

ABB DRIVES

# Installation of drive module frames R6 to R9 in Rittal VX25 enclosure

## Supplement







# Installation of drive module frames R6 to R9 in Rittal VX25 enclosure

Supplement

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3. Electrical installation





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*Further information*







# Introduction to the supplement

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## Contents of this chapter

This chapter gives the basic information on the manual.

## Applicability

The supplement applies to Rittal VX25 enclosure installations of ACS880-01, ACS580-01, ACH580-01 and ACQ580-01 drive modules (frame sizes R6...R9) with option +P940 or +P944.

The manual is a supplement to these manuals:

Name	Code
<b>Drive hardware manuals</b>	
<i>ACS880-01 drives hardware manual</i>	<a href="#">3AUA0000078093</a>
<i>ACS580-01 drives hardware manual</i>	<a href="#">3AXD50000044794</a>
<i>ACH580-01 drives hardware manual</i>	<a href="#">3AXD50000044839</a>
<i>ACQ580-01 drives hardware manual</i>	<a href="#">3AXD50000044862</a>
<b>Cabinet installation manuals</b>	
<i>Drive modules cabinet design and construction instructions</i>	<a href="#">3AUA0000107668</a>
<i>ACS880...+P940 and +P944 drive modules supplement</i>	<a href="#">3AUA0000145446</a>
<i>ACS580..., ACH580... and ACQ580...+P940 and +P944 drive modules supplement</i>	<a href="#">3AXD50000210305</a>
<b>Electrical planning manual</b>	
<i>Single drive cabinets and modules electrical planning instructions</i>	<a href="#">3AXD50000518333</a>
<b>Quick guides</b>	
<i>ACS880-01 drives, frames R6 to R9 quick installation guide</i>	<a href="#">3AUA0000099689</a>
<i>ACS580-01 drives, frames R6 to R9 quick installation and start-up guide</i>	<a href="#">3AXD50000009286</a>

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Name	Code
<i>ACH580-01 drives, frames R6 to R9 quick installation and start-up guide</i>	<a href="#">3AXD50000036602</a>
<i>ACQ580-01 drives, frames R6 to R9 quick installation and start-up guide</i>	<a href="#">3AXD50000037301</a>

ACS880-01 manuals

[link list](#)



ACS580-01 manuals

[link list](#)



ACH580-01 manuals

[link list](#)



ACQ580-01 manuals

[link list](#)



See [www.abb.com/drives/documents](http://www.abb.com/drives/documents) for all manuals on the Internet.

## Safety instructions

Obey the safety instructions given in the drive hardware manual and other safety instructions delivered with the drive.

## Target audience

This manual is intended for people who plan the installation, install, start up and do maintenance work on the drive, or create instructions for the end user of the drive concerning the installation and maintenance of the drive.

Read the manual before working on the drive. You are expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

## Categorization by frame size and option code

The frame size identifies information which concerns only a certain frame size of the drive. The frame size is shown on the type designation label. All frame sizes are listed in the technical data.

The option code (A123) identifies information which concerns only a certain optional selection. The options included in the drive are listed on the type designation label.

## Terms and abbreviations

Term	Description
Cabinet	An enclosure that consists of one or more cubicles
Cubicle	One section of a cabinet-installed drive. A cubicle is typically behind a door of its own.
Drive module	Frequency converter enclosed in a metal frame or enclosure. Intended for cabinet installation.
Frame, frame size	Physical size of the drive or power module
VX25	Enclosure system by Rittal ( <a href="http://www.rittal.com">http://www.rittal.com</a> )



# 2

## Cabinet construction

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### Contents of this chapter

This chapter instructs in placing the modules and additional equipment into a cabinet.

For general instructions, see *Drive modules cabinet design and construction instructions* ([3AUA0000107668](#) [English]).

### Limitation of liability

The installation must always be designed and made according to applicable local laws and regulations. ABB does not assume any liability whatsoever for any installation which breaches the local laws and/or other regulations. Furthermore, if the recommendations given by ABB are not followed, the drive may experience problems that the warranty does not cover.

### Required options

Make sure that the drive is applicable to cabinet installation (drives with option +P940 or +P944).

### General

#### ■ Technical data

See the applicable hardware manual for module-specific technical data.

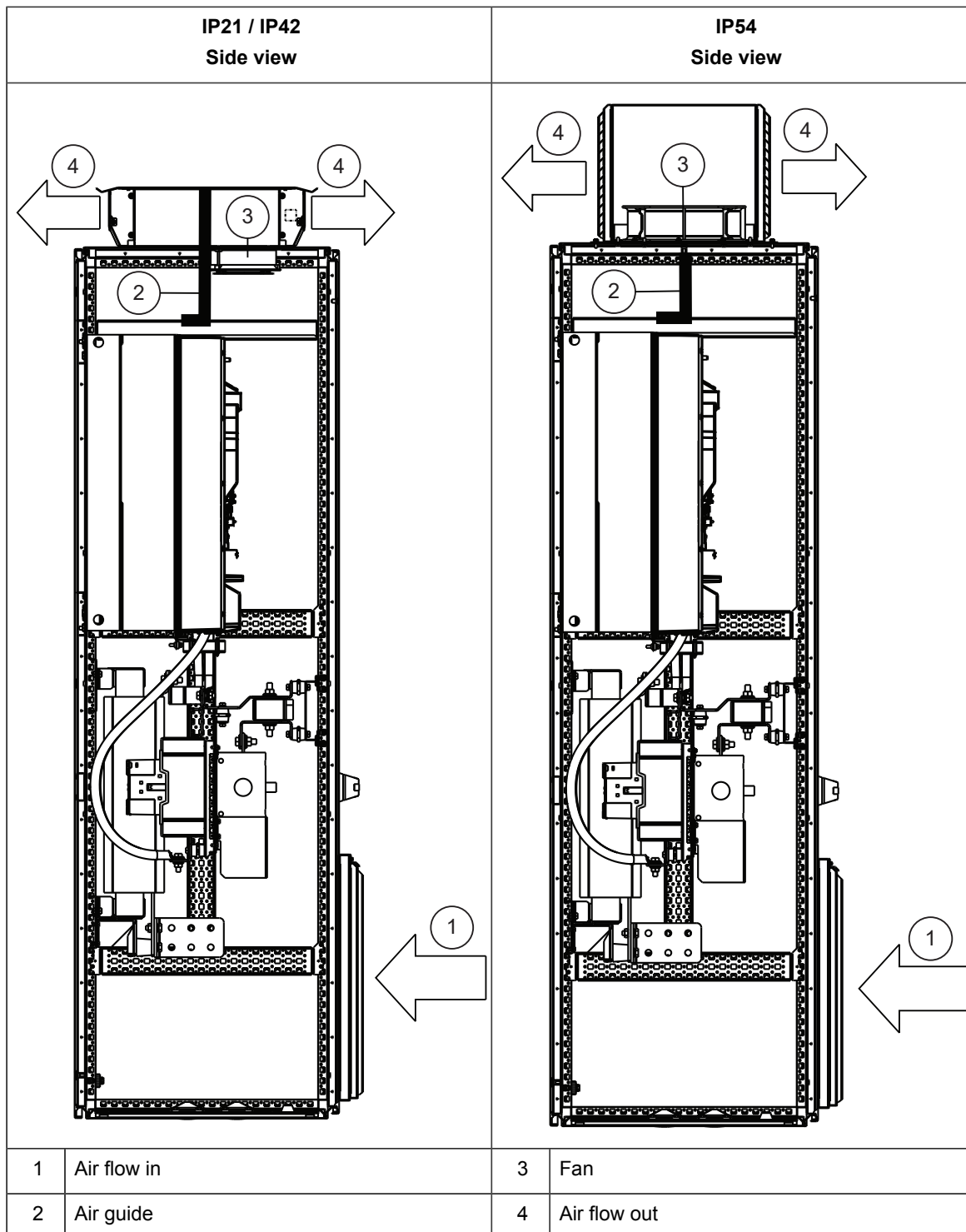
#### ■ Cooling

The drive modules and related equipment in this manual meet the cooling requirements of Rittal VX25 enclosure and ABB Drives offering if manufacturer's installation instructions are obeyed. If you install additional heat-generating equipment in the enclosure, make sure to upgrade the cooling system accordingly.

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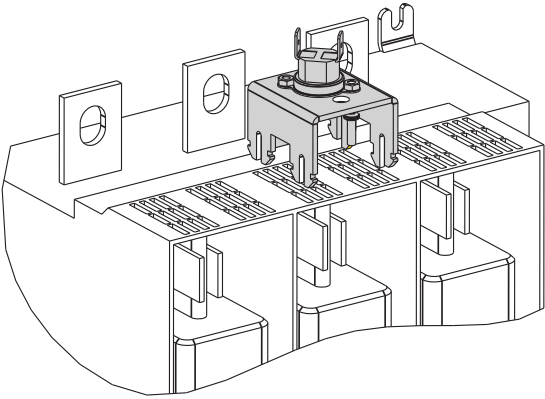
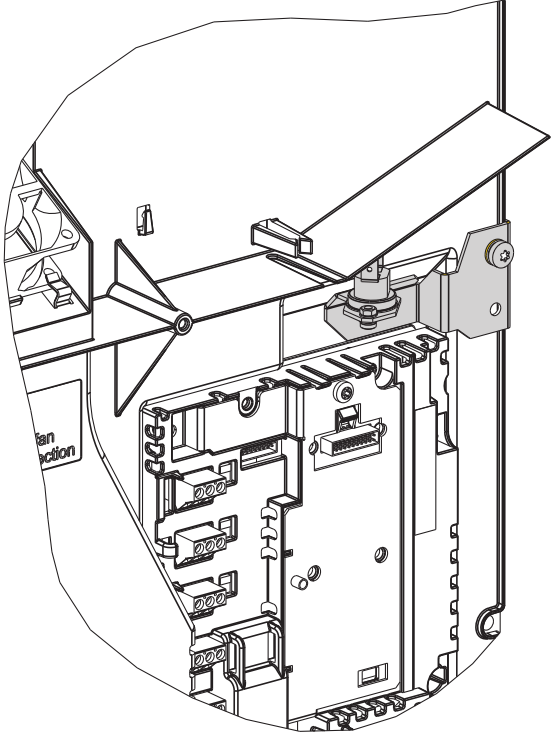
See the applicable hardware manual for module-specific cooling data.

The cooling principle of Rittal VX25 enclosure installations of ACS880-01, ACS580-01, ACH580-01 and ACQ580-01 drive modules is given below:



■ **Thermal protection**

Install thermal sensors to protect the cabinet against overheating in case of a cooling fan failure. Installation positions of ABB kits are given below.

Frame sizes R6 and R7		Frame sizes R8 and R9	
			
ACS580-01	Kit code: 3AXD50000637447	ACS580-01	Kit code: 3AXD50000636877
ACS880-01	Kit code: 3AXD50000636884	ACS880-01	Kit code: 3AXD50000604180

### ■ Degree of protection

Select the cabinet ventilation components according to the necessary degree of protection. See [Cabinet ventilation \(page 57\)](#). Available degrees of protection are IP21, IP42 and IP54.

## Installation examples

This section instructs in placing the drive and additional equipment into a Rittal VX25 enclosure.

Each example includes a table that lists:

- installation stages of different equipment in the order in which the installation into the enclosure should be performed
- code of the step-by-step instructions
- equipment kit code
- kit ordering code.

You can find the kit-specific assembly drawings, step-by-step instructions and kit information on the Internet. Go to <https://sites-apps.abb.com/sites/lvacdrivesengineering/support/content>. If needed, contact your local ABB representative.

The example includes also cabinet assembly drawings that show each stage listed in the table. More detailed steps of each stage are described in the kit-specific assembly drawings. The tightening torques are listed in the kit-specific assembly drawings. See the hardware manual for the tightening torques of drive module input and output terminals.

For general instructions, see *Drive modules cabinet design and construction instructions* (3AUA0000107668 [English]).

