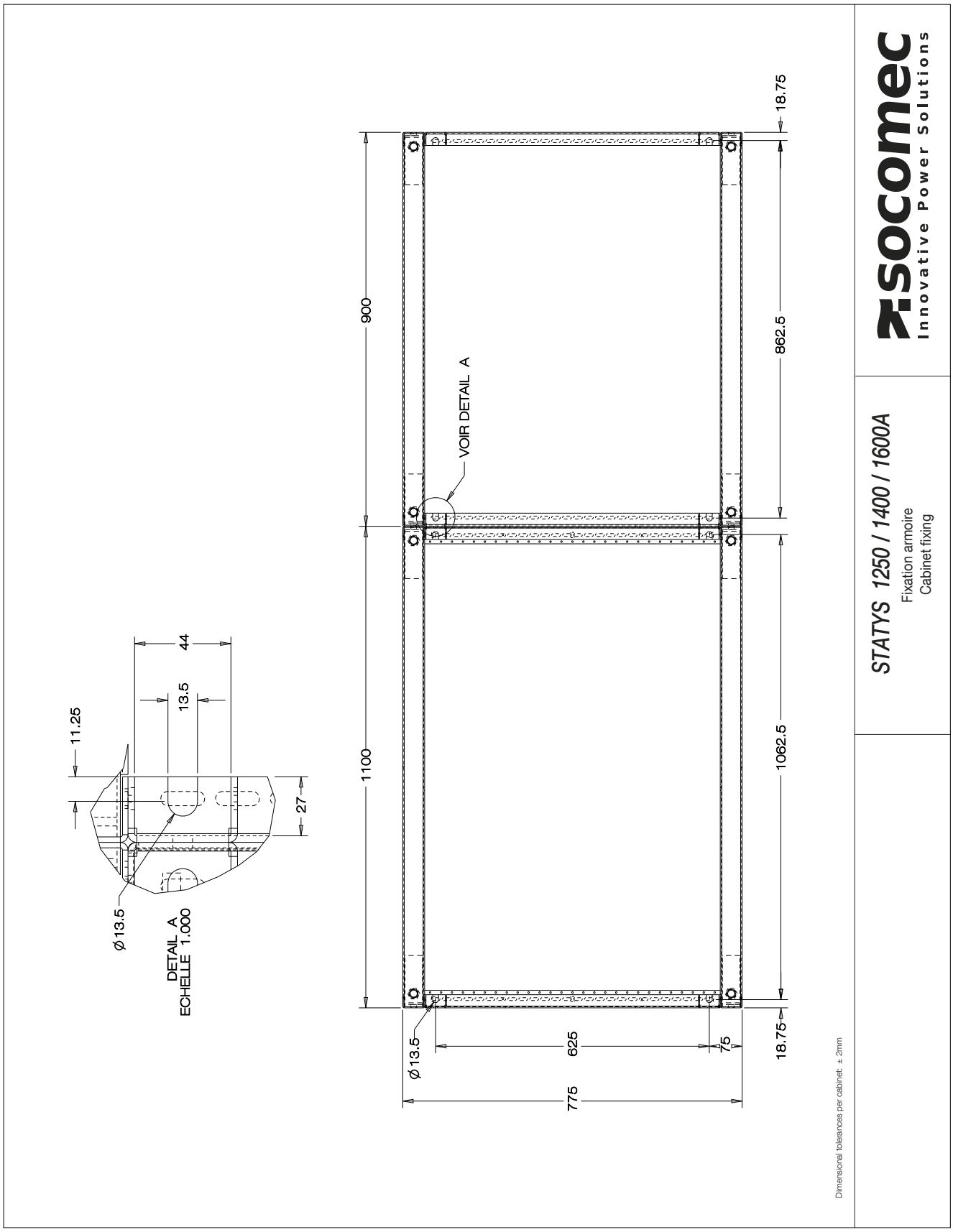
12.4. Plan 4: 800/1000A footprint and mounting



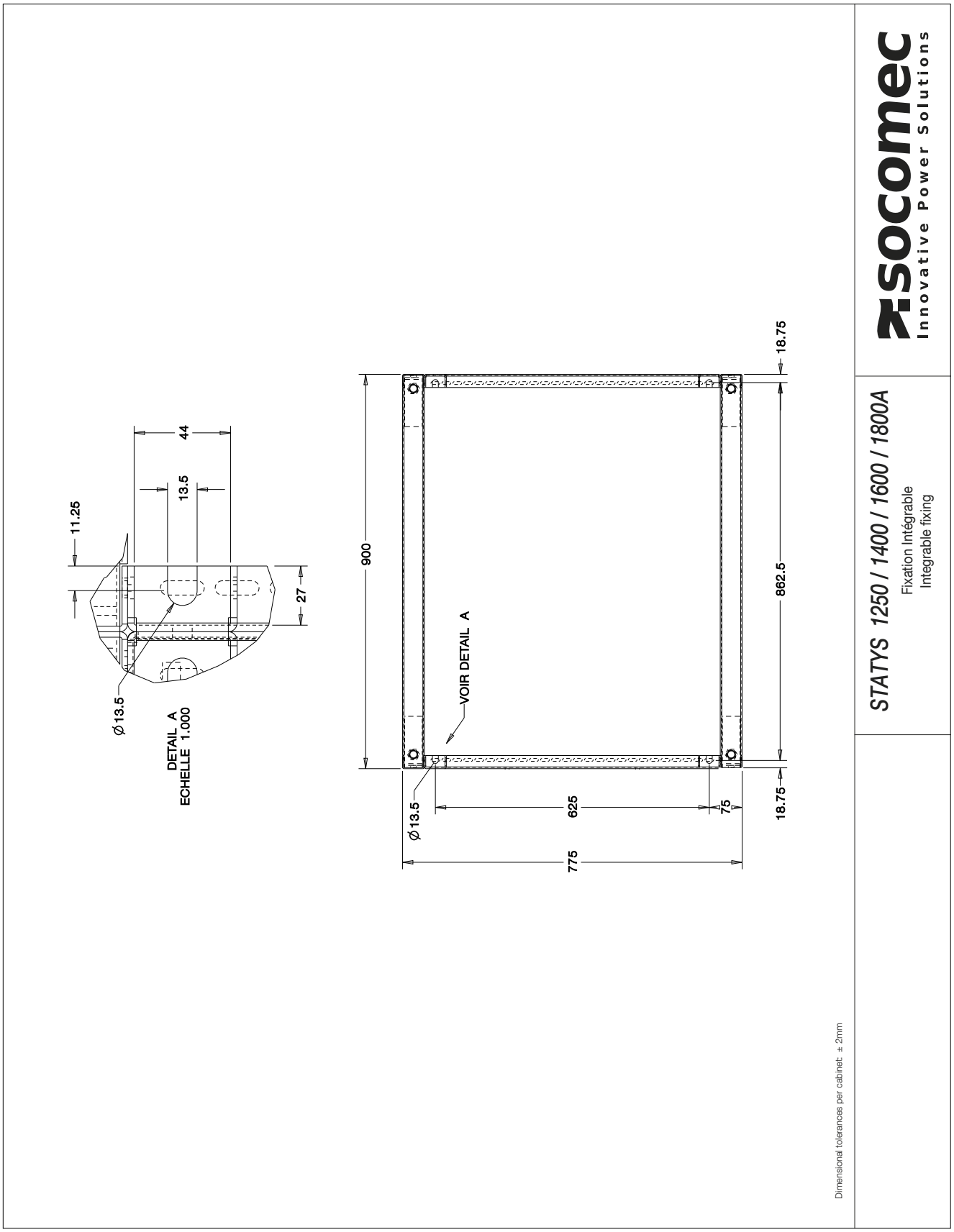
12.5. Plan 5: 200/300/400/600/630A Integrable Chassis mounting bracket plan