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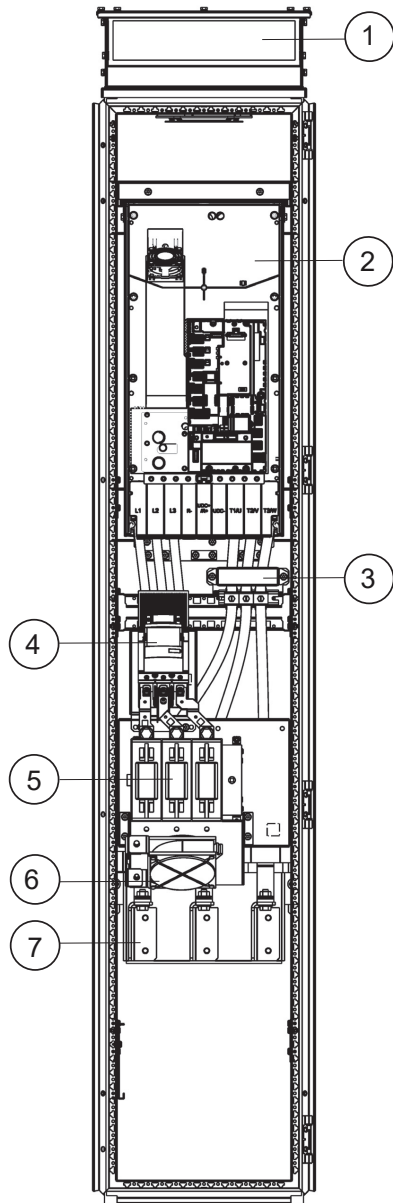
**WARNING!**

Remove the code labels attached to mechanical parts such as busbars, shrouds and sheet metal parts before installation. They may cause bad electrical connections, or, after peeling off and collecting dust in time, cause arcing or block the cooling air flow.

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■ R6 and R7 modules in a 400 mm wide Rittal VX25 enclosure



**Description**

Cubicle including:

1. Air outlet
2. Drive module
3. Common mode filter
4. Contactor
5. Main switch/disconnector
6. Cabinet fan (available from Rittal)
7. du/dt filter



## Installation stages

#	Installation stage	Instruction code	Kit code	Kit ordering code
1	Bottom plate	3AXD50000578702	-	See <i>Mechanical installation accessories and tools (page 52)</i> .
	PE busbar			
2	Support beams	3AXD50000579129	-	See <i>Mechanical installation accessories and tools (page 52)</i> .
3	Module installation parts	3AXD50000577859	A-4-67-VX101	3AXD50000556793
4	Output filters:			
	Common mode filter	3AXD50000578399	A-X-67-VX302	3AXD50000557127
	ACHO5730 du/dt filter	3AXD50000579228	-	See <i>du/dt filters (page 56)</i> .
	FOCH0260-70 du/dt filter			
FOCH0260-70 installation parts	3AXD50000578405	A-4-67-VX301	3AXD50000557141	
5	Main switch/disconnector:			
	OS250D03 <b>Note:</b> Remove the front cover for correct cooling of the fuses.	-	-	See <i>Main switch/disconnector (page 60)</i> .
	OS250D03 installation parts	3AXD50000578627	A-4-67-VX201	3AXD50000556908
	OS250D03 auxiliary busbars		A-X-67-VX202	3AXD50000569588
6	Contactor:			
	AF146-30-22B-13	-	-	See <i>Contact- or (page 63)</i> .
	AF146-30-22B-13 installation parts	3AXD50000578634	A-X-67-VX203	3AXD50000557110
7	Shrouds	3AXD50000577828	A-4-67-VX401	3AXD50000557134
8	Cabinet ventilation	-	-	See <i>Cabinet ventila- tion (page 57)</i> .



Overview of kits

12345678

ABCDEF

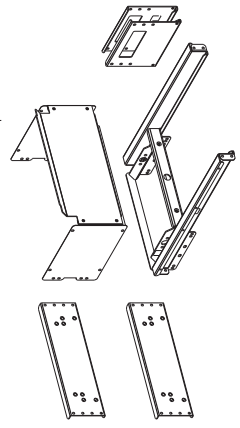
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R67\_IN\_RITTAL\_W400 (ASSEMBLY) --.17 10-Mar-20 A. Kees

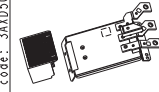
Initial Approval

**KITS FOR ACS880-01, ACS/H/Q580-01 R6/R7 MODULES IN RITTAL VX25 2000X600X400 CABINET**

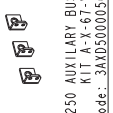
**See kit assembly drawings for required Rittal and/or standard parts.**



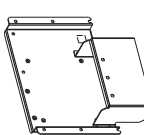
MODULE R6/R7 INSTALLATION PARTS  
KIT A-4-67-VX101  
Ordering code: 3AXD50000556793



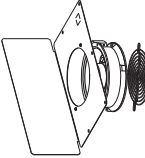
CONTACTOR AF146 INSTALLATION PARTS  
KIT A-X-67-VX203  
Ordering code: 3AXD50000557110




OS250 AUXILIARY BUSBARS  
KIT A-X-67-VX202  
Ordering code: 3AXD50000569588



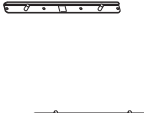
MAIN SWITCH OS250 INSTALLATION PARTS  
KIT A-4-67-VX201  
Ordering code: 3AXD50000556908



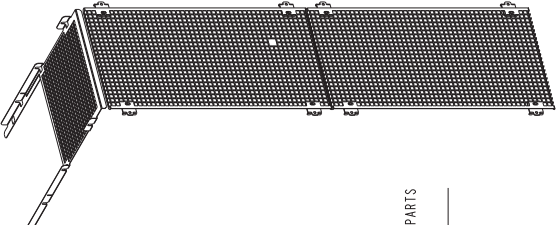
AIRGUIDE FOR IP21/42 ROOF  
KIT A-4-X-VX402  
Ordering code: 3AXD50000569571



COMMON MODE FILTER  
KIT A-X-67-VX302  
Ordering code: 3AXD50000557127



DUST FILTER FOCH0260-TX INSTALLATION PARTS  
KIT A-4-67-VX301  
Ordering code: 3AXD50000557141



R6/R7 SHROUD INST. PARTS W400  
KIT A-4-67-VX401  
Ordering code: 3AXD50000557134

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

Based on	A. Kees	10-Mar-20	Title	ASSEMBLY DRAWING	Scale	Form
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Proj. Name						
DWG Number	3AXD10001022530					

Prepared	A. Kees	10-Mar-20	Dec. des.	
Check	A. Kees	10-Mar-20	ASSEMBLY DRAWING	
Appr.	R. Panilishv	10-Mar-20	ACS880/ACS580-01 R6/R7 W400	
Project name				
Weight	kg			

Doc. No.	3AXD50000545636	Rev. No.	A.0 (DR)
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Total	3	Scale	1:10



Stages 1 and 2: Installation of bottom plate, PE busbar and support beams



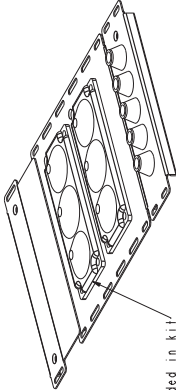
1	2	3	4	5	6	7	8
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A Initial Approval		A. Kees 10-Mar-20					

BASED ON: RITTAL W400 (ASSEMBLY) IN THE ORIGINAL DRAWING. THIS DRAWING IS A COPY OF THE ORIGINAL DRAWING. IT IS NOT TO BE USED FOR PRODUCTION. USE OF THIS DRAWING FOR PRODUCTION WITHOUT EXPRESS AUTHORITY IS STRICTLY FORBIDDEN.  
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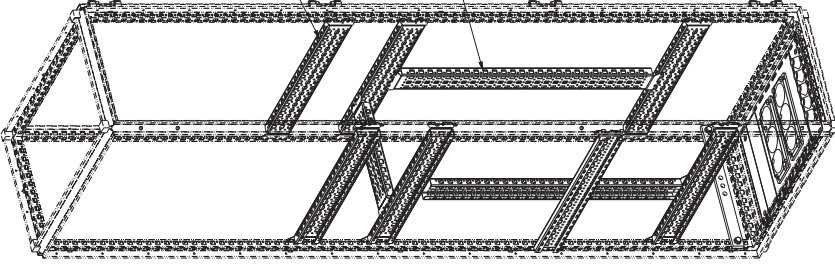
STAGE 1. Bottom plate and PE busbar assembly  
 STAGE 2. Rittal supports installation

Note! EMC cable lead-through should be used (not included in ABB delivery)

See assembly drawings:  
 3AXD50000578702 for PE and bottom  
 3AXD50000579129 for Rittal support beams



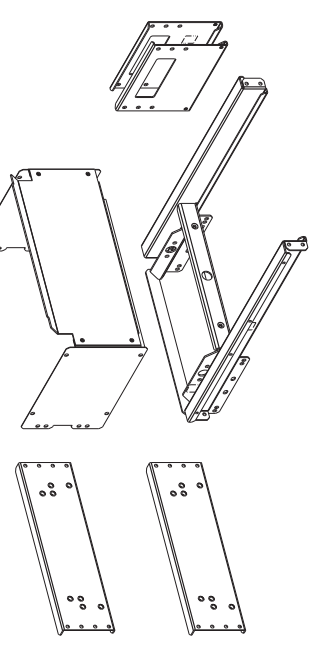
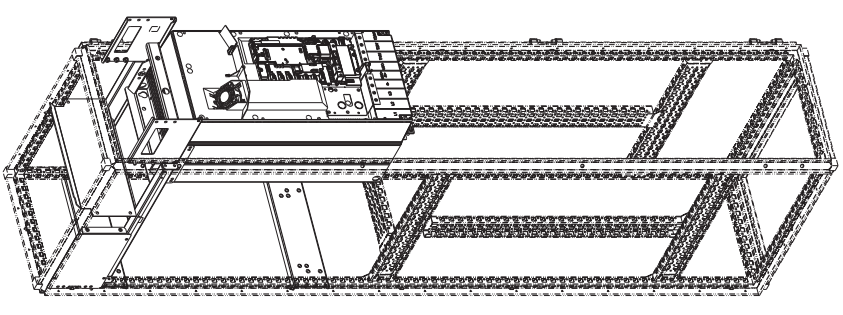
Cable lead-through not included in kit



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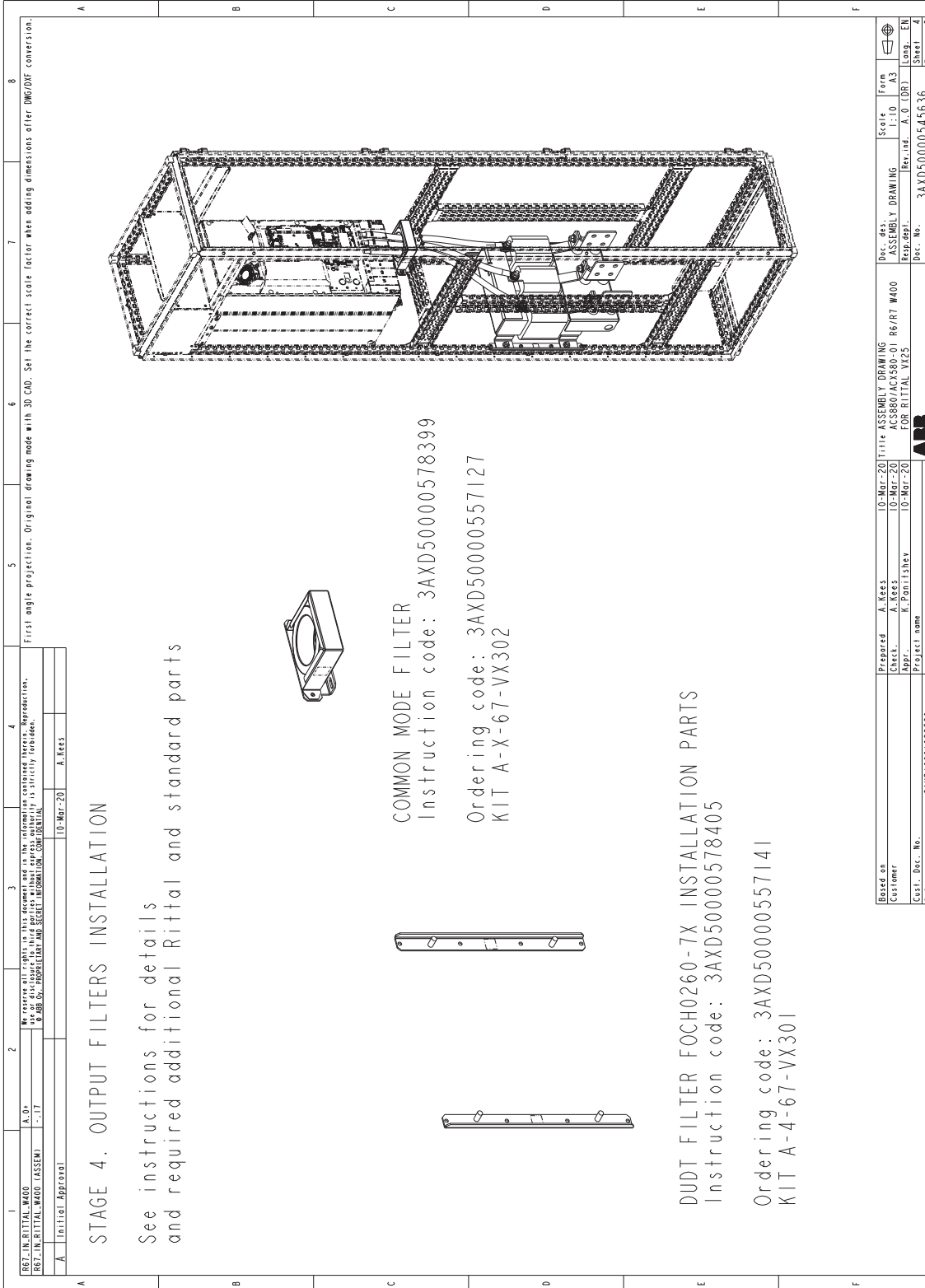


### Stage 3: Installation of module installation parts


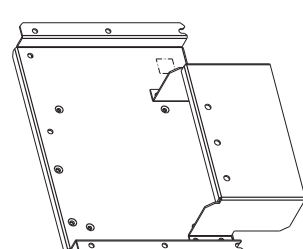
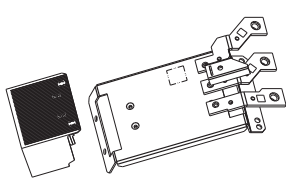
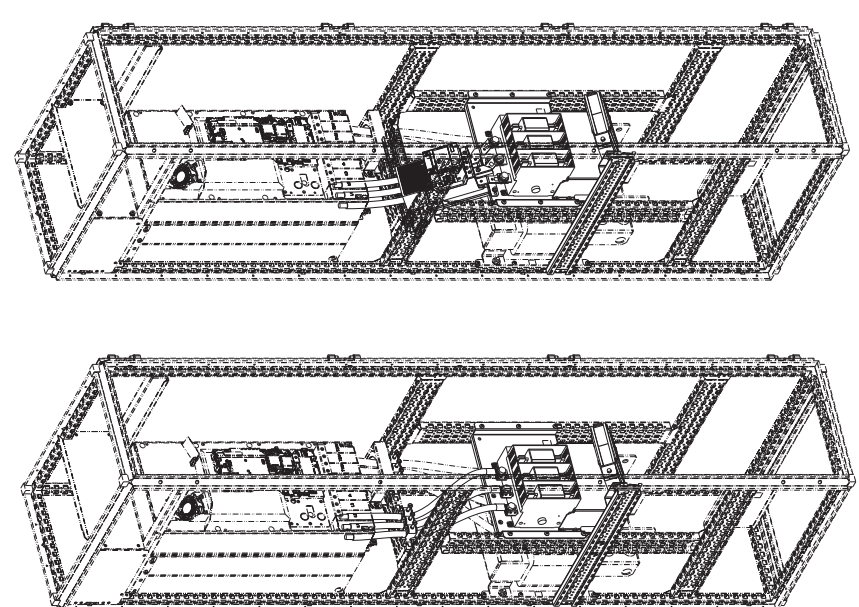
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<p><b>SECRET RITTAL W400</b>  <b>SECRET RITTAL W400 ASSEMBLY</b>  <small>A. 01-17</small></p> <p><small>WE HEREBY CERTIFY IN THIS DOCUMENT AND IN THE INFORMATION CONTAINED THEREIN, REPRESENTATIONS, AND DISCLOSURES TO OUR CUSTOMERS THAT WE HAVE MADE TO THE BEST OF OUR KNOWLEDGE AND BELIEF, AND THAT WE ARE NOT PROVIDING ANY INFORMATION THAT IS STRICTLY CONFIDENTIAL OR PROPRIETARY AND SECRET INFORMATION.</small></p> <p>A Initial Approval      10-Mar-20      A. Rees</p>																																																	
<p><b>STAGE 3. MODULE INSTALLATION</b></p> <p>See assembly drawing 3AXD50000577859 for details and required additional Rittal parts</p>																																																	
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<p><b>IMPORTANT! The center of gravity is very high. Secure the enclosure during the assembly</b></p>																																																	
<p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p>																																																	
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Based on	A. Rees	10-Mar-20	Title	ASSEMBLY DRAWING	Scale	Form																																											
Customer	A. Rees	10-Mar-20	ACS800/ACS800-01 R6/R7 W400	ASSEMBLY DRAWING	1:10	A3																																											
Client	A. Ponnitshev	10-Mar-20	FOR RITTAL VX25	Rev. no.	A.0. (DR)	Eng. EN																																											
DWG. Number	3AXD10001032530			Doc. No.	3AXD50000545636	Total																																											
						3																																											
						8																																											



Stage 4: Installation of output filters



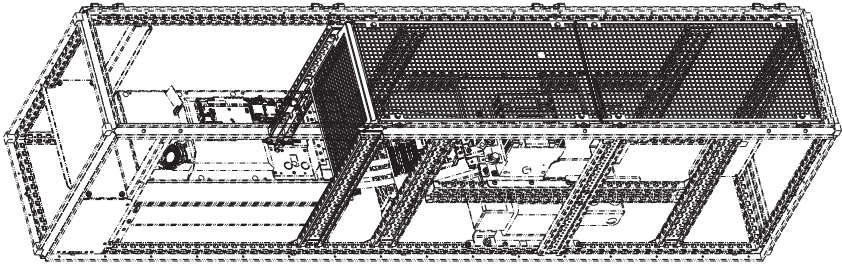
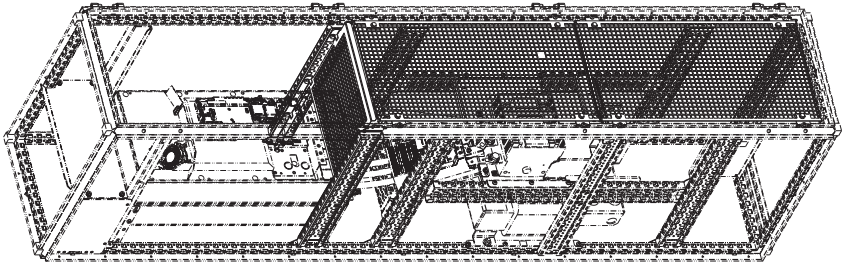
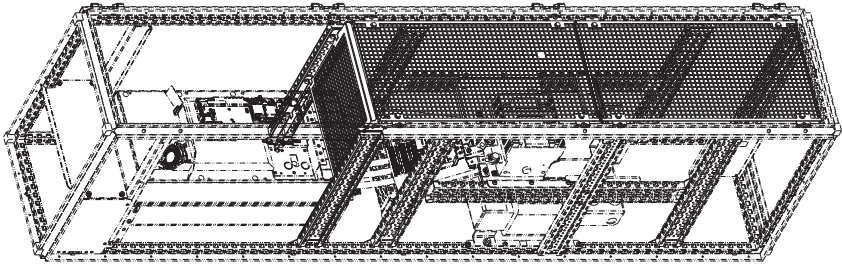
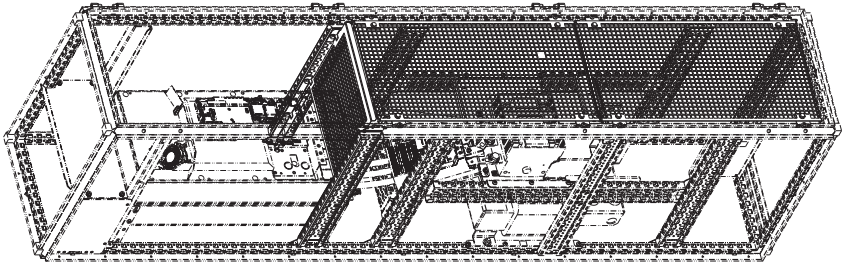
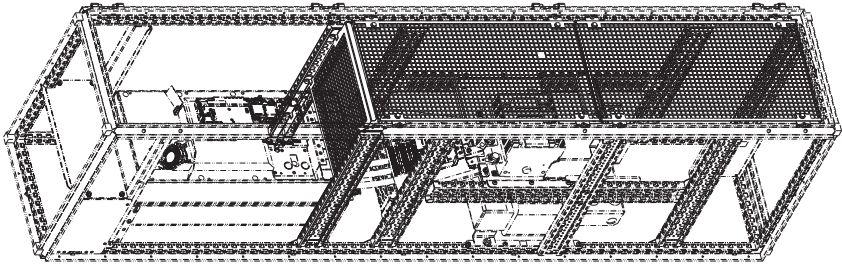
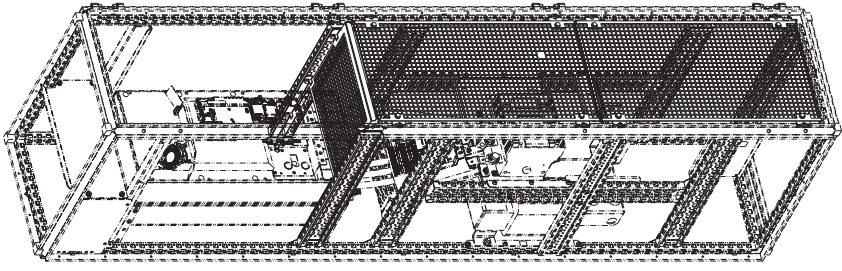
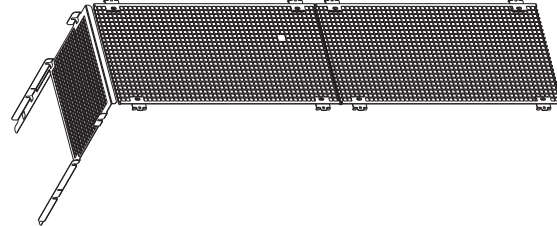
Stages 5 and 6: Installation of main switch/disconnector and contactor

1	2	3	4	5	6	7	8	
REF. IN RITTAL W400 (A.0) REF. IN RITTAL W400 (ASSEMB) -17		We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure of any parts without express written permission of RITTAL AG is strictly forbidden.		First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.				
A. Initial Approval		A. Rees 10-Mar-20						
STAGE 5. MAIN SWITCH OS250 INSTALLATION STAGE 6. CONTACTOR AF146 INSTALLATION								
See instructions for details and required additional Rittal parts								
OS250 AUXILIARY BUSBARS Instruction code: 3AXD50000578627  Ordering code: 3AXD50000569588 KIT A-X-67-VX201								
MAIN SWITCH OS250 INSTALLATION PARTS Instruction code: 3AXD50000578627  Ordering code: 3AXD50000556908 KIT A-4-67-VX201								
CONTACTOR AF146 INSTALLATION PARTS Instruction code: 3AXD50000578634  Ordering code: 3AXD50000557110 KIT A-X-67-VX203								
								
				Without contactor		With contactor		
Based on: A. Rees Project: E. Rees Date: E. Rees Project name: 3AXD10001032530 DWG Number: 3AXD10001032530 Weight kg		Title: ASSEMBLY DRAWING Part: R6/R7 W400 FOR RITTAL VXS 10-Mar-20		Scale: A.0 (DIN) Form: A.0 (DIN) Drawn: A.0 (DIN) Drawn: A.0 (DIN) 3AXD50000545636 Sheet 5 Total 8		Date: 10-Mar-20 Title: ASSEMBLY DRAWING Part: R6/R7 W400 FOR RITTAL VXS 10-Mar-20 Scale: A.0 (DIN) Form: A.0 (DIN) Drawn: A.0 (DIN) Drawn: A.0 (DIN) 3AXD50000545636 Sheet 5 Total 8		



Stage 7: Installation of shrouds



1	2	3	4	5	6	7	8																																			
RITL IN RITTAL W400 RITL IN RITTAL W400 (ASSEMBLY) - 17 No. of copies of this drawing to be made for production purposes is indicated in the table below. All other copies without this table are strictly for reference. ABB Ltd. PROPRIETARY AND SECRET INFORMATION. CONFIDENTIAL Initial Approval 10-Mar-20 A. Kees																																										
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.																																										
A							F																																			
B							F																																			
C							F																																			
D							F																																			
E							F																																			
F							F																																			
<p>STAGE 7. SHROUDS installation</p> <p>See assembly drawing 3AXD50000577828 for details and required additional Rittal and standard parts</p>																																										
																																										