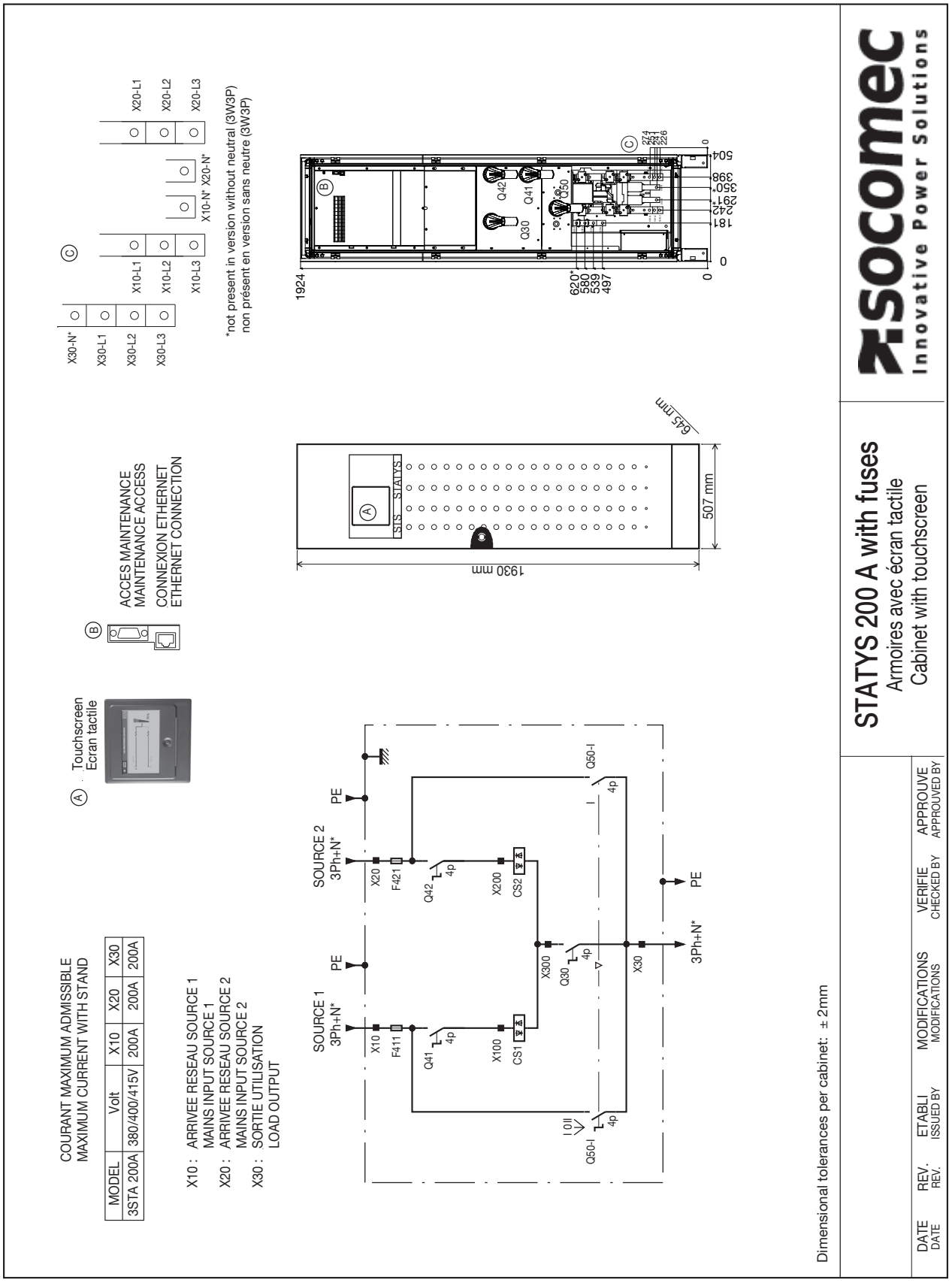
12.6. Plan 6: 1250/1400/1600A cabinet footprint mounting