<p>Ordering code: 3AXD50000557134 KIT A-4-67-VX401</p>																																										
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Based on	A. Kees	10-Mar-20	Title	ASSEMBLY DRAWING	Scale	Form																																				
Customer	A. Kees	10-Mar-20	AC580/AC580-01 R6/R7 W400	ASSEMBLY DRAWING	1:10	A3																																				
Appr.	K. Panlitshev	10-Mar-20	FOR RITLAL VX25	Res. Insp.	A. O. (DR)	EN																																				
Cust. No.	3AXD10001032530			Doc. No.	3AXD50000545636	Sheet 6																																				
DWG Number				Weight kg		Total 8																																				



# Cabinet ventilation

1	2	3	4	5	6	7	8	
REF. IN RITUAL WOOD REF. IN RITUAL WOOD (ASSEMBLY)		A.O. --:17		We reserve all rights in this document and in the information contained therein. Reproduction, modification, distribution or any other use is strictly prohibited. © ABB, 2010. PROPRIÉTÉ DÉPOSÉE ET SECRET INDUSTRIEL. CONFIDENTIAL.				First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.
Initial Approval		10-Mar-20		A. Kees				

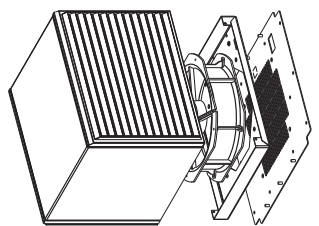
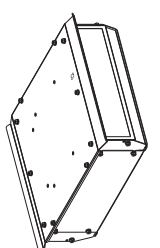
## CABINET VENTILATION

**AIR OUTLET KITS**  
 Ordering codes:  
 IP21/IP42 3AUA0000114968 KIT A-4-X-040  
 IP54 3AXD5000057356 KIT A-X-X-VX406

## AIR INLET KITS

Ordering codes:  
 IP21/IP42 3AUA0000117007 KIT A-4-X-024  
 IP54 3AXD5000009184 KIT A-4-X-027

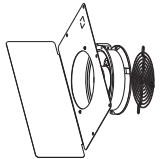
  

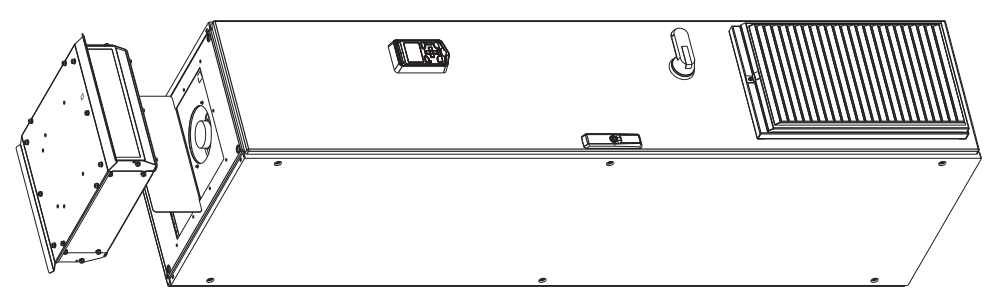
  

**AIRGUIDE FOR IP21/IP42 ROOF**  
 Ordering code: 3AXD50000569571  
 KIT A-4-X-VX402

Note: fan to be ordered separately  
 Instruction code: 3AXD50000578795



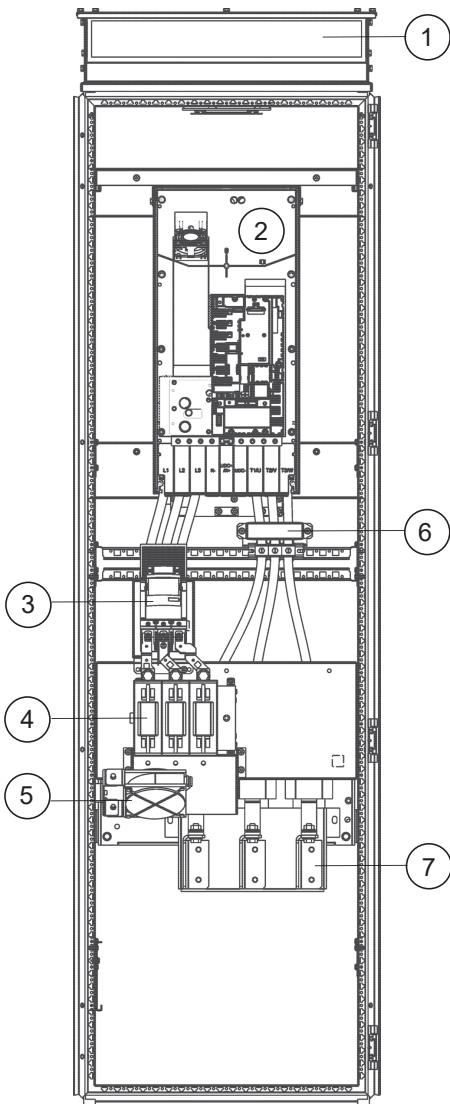


Based on	Prepared	A. Kees	10-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	A3
Customer	Check.	A. Kees	10-Mar-20	ACS880/ACS580-01 R6/R7 W400	FOR RITUAL VXS25	Rev. ind.	A.0 (ORI)	Long.	EN
Proj. No.	Appr.	K. Panilishv	10-Mar-20			Doc. No.	3AXD50000545636	Sheet	2
DWG Number	3AXD1000102530		Project name		Weight		kg		Total
									8



■ R6 and R7 modules in a 600 mm wide Rittal VX25 enclosure



Description
Cubicle including:
1. Air outlet
2. Drive module
3. Contactor
4. Main switch/disconnector
5. Cabinet fan (available from Rittal)
6. Common mode filter
7. du/dt filter



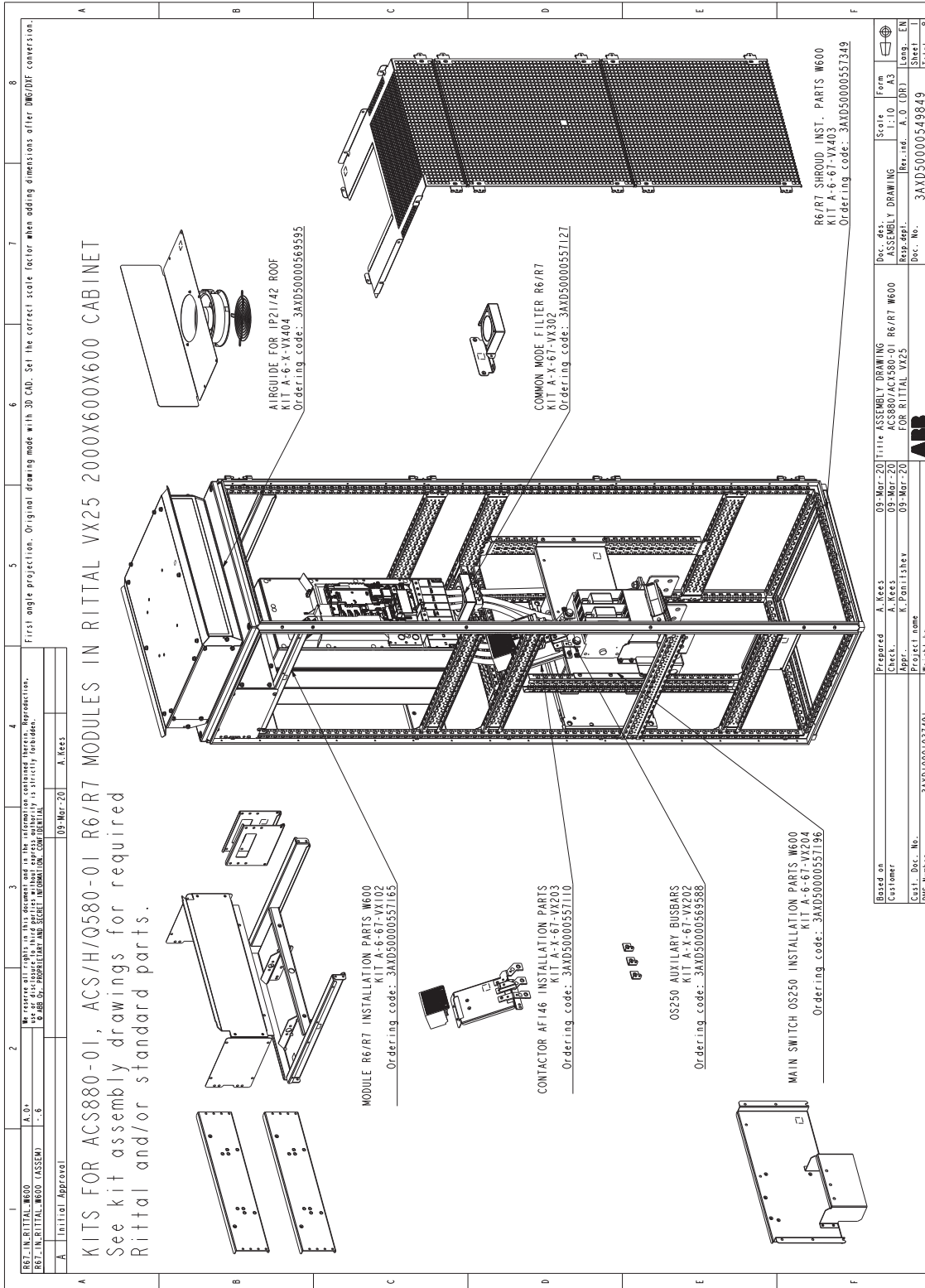
## Installation stages

#	Installation stage	Instruction code	Kit code	Kit ordering code
1	Bottom plate	3AXD50000578986	-	See <i>Mechanical installation accessories and tools</i> (page 52).
	PE busbar			
2	Support beams	3AXD50000579709	-	See <i>Mechanical installation accessories and tools</i> (page 52).
3	Module installation parts	3AXD50000580064	A-6-67-VX102	3AXD50000557165
4	Output filters:			
	Common mode filter	3AXD50000578399	A-X-67-VX302	3AXD50000557127
	ACH05730 du/dt filter	3AXD50000579228	-	See <i>du/dt filters</i> (page 56).
	FOCH0260-70 du/dt filter			
5	Main switch/disconnector:			
	OS250D03 <b>Note:</b> Remove the front cover for correct cooling of the fuses.	-	-	See <i>Main switch/disconnector</i> (page 60).
	OS250D03 installation parts	3AXD50000579693	A-6-67-VX204	3AXD50000557196
	OS250D03 auxiliary busbars		A-X-67-VX202	3AXD50000569588
6	Contactor:			
	AF146-30-22B-13	-	-	See <i>Contact- or</i> (page 63).
	AF146-30-22B-13 installation parts	3AXD50000578634	A-X-67-VX203	3AXD50000557110
7	Shrouds	3AXD50000579686	A-6-67-VX403	3AXD50000557349
8	Cabinet ventilation	-	-	See <i>Cabinet ventila- tion</i> (page 57).