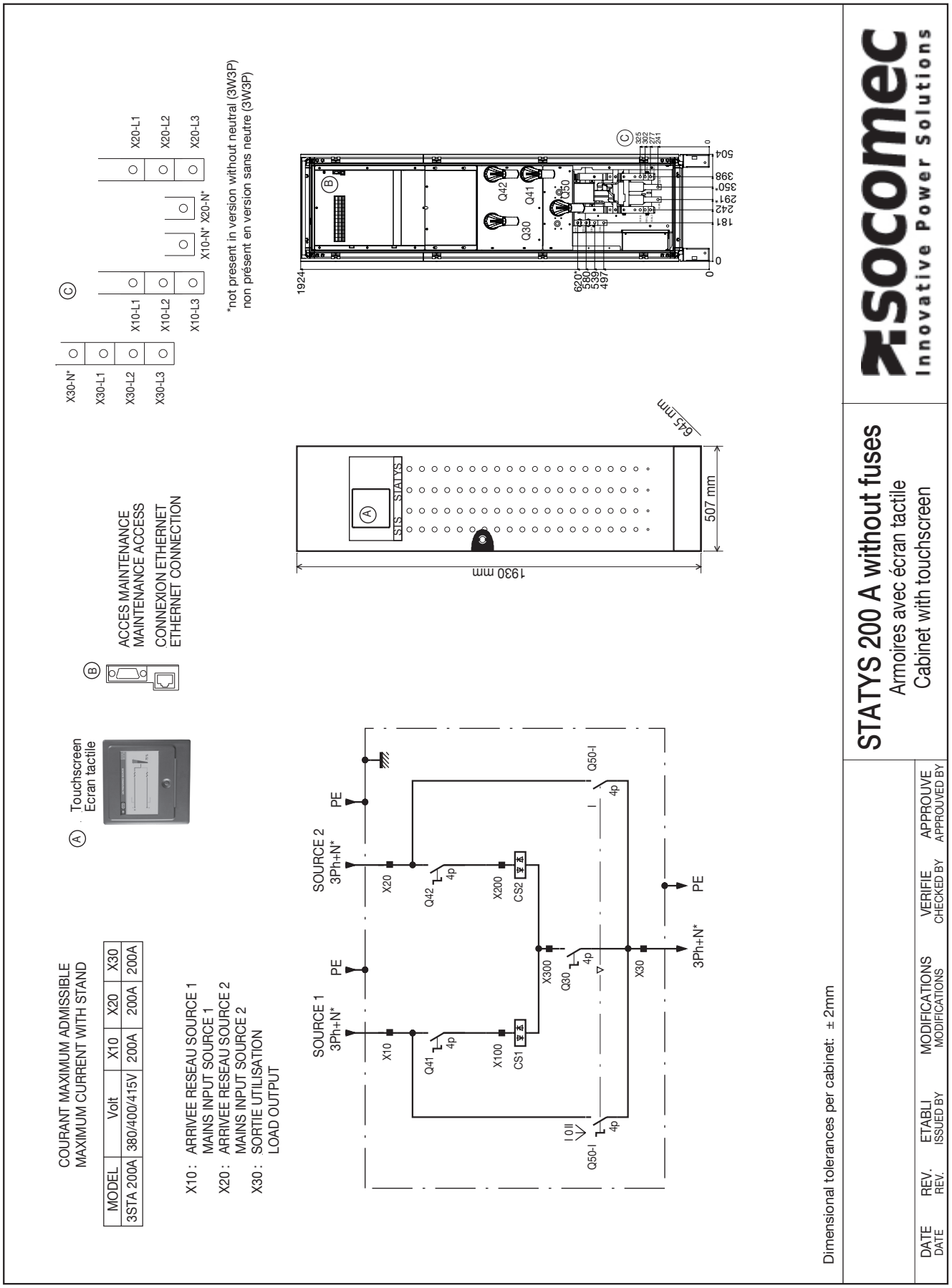
12.7. Plan 7: 1250/1400/1600/1800A integrable footprint mounting



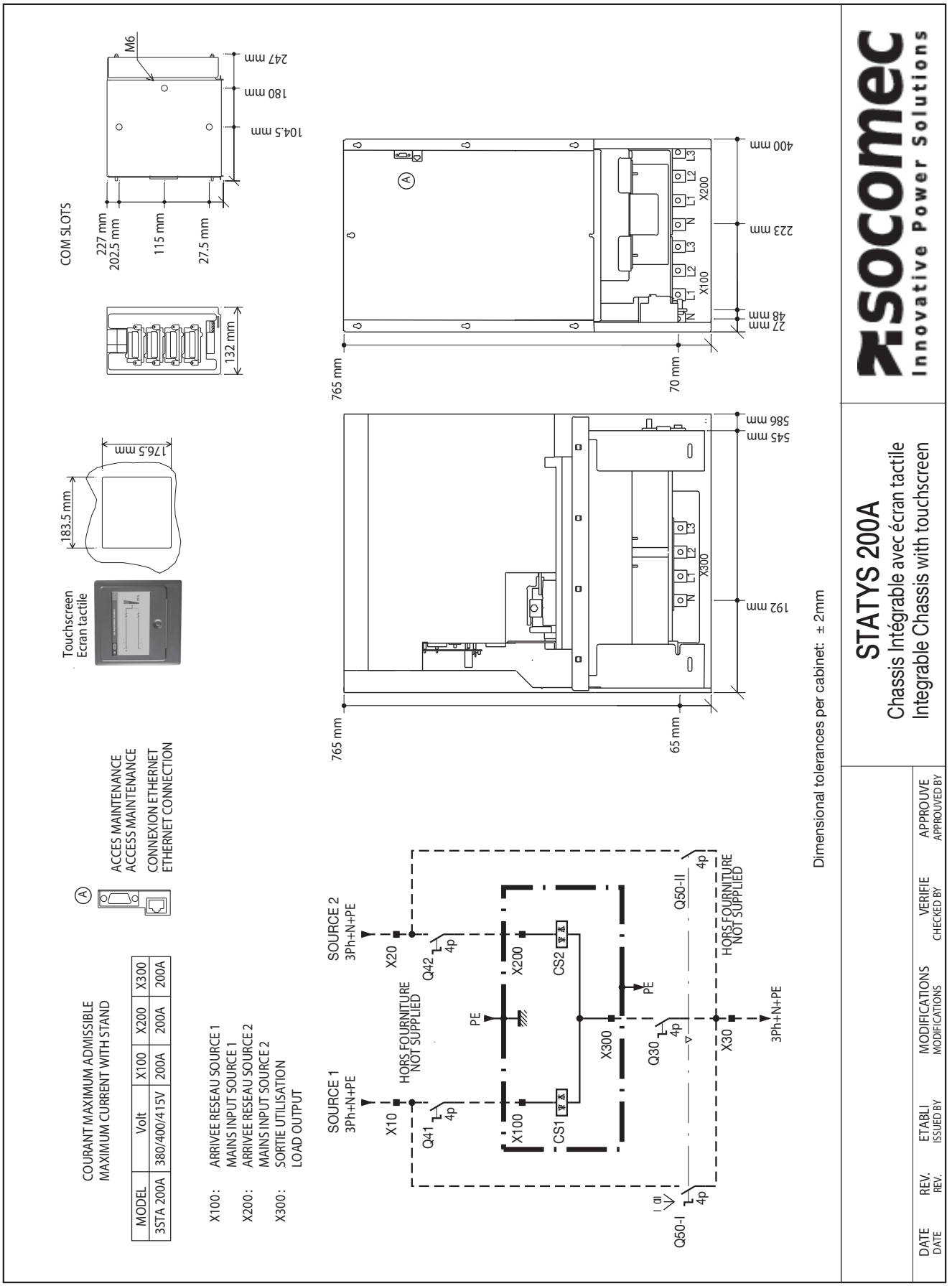
12.8. Plan 8: 200A with fuses Cabinet electrical connections