Overview of kits





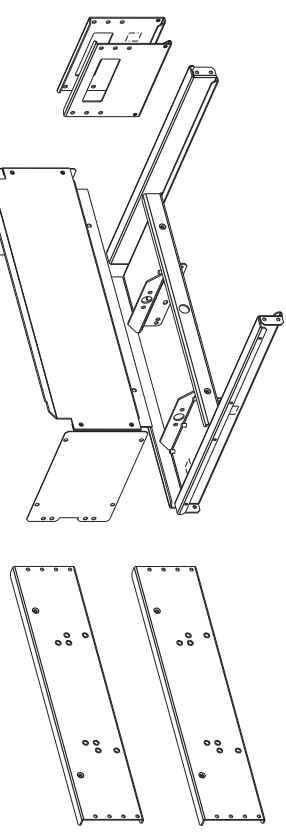
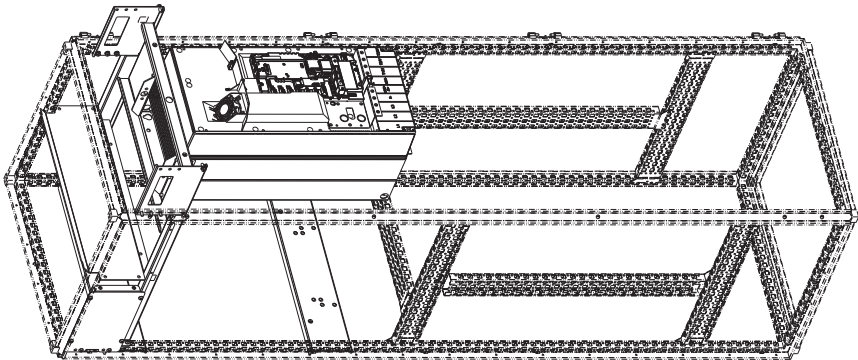
Stages 1 and 2: Installation of bottom plate, PE busbar and support beams

1	2	3	4	5	6	7	8	
R67-NRITRAL#600 R67-NRITRAL#600 (ASSEMB) - 6		We reserve all rights in this document and in the information contained therein. Reproductions, in whole or in part, without express written permission of ABB are strictly forbidden.		First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.				Doc. code: ASSEMBLY DRAWING Rev. no.: A.0 (OR) Doc. No.: 3AXD50000549849
A Initial Approval		09-Mar-20 A. Kees		09-Mar-20 Title ASSEMBLY DRAWING 09-Mar-20 CS80/ACK3000 R6/R7 #600 09-Mar-20 FOR RITRAL TYPE2				Scale: 1:1 Form: EN Sheet: 2 of 2
STAGE 1. Bottom plate and PE busbar assembly STAGE 2. Rittal supports installation		Note! EMC cable lead-through should be used (not included in ABB delivery)						Form: EN Sheet: 2 of 2
See assembly drawings: 3AXD50000578986 for PE and bottom 3AXD50000579709 for Rittal support beams		Cable lead-through not included in kit						
Prepared A. Kees Checked K. Ponnilshetty Project name 3AXD10001037491 Weight kg		09-Mar-20 09-Mar-20 09-Mar-20		09-Mar-20 09-Mar-20 09-Mar-20				3AXD50000549849



Stage 3: Installation of module installation parts



1	2	3	4	5	6	7	8																																				
RRT_IN_RITTAL_W600 A.O. - RRT_IN_RITTAL_W600_ASSEM1 -6 Initial Approval 09-Mar-20 A. Kees																																											
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<h3>STAGE 3. MODULE INSTALLATION</h3> <p>See assembly drawing 3AXD50000580064 for details and required additional Rittal parts</p>																																											
																																											
<p><b>IMPORTANT!</b> The center of gravity is very high. Secure the enclosure during the assembly</p>																																											
<p>Ordering code: 3AXD50000557165 KIT A-6-67-VX102</p>																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on</td> <td>A. Kees</td> <td>09-Mar-20</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>1:10</td> <td>Form</td> <td>A3</td> </tr> <tr> <td>Customer</td> <td>A. Kees</td> <td>09-Mar-20</td> <td>ACS800/ACS800-01 06/R7 W600</td> <td>FOR RITTAL VZ25</td> <td>Res. ind.</td> <td>A.O. (DR)</td> <td>Lang.</td> <td>EN</td> </tr> <tr> <td>Cust. Doc. No.</td> <td></td> <td>09-Mar-20</td> <td></td> <td></td> <td>Dec. No.</td> <td>3AXD50000549849</td> <td>Sheet</td> <td>3</td> </tr> <tr> <td>DWG Number</td> <td>3AXD10001037491</td> <td></td> <td></td> <td></td> <td>Weight kg</td> <td></td> <td>Total</td> <td>8</td> </tr> </table>								Based on	A. Kees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	A3	Customer	A. Kees	09-Mar-20	ACS800/ACS800-01 06/R7 W600	FOR RITTAL VZ25	Res. ind.	A.O. (DR)	Lang.	EN	Cust. Doc. No.		09-Mar-20			Dec. No.	3AXD50000549849	Sheet	3	DWG Number	3AXD10001037491				Weight kg		Total	8
Based on	A. Kees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	A3																																			
Customer	A. Kees	09-Mar-20	ACS800/ACS800-01 06/R7 W600	FOR RITTAL VZ25	Res. ind.	A.O. (DR)	Lang.	EN																																			
Cust. Doc. No.		09-Mar-20			Dec. No.	3AXD50000549849	Sheet	3																																			
DWG Number	3AXD10001037491				Weight kg		Total	8																																			




### Stage 4: Installation of output filters

1	2	3	4	5	6	7	8
<p>REF. IN RITTAL-WOOD A.11* REF. IN RITTAL-WOOD (ASSEMB) - 61*</p>		<p>My reserve of rights in this document and in the information contained hereof, Reproductions, Modifications, and any other use of this document is strictly forbidden. © ABB. ALL RIGHTS RESERVED. ABB INFORMATION.COM/RITTAL</p>		<p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p>			
<p>Initial Approval</p>		<p>09-Mar-20 A.Kees</p>					

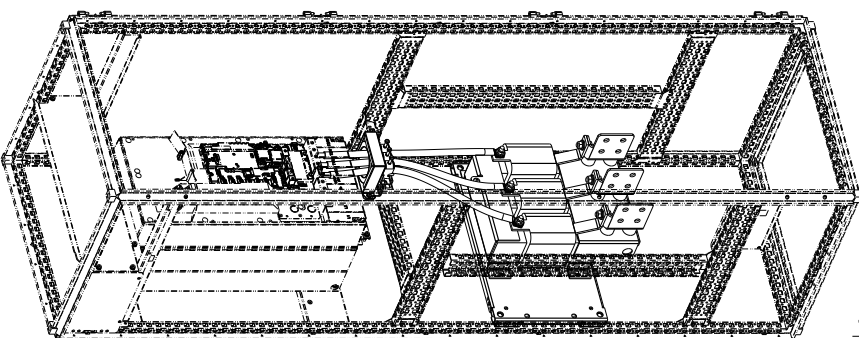
#### STAGE 4. OUTPUT FILTERS INSTALLATION

See instructions for details and required additional Rittal parts

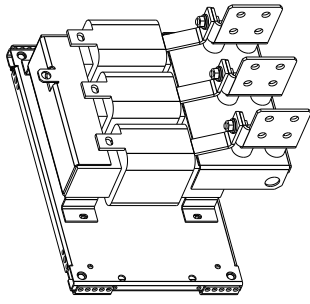


**COMMON MODE FILTER**  
Instruction code: 3AXD50000578399

Ordering code: 3AXD50000557127  
KIT A-X-67-VX302





DUDT filters FOCH0260-7X and ACH05730 does not have any specific ABB installation parts  
See instruction 3AXD50000579228

Based on	A. Kees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	AS3
Customer	A. Kees	09-Mar-20	ACS880/ACS880-01 R6/R7 W600	FOR RITTAL VX25	Rev. no.	A.1. (DR)	Lang.	EN
Appr.	R. Pöhlisch	09-Mar-20			Doc. No.	3AXD50000549849	Proj.	17151
Drawn	M. Gölz	14			<b>ABB</b>			



Stages 5 and 6: Installation of main switch/disconnector and contactor



1 2 3 4

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Rev. IN RITTAL W600 (ASSEMBLY) A.0 - B

Rev. IN RITTAL W600 (ASSEMBLY) A.0 - B

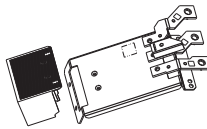
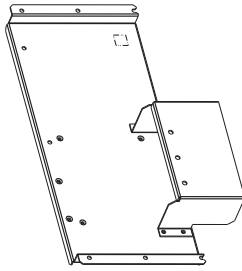
09-Mar-20 A. Kees

STAGE 5. MAIN SWITCH OS250 INSTALLATION  
STAGE 6. CONTACTOR AF146 INSTALLATION

See instructions for details and required additional Rittal parts

OS250 AUXILIARY BUSBARS  
Instruction code: 3AXD5000050000579693  
Ordering code: 3AXD50000569588  
KIT A-X-67-VX202

CONTACTOR AF146 INSTALLATION PARTS  
Instruction code: 3AXD50000578634  
Ordering code: 3AXD50000557110  
KIT A-X-67-VX203

MAIN SWITCH OS250 INSTALLATION PARTS W600  
Instruction code: 3AXD5000050000579693  
Ordering code: 3AXD50000557196  
KIT A-6-67-VX204

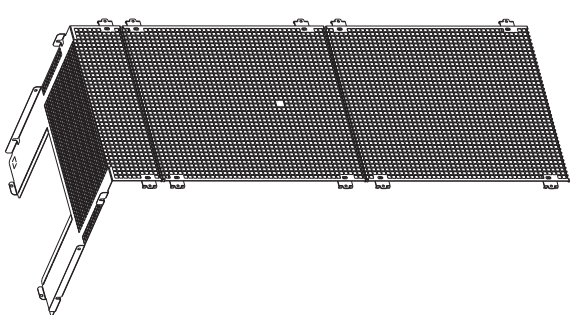
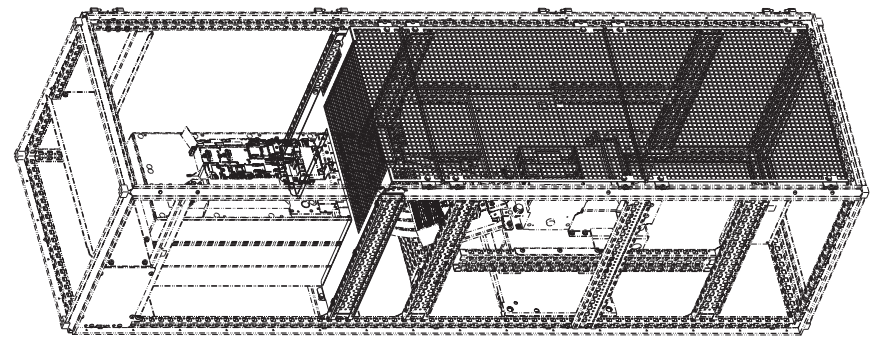
Without contactor

With contactor

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

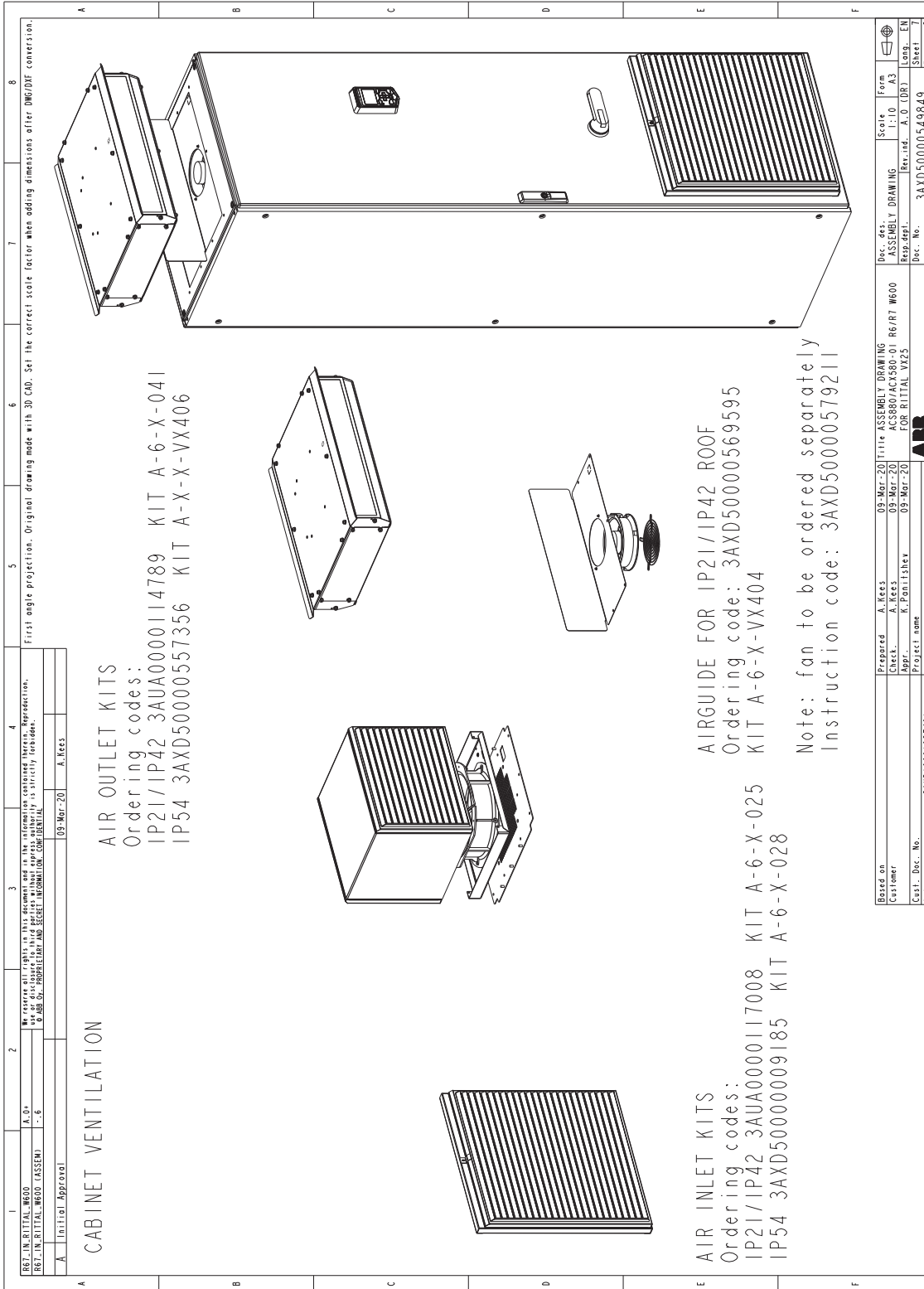
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Approved	K. Ponišhev	09-Mar-20	Project name		Res. ind.	A. O. (DR)	Sheet	5
DMS Number			3AXD 0001037491	Weight kg		3AXD50000549849		
			ABB			Total		
						8		

## Stage 7: Installation of shrouds

1	2	3	4	5	6	7	8																																			
<p>BASE: IN RITTAL W600                  RIT. IN RITTAL W600 (ASSEMBL)                  A. Da. - S.</p> <p style="font-size: small;">We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure of any part of this document without express authority is strictly forbidden.</p>																																										
<p>A. Initial Approval                  09-Mar-20 A. Rees</p>																																										
<p><b>STAGE 7. SHROUDS installation</b></p> <p>See assembly drawing 3AXD50000579686 for details and required additional Rittal parts</p>																																										
																																										
<p>Ordering code: 3AXD50000557349                  KIT A-6-67-VX403</p>																																										
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Based on	A. Rees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	Form																																				
Customer	A. Rees	09-Mar-20	ACS800/ACS800-01 R6/R7 W600	Rev. no.	1:10	A3																																				
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Check.				Doc. No.	3AXD50000549849	Total 8																																				
DWG. Number	3AXD.0001037491																																									



Cabinet ventilation



1: REF. IN. RITUAL W600 (ASSEMBL) A.0+  
 2: REF. IN. RITUAL W600 (ASSEMBL) - 6  
 3: Initial Approval  
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 5: First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.  
 6: 7: 8:

**CABINET VENTILATION**

**AIR OUTLET KITS**  
 Ordering codes:  
 IP21/IP42 3AUA0000114789 KIT A-6-X-041  
 IP54 3AXD5000057356 KIT A-X-X-VX406

**AIR INLET KITS**  
 Ordering codes:  
 IP21/IP42 3AUA0000117008 KIT A-6-X-025  
 IP54 3AXD5000009185 KIT A-6-X-028

**AIRGUIDE FOR IP21/IP42 ROOF**  
 Ordering code: 3AXD500000569595  
 KIT A-6-X-VX404

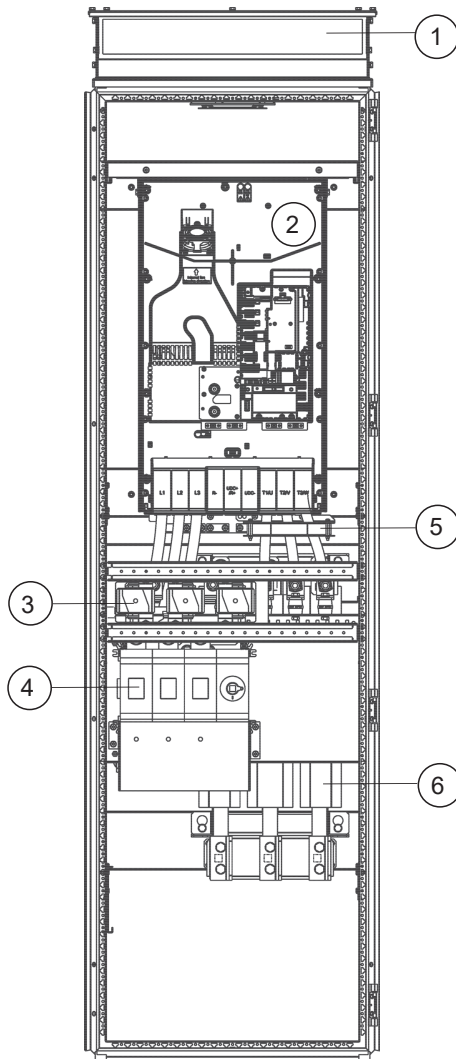
Note: fan to be ordered separately  
 Instruction code: 3AXD50000579211

Based on	Prepared	A. Kees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	Form
Customer	Checked	A. Kees	09-Mar-20	ACS800/ACS800-0	ASSEMBLY DRAWING	1:10	A3
Proj. name	Appr.	K. Panilshex	09-Mar-20	FOR RITUAL VV25	ASSEMBLY DRAWING		
DWG. Number	3AXD10001037491	Weight	kg	Doc. No.	3AXD50000549849	Sheet	7
				Doc. No.	3AXD50000549849	Total	8





■ R8 and R9 modules in a 600 mm wide Rittal VX25 enclosure



**Description**

Cubicle including:

1. Air outlet
2. Drive module
3. Fuses
4. Main switch/disconnector
5. Common mode filter
6. du/dt filter



## Installation stages

#	Installation stage	Instruction code	Kit code	Kit ordering code
1	Bottom plate	3AXD50000578986	-	See <i>Mechanical installation accessories and tools (page 52)</i> .
	PE busbar			
2	Support beams	3AXD50000578993	-	See <i>Mechanical installation accessories and tools (page 52)</i> .
3	du/dt filters:			
	FOCH0260-70 (R8)	3AXD50000579228	-	See <i>du/dt filters (page 56)</i> .
	FOCH0320-50 (R9)	-		
	FOCH0320-50 installation parts	3AXD50000579174	A-6-9-VX303	3AXD50000557325
Module and common mode filter installation:				
4	Module installation parts	3AXD50000579143	A-6-89-VX103	3AXD50000557158
	Common mode filter	3AXD50000579181	A-X-89-VX304	3AXD50000557318
5	Main switch/disconnector:			
	OT400E03 (R8)	-	-	See <i>Main switch/disconnector (page 60)</i> .
	OT630E03P (R9)			
	OT400E03 installation parts	3AXD50000557189	A-6-8-VX206	3AXD50000579334
	OT630E03P installation parts	3AXD50000557172	A-6-9-VX205	3AXD50000579259
Contactor:				
6	AF265-30-22-13	-	-	See <i>Contact or (page 63)</i> .
	AF370-30-22-13			
	Contactor installation parts	3AXD50000579198	A-X-89-VX207	3AXD50000557202
7	Shrouds	3AXD50000579310	A-6-89-VX405	3AXD50000557332
8	Cabinet ventilation	-	-	See <i>Mechanical installation accessories and tools (page 52)</i> .





Overview of kits

1  
R89 - IN. RITTAL W600  
R89 - IN. RITTAL W600 (ASSEM.)

2  
A.0x  
- - 17

3  
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4  
A. Kees  
09-Mar-20

5  
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

6  
6

7  
7

8  
8

A  
Initial Approval

**KITS FOR ACS880-01, ACS/H/Q580-01 R8/R9 MODULES IN RITTAL VX25 2000X600X600 CABINET**  
See kit assembly drawings for required Rittal and/or standard parts.

**MODULE R8/R9 INSTALLATION PARTS**  
KIT A-6-89-VX103  
Ordering code: 3AXD50000557158

**CONTACTOR AF370/265 INSTALLATION PARTS**  
KIT A-X-89-VX207  
Ordering code: 3AXD50000557202

**MAIN SWITCH OT630 INSTALLATION PARTS**  
KIT A-6-9-VX205  
Ordering code: 3AXD50000557172

**MAIN SWITCH OT400 INSTALLATION PARTS**  
KIT A-6-9-VX206  
Ordering code: 3AXD50000557189

**AIR GUIDE FOR IP21/42 ROOF**  
KIT A-6-X-VX404  
Ordering code: 3AXD50000569595

**COMMON MODE FILTER R8/R9**  
KIT A-X-89-VX304  
Ordering code: 3AXD50000557318

**DIODT FILTER FOH0320-5X INSTALLATION PARTS**  
KIT A-6-9-VX303  
Ordering code: 3AXD50000557325

**R8/R9 SHROUD INST. PARTS W600**  
KIT A-6-89-VX405  
Ordering code: 3AXD50000557332

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Customer	A. Kees	09-Mar-20	ACS880/ACX880-01 R8/R9	Rev. ind.	A.0 (DR)	Long	EN	
Proj. name	K. Panfisher	09-Mar-20	FOR RITTAL VX25	Dec. No.	3AXD50000547630	Sheet	1	
DWG Number	3AXD10001035567	Weight kg				Total	9	

**ABB**

Stages 1 and 2: Installation of bottom plate, PE busbar and support beams



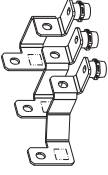
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BASE IN RITTAL: W800 A.D. -17 PROJ. IN RITTAL: W800 (ASSEMBLY) No. of copies: 1000 Use as directed. Do not reproduce without express authority. A strictly forbidden. © ABB Ltd. PROPRIETARY AND SECRET INFORMATION. CONFIDENTIAL Prepared: A. Kees 09-Mar-20 A. Kees Checked: A. Kees Approved: R. Pantišev 09-Mar-20 Project name: DMS Number: 3AXD0001035567 Weight Lg																															
A	STAGE 1. Bottom plate and PE busbar assembly STAGE 2. Rittal supports installation  Note! EMC cable lead-through should be used (not included in ABB delivery)  See assembly drawing 3AXD50000578986 for PE and bottom						7	8																							
A	B	C	D	E	F	First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DMG/DXF conversion.																									
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Doc. des.	ASSEMBLY DRAWING	Scale	1:10	Form	A3																										
Res. des.	A.0 (DR)	Res. ind.	A.0 (DR)	Lang.	EN																										
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				Total	9																										

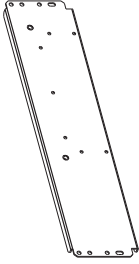
## Stage 3: Installation of du/dt filter

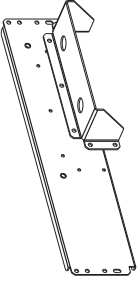
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A	Initial Approval						A. Kees	09-Mar-20

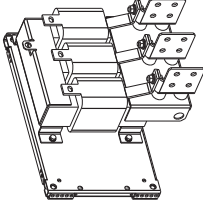
### STAGE 3. DUDT FILTER installation

See instructions for details and required additional Ritral parts





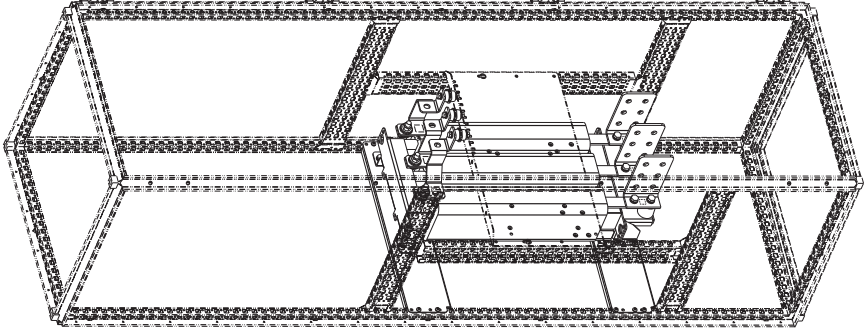





**DUDT FILTER FOCH0320-5X INSTALLATION PARTS**  
 Instruction code: 3AXD50000579174

Ordering code: 3AXD50000557325  
 KIT A-6-9-VX303

DUDT filters FOCH0260-7X does not have any specific ABB installation parts  
 See instruction 3AXD50000579228