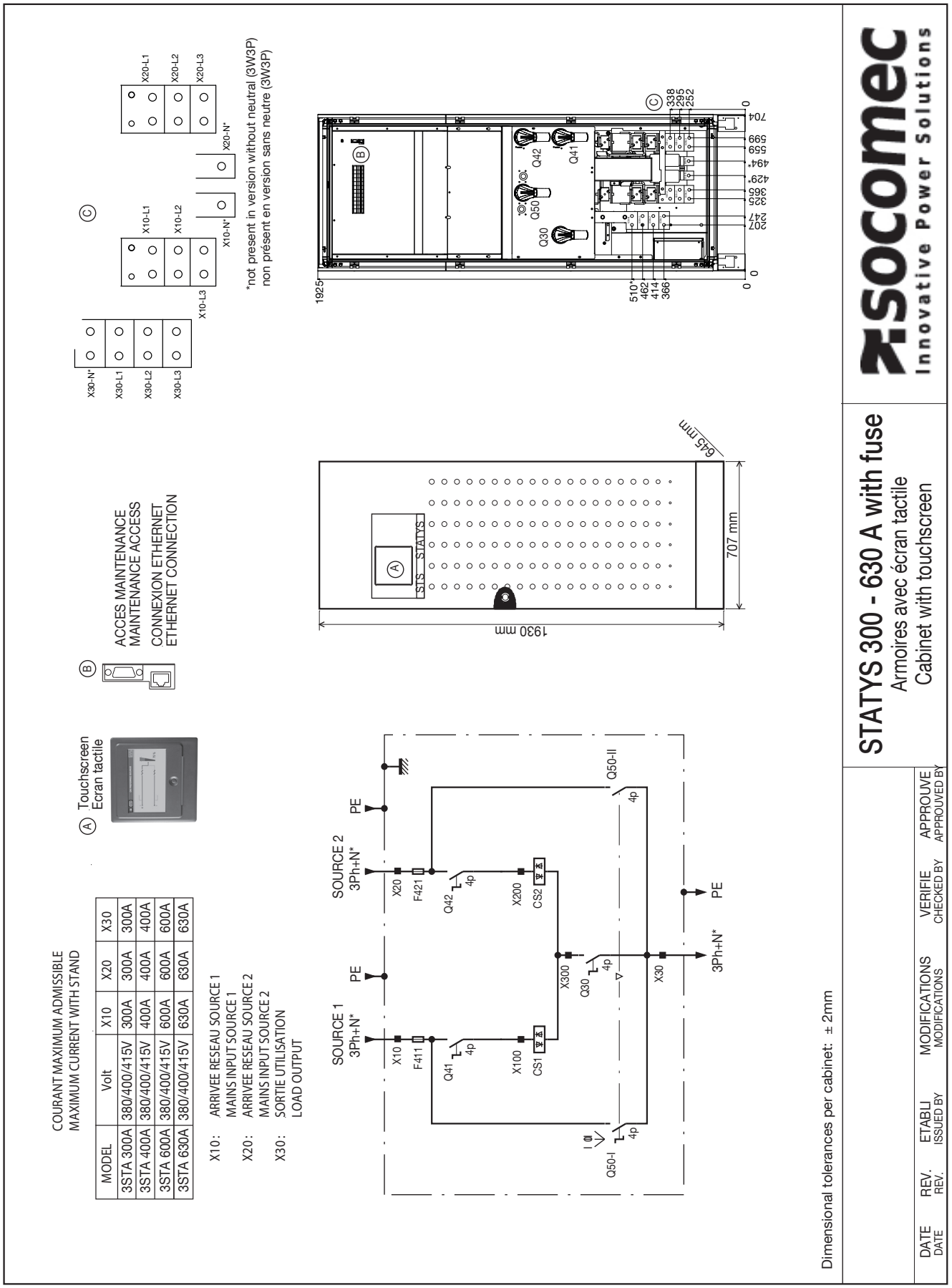
12.9. Plan 9: 200A without fuses Cabinet electrical connections