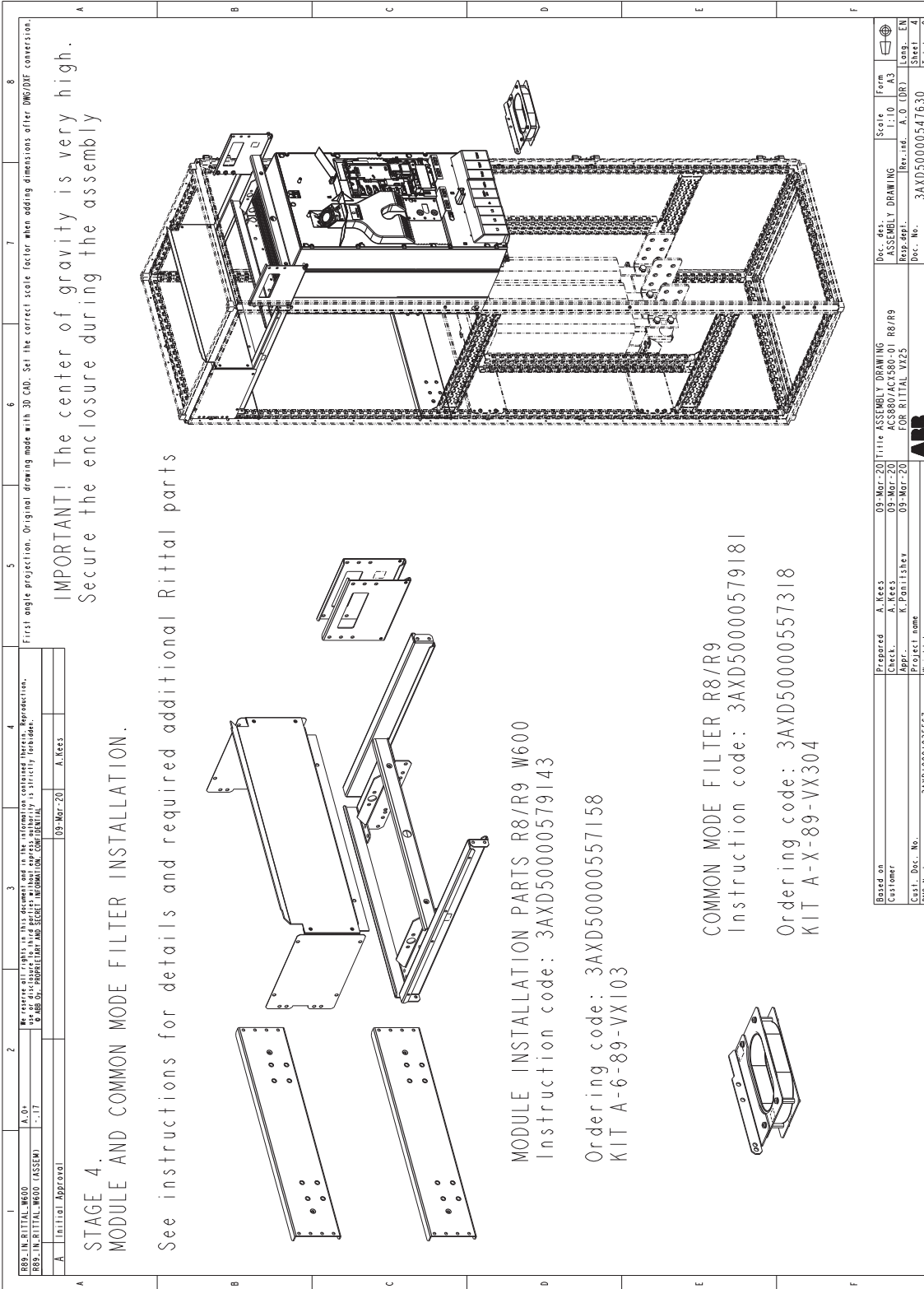


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Customer	Check. A. Kees	09-Mar-20	ACS800/ACS800-0 R8/R9	Rev. ind. A.0 (DR)	Lang. EN
Cost. Doc. No. DMS Number	Appr. R. Ponišhev	09-Mar-20	FOR RITITAL VX25	Doc. No. 3AXD50000547630	Sheet 1 of 3





Stage 4: Installation of module installation parts and common mode filter



First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

**IMPORTANT!** The center of gravity is very high. Secure the enclosure during the assembly

**STAGE 4. MODULE AND COMMON MODE FILTER INSTALLATION.**

See instructions for details and required additional Rittal parts

MODULE INSTALLATION PARTS R8/R9 W600  
 Instruction code: 3AXD50000579143

Ordering code: 3AXD50000557158  
 KIT A-6-89-VX103

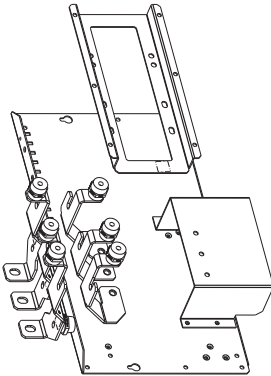
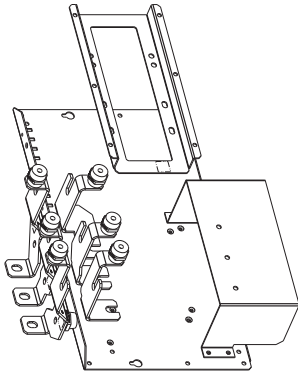
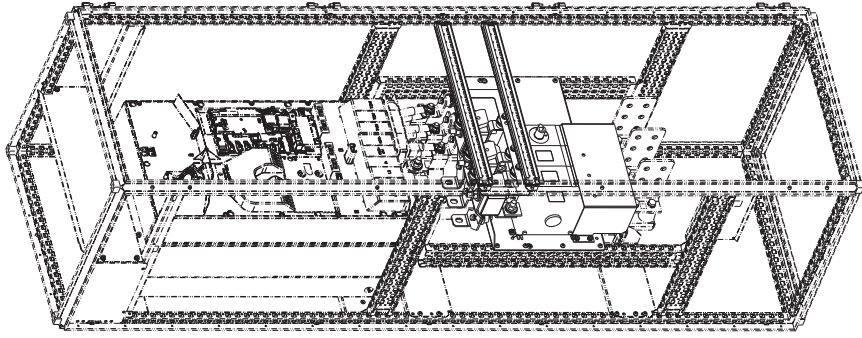
COMMON MODE FILTER R8/R9  
 Instruction code: 3AXD50000579181

Ordering code: 3AXD50000557318  
 KIT A-X-89-VX304

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Cust. No.	Appr.	R. Panitshev	09-Mar-20			Doc. No.	3AXD50000547630	Sheet	4
DMS Number	Project name							Total	9
	Weight kg								



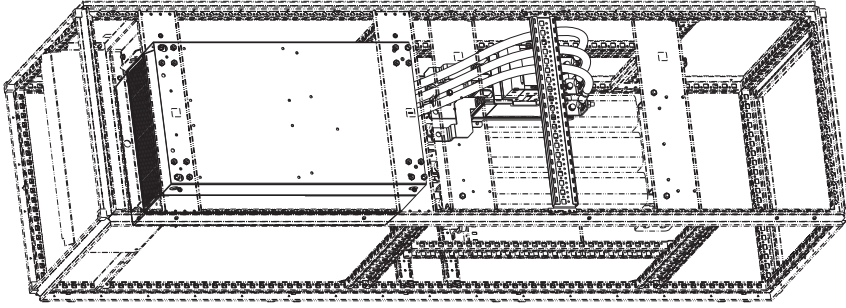
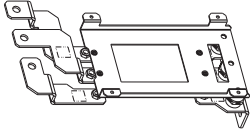
### Stage 5: Installation of main switch/disconnector

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R89 - IN RITTAL W600 A.0+ R89 - IN RITTAL W600 (ASSEMBLY) -17		We reserve all rights in this document and the information contained therein. Reproductions, in whole or in part, without the written permission of ABB, are prohibited and strictly forbidden.		109-Mar-20 A. Kees		First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.			
Initial Approval									
<h4>STAGE 5. MAIN SWITCH OT630 or OT400 INSTALLATION</h4> <p>See instructions for details and required additional Rittal parts</p>									
		<p>MAIN SWITCH OT400 INSTALLATION PARTS                  Instruction code: 3AXD50000579334</p> <p>Ordering code: 3AXD50000557189                  KIT A-6-8-VX206</p>				<p>MAIN SWITCH OT630 INSTALLATION PARTS                  Instruction code: 3AXD50000579259</p> <p>Ordering code: 3AXD50000557172                  KIT A-6-9-VX205</p>			
									
Based on: A. Kees 09-Mar-20 Customer: A. Kees 09-Mar-20 Checked: R. Pohl 13-May 09-Mar-20 Project Name: 3AXD10001035567 DWG Number: 3AXD10001035567				Title: ASSEMBLY DRAWING ACS800/ACS150-01 R8/P9 FOR RITTAL XX23				Scale: 1:10 Rev. no.: A.0 (DR) Doc. No.: 3AXD50000547630	
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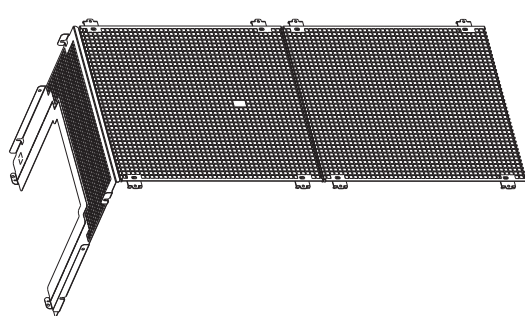
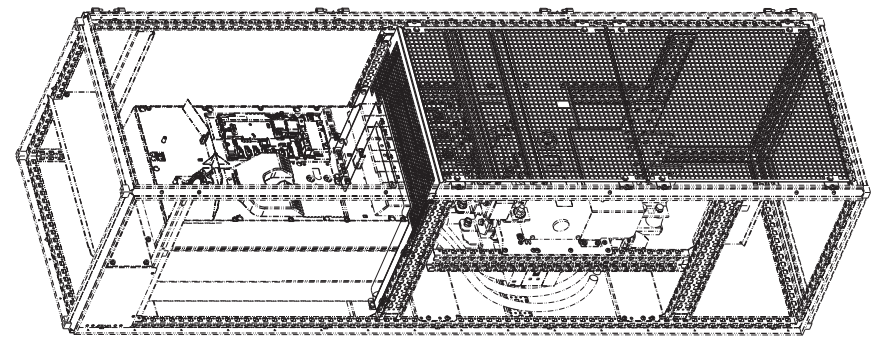
Stage 6: Installation of contactor



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<p> <small>                     R89 IN RITTAL WOOD                      R89 IN RITTAL WOOD (ASSEM)                      A.0+                      -17                      Initial Approval                      09-Mar-20                      A. Kees                 </small> </p>																																																							
<p> <small>                     INSTRUCTIONS: THIS DRAWING IS THE PROPERTY OF ABB. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR THE MANUFACTURE OF THE EQUIPMENT SPECIFICALLY REFERRED TO IN THE TITLE. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. THE USER OF THIS DRAWING IS TO BE RESPONSIBLE FOR THE CORRECT INTERPRETATION OF THE DRAWING. THE USER OF THIS DRAWING IS TO BE RESPONSIBLE FOR THE CORRECT INTERPRETATION OF THE DRAWING. THE USER OF THIS DRAWING IS TO BE RESPONSIBLE FOR THE CORRECT INTERPRETATION OF THE DRAWING.                 </small> </p>																																																							
<p>                     STAGE 6. CONTACTOR AF370/265 INSTALLATION                      See assembly drawing 3AXD50000579198 for details                      and required additional Rittal parts                 </p>																																																							
																																																							