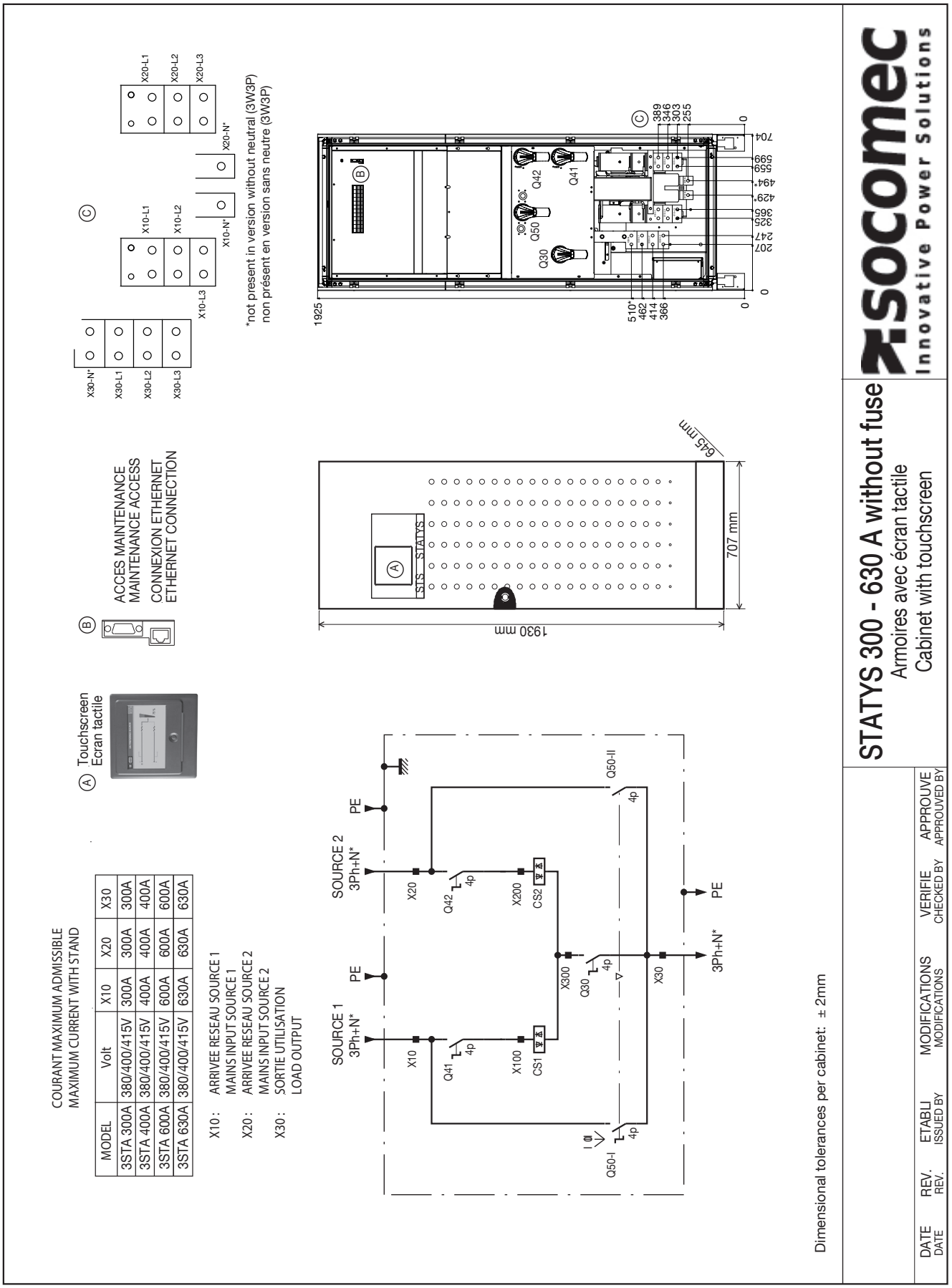
12.10. Plan 10: 200A Integrable Chassis electrical connections



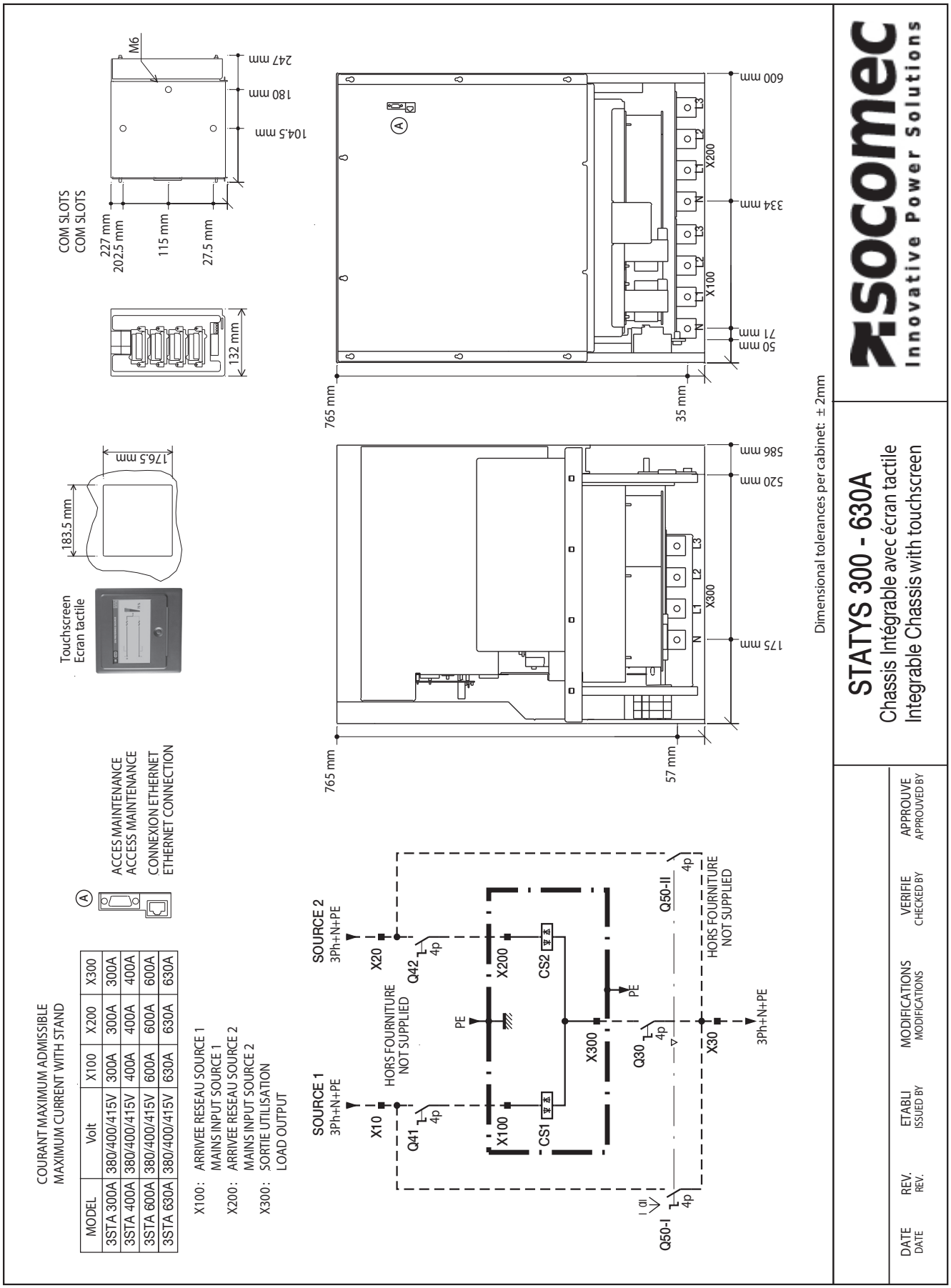
12.11. Plan 11: 300/400/600/630A with fuses Cabinets electrical connections



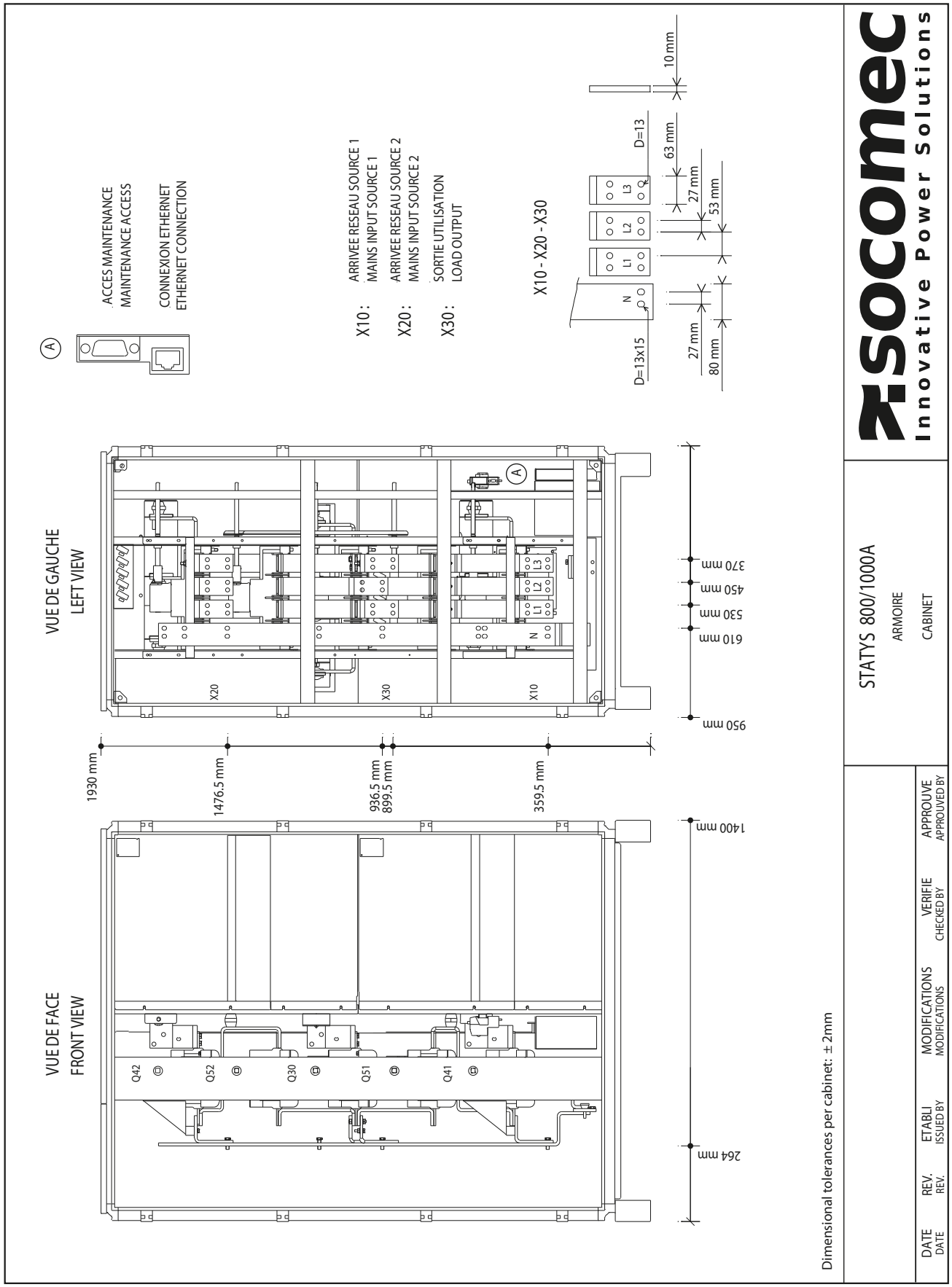
12.12. Plan 12: 300/400/600/630A without fuses Cabinets electrical connections



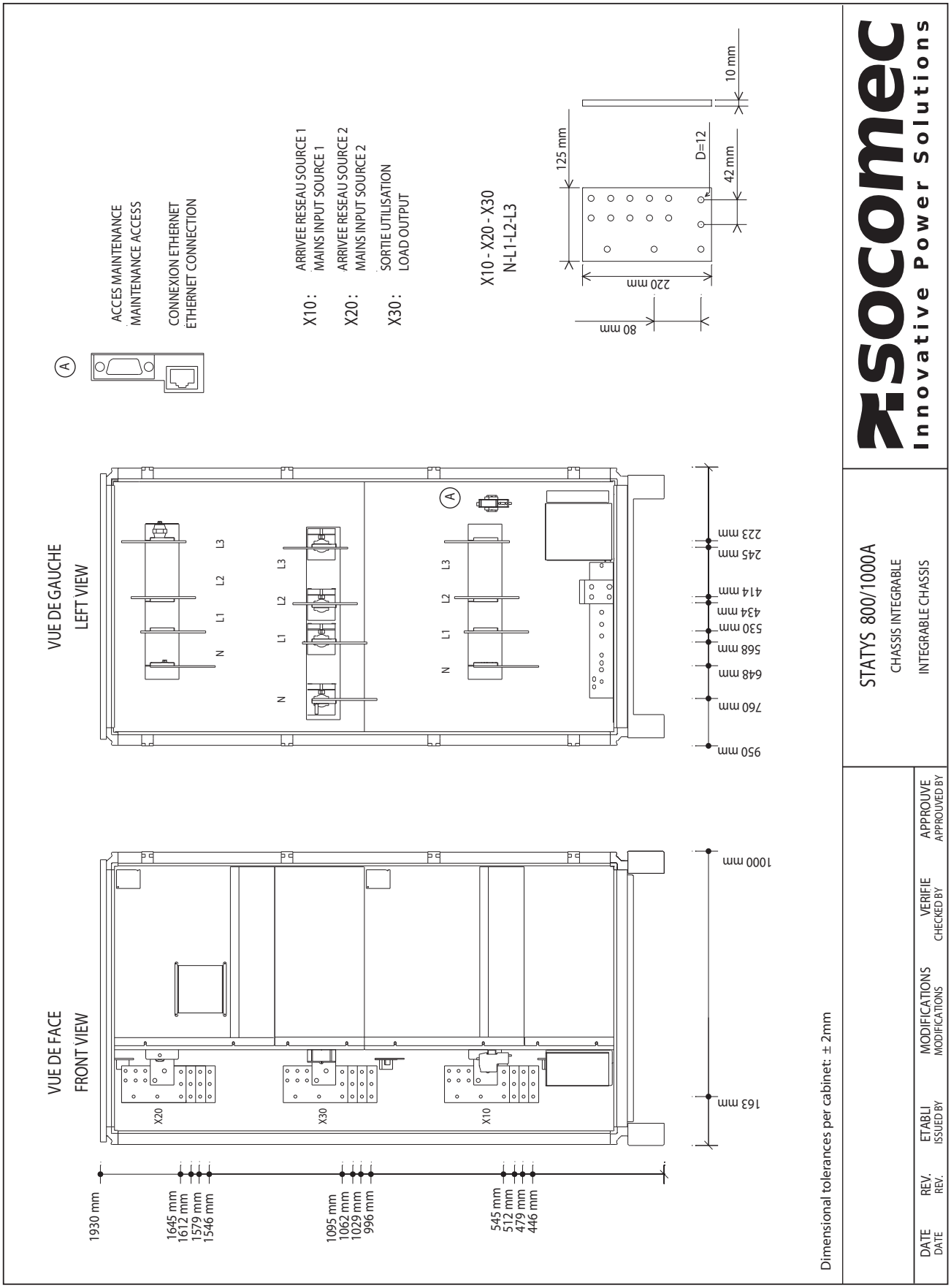
12.13. Plan 13: 300/400/600/630A Integrable Chassis electrical connections



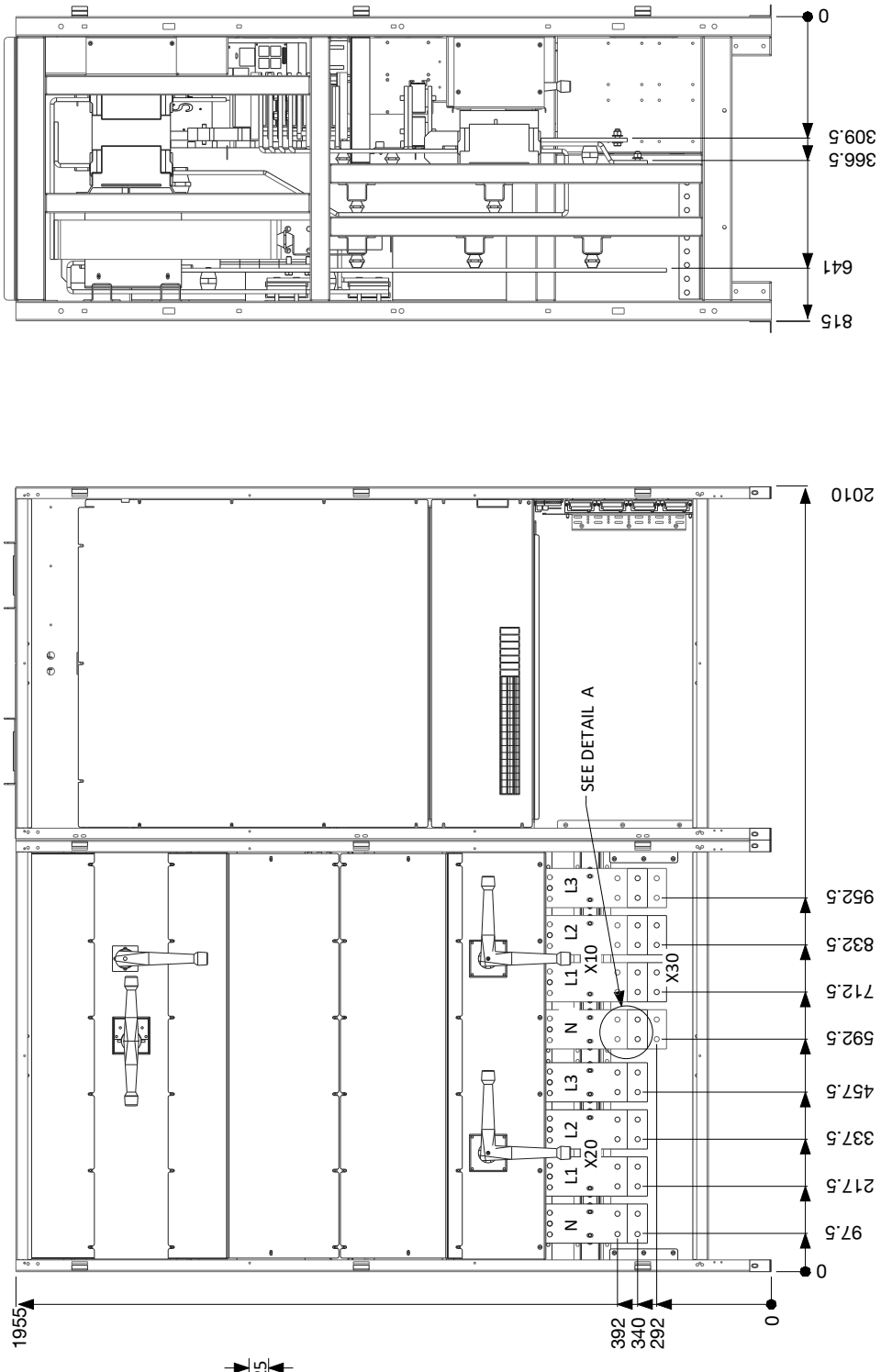
12.14. Plan 14: 800/1000A Cabinet electrical connections



12.15. Plan 15: 800/1000A Integrable chassis electrical connections



12.16. Plan 16: 1250/1400/1600A Cabinet electrical connections



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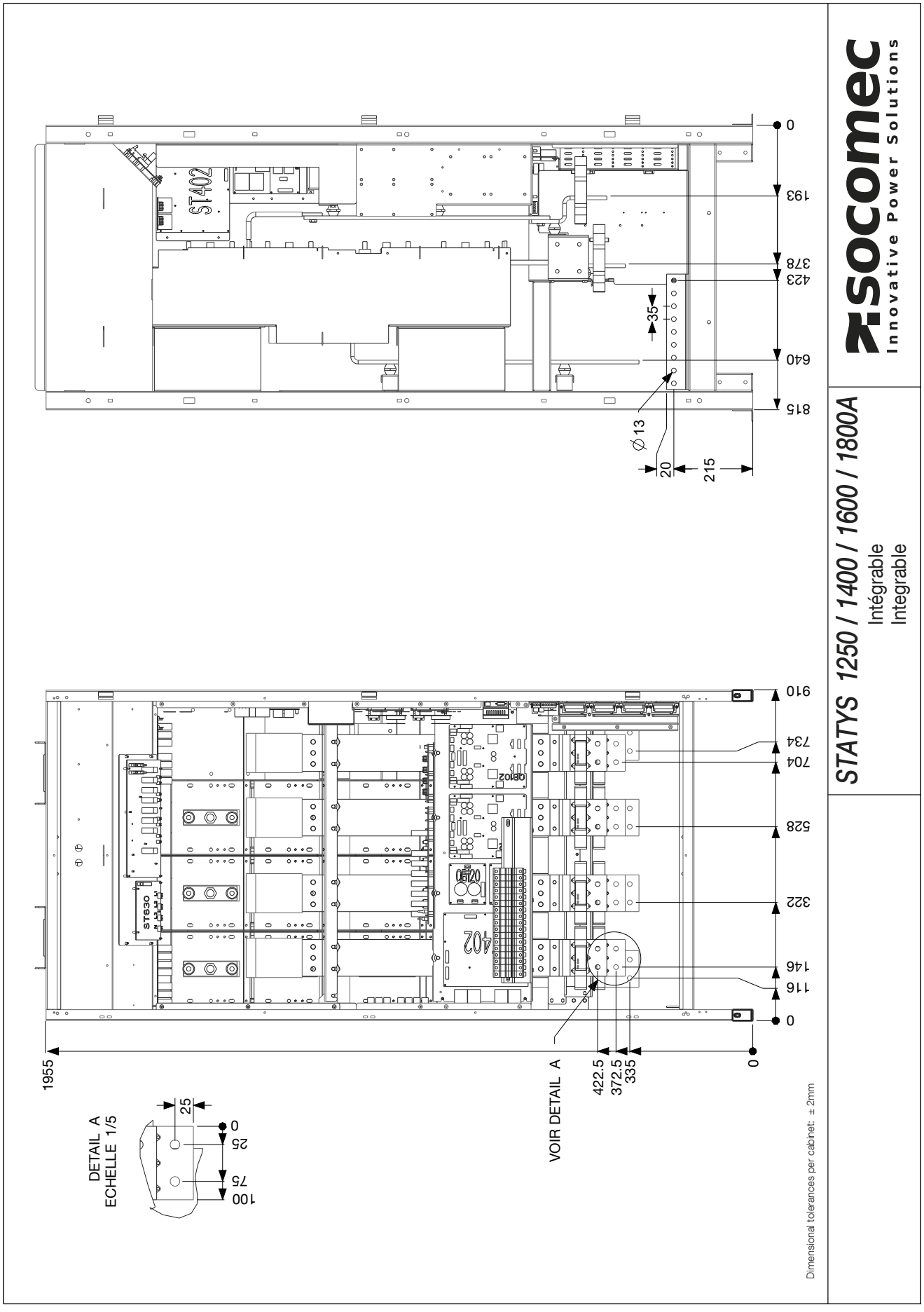
STATYS 1250 / 1400 / 1600A
Armoire
Cabinet

12.17. Plan 17: 1250/1400/1600/1800A Integrable electrical connections



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