																																																							
<p>                     Ordering code: 3AXD5000057202                      KIT A-X-89-VX207                 </p>																																																							
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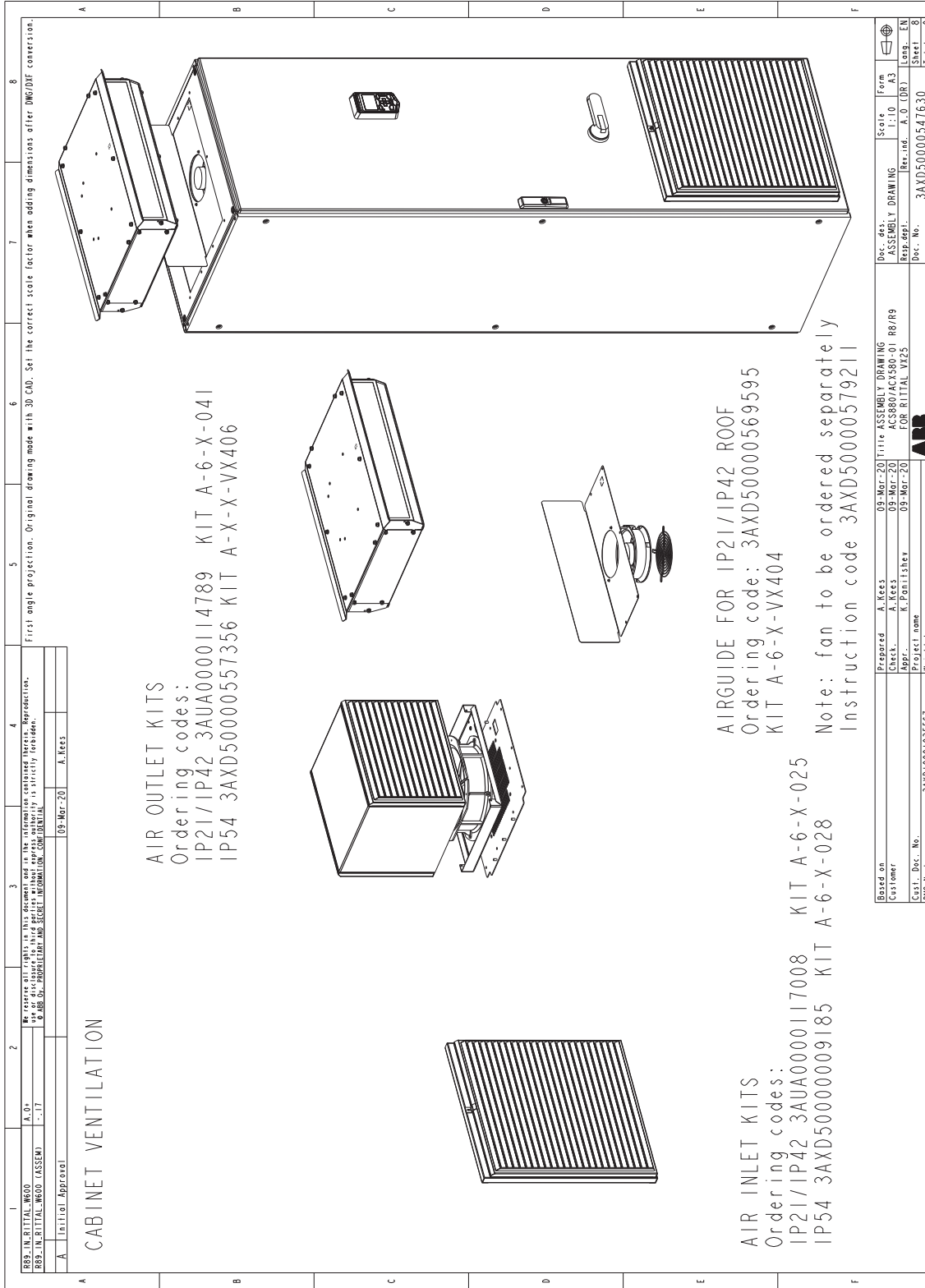


## Stage 7: Installation of shrouds

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R800 IN RITTAL W600 (ASSEMBLY) A. Rees 09-Mar-20 R800 IN RITTAL W600 (ASSEMBLY) A. Rees 09-Mar-20 We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure in any form without express written authority is strictly forbidden. © ABB AB. PROPRIETARY AND SECRET INFORMATION. CONFIDENTIAL																																																																																																																																																							
A Initial Approval																																																																																																																																																							
<h3>STAGE 7. SHROUDS installation</h3> <p>See assembly drawing 3AXD50000579310 for details and required additional Rittal parts</p>																																																																																																																																																							
																																																																																																																																																							
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<table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td style="width: 15%;">Based on</td> <td style="width: 15%;">A. Rees</td> <td style="width: 15%;">09-Mar-20</td> <td style="width: 15%;">Title</td> <td style="width: 15%;">ASSEMBLY DRAWING</td> <td style="width: 10%;">Scale</td> <td style="width: 10%;">1:10</td> <td style="width: 10%;">Form</td> <td style="width: 10%;">A3</td> </tr> <tr> <td>Customer</td> <td>A. Rees</td> <td>09-Mar-20</td> <td>ACS880/ACY380-01 R8/R9</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Drawn by</td> <td>A. Rees</td> <td>09-Mar-20</td> <td>FOR RITTAL VVZ5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Checked by</td> <td>A. Rees</td> <td>09-Mar-20</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Approved by</td> <td>A. Rees</td> <td>09-Mar-20</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Project name</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>DWG. Number</td> <td colspan="7">3AXD50000579332</td> <td></td> </tr> <tr> <td>Doc. No.</td> <td colspan="7">3AXD50000547630</td> <td></td> </tr> <tr> <td>Rev. No.</td> <td colspan="7">A.0 (DR)</td> <td></td> </tr> <tr> <td>Doc. des.</td> <td colspan="7">ASSEMBLY DRAWING</td> <td></td> </tr> <tr> <td>Doc. app.</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>Long. EN</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>Sheet</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>Sheet</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>Sheet</td> <td colspan="7"></td> <td></td> </tr> <tr> <td>Total</td> <td colspan="7"></td> <td>3</td> </tr> </table>								Based on	A. Rees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	A3	Customer	A. Rees	09-Mar-20	ACS880/ACY380-01 R8/R9						Drawn by	A. Rees	09-Mar-20	FOR RITTAL VVZ5						Checked by	A. Rees	09-Mar-20							Approved by	A. Rees	09-Mar-20							Project name									DWG. Number	3AXD50000579332								Doc. No.	3AXD50000547630								Rev. No.	A.0 (DR)								Doc. des.	ASSEMBLY DRAWING								Doc. app.									Long. EN									Sheet									Sheet									Sheet									Total								3
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Cabinet ventilation



1st angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

1	2	3	4	5	6	7	8
PREPARED BY: A. O. (A. O.) CHECKED BY: A. O. (A. O.) APPROVED BY: A. O. (A. O.)		PREPARED BY: A. Rees (A. Rees) CHECKED BY: A. Rees (A. Rees) APPROVED BY: R. Panitshev (R. Panitshev)		09-Mar-20 (09-Mar-20)		09-Mar-20 (09-Mar-20)	

CABINET VENTILATION

AIR OUTLET KITS  
 Ordering codes:  
 IP21/IP42 3AUA0000114789 KIT A-6-X-041  
 IP54 3AXD50000557356 KIT A-X-X-VX406

AIR INLET KITS  
 Ordering codes:  
 IP21/IP42 3AUA0000117008 KIT A-6-X-025  
 IP54 3AXD5000009185 KIT A-6-X-028

AIRGUIDE FOR IP21/IP42 ROOF  
 Ordering code: 3AXD50000569595  
 KIT A-6-X-VX404

Note: fan to be ordered separately  
 Instruction code 3AXD50000579211

Based on	Prepared	A. Rees	09-Mar-20	Title	ASSEMBLY DRAWING	Scale	1:10	Form	A3
Customer	Checked	A. Rees	09-Mar-20	ACS800/ACS800-1 R8/R9	ASSEMBLY DRAWING	1:10	A3	Long	EN
Cust. No.	Appr.	R. Panitshev	09-Mar-20	FOR RITTAL VXE5	Rep. Dept.	Rev. Ind.	A. O. (DR)	Sheet	8
DWG. Number	Project name	3AXD10001035567		3AXD50000547630		Dec. No.	Total		9





# 3

## Electrical installation

---

### Contents of this chapter

This chapter describes the electrical installation of the modules.

### Warnings

---



**WARNING!**

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do installation or maintenance work.

---

### Limitation of liability

The installation must always be designed and made according to applicable local laws and regulations. ABB does not assume any liability whatsoever for any installation which breaches the local laws and/or other regulations. Furthermore, if the recommendations given by ABB are not followed, the drive may experience problems that the warranty does not cover.

### Electrical safety precautions

These electrical safety precautions are for all personnel who do work on the drive, motor cable or motor.

---





**WARNING!**

Obey these instructions. If you ignore them, injury or death, or damage to the equipment can occur.

If you are not a qualified electrical professional, do not do installation or maintenance work.

Go through these steps before you begin any installation or maintenance work.

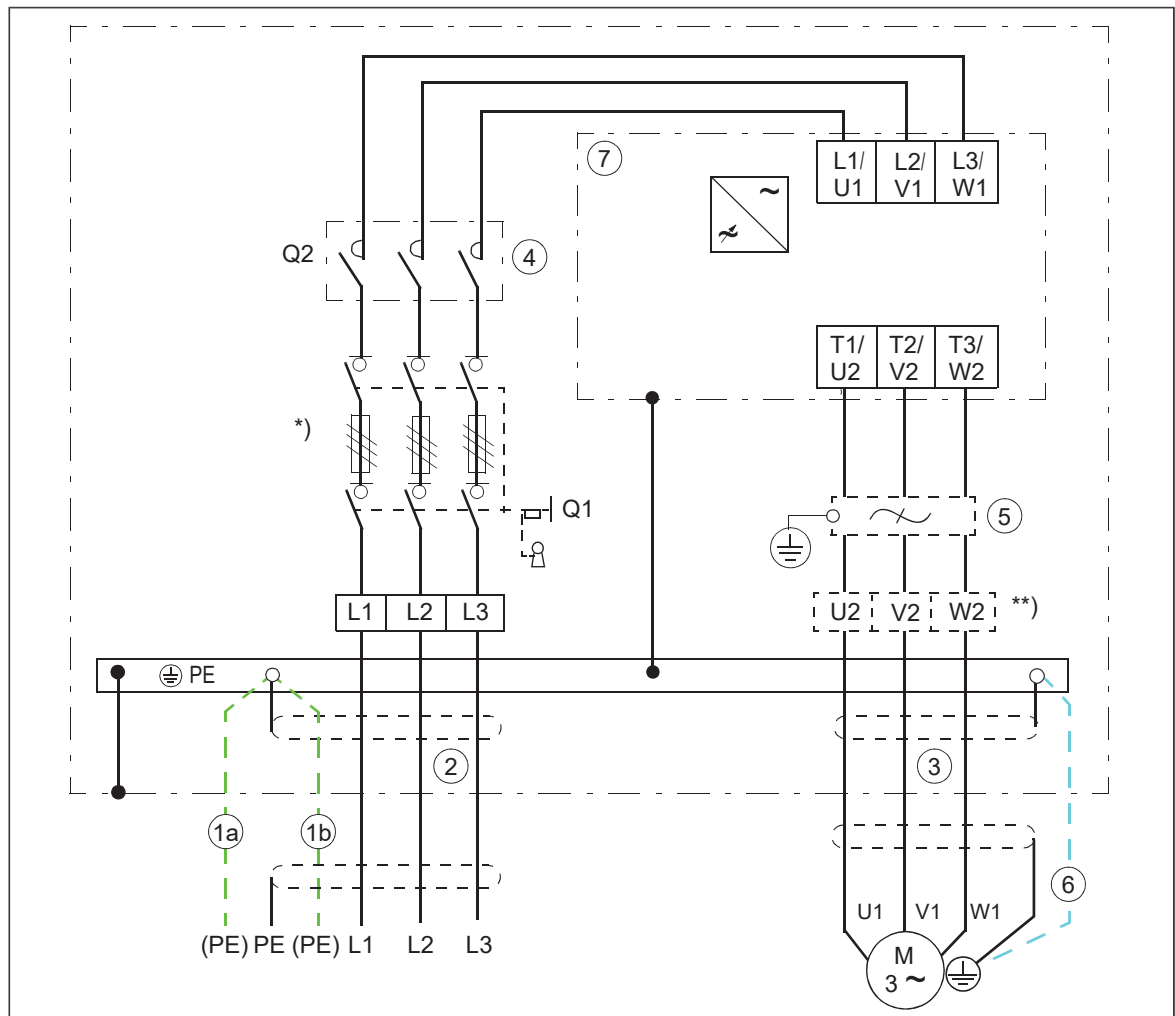
1. Clearly identify the work location and equipment.
2. Disconnect all possible voltage sources. Make sure that re-connection is not possible. Lock out and tag out.
  - Open the main disconnecting device of the drive.
  - Open the charging switch if present.
  - Open the disconnecter of the supply transformer. (The main disconnecting device in the drive cabinet does not disconnect the voltage from the AC input power busbars of the drive cabinet.)
  - Open the auxiliary voltage switch-disconnector (if present), and all other possible disconnecting devices that isolate the drive from dangerous voltage sources.
  - If you have a permanent magnet motor connected to the drive, disconnect the motor from the drive with a safety switch or by other means.
  - Disconnect all dangerous external voltages from the control circuits.
  - After you disconnect power from the drive, always wait 5 minutes to let the intermediate circuit capacitors discharge before you continue.
3. Protect any other energized parts in the work location against contact.
4. Take special precautions when close to bare conductors.
5. Measure that the installation is de-energized. If the measurement requires removal or disassembly of shrouding or other cabinet structures, obey the local laws and regulations applicable to live working (including – but not limited to – electric shock and arc protection).
  - Before and after measuring the installation, verify the operation of the voltage tester on a known voltage source.
  - Make sure that the voltage between the drive input power terminals (L1, L2, L3) and the grounding (PE) busbar is zero.
  - Make sure that the voltage between the drive output terminals (T1/U, T2/V, T3/W) and the grounding (PE) busbar is zero.
  - Make sure that the voltage between the drive DC terminals (UDC+ and UDC-) and the grounding (PE) terminal is zero.
6. Install temporary grounding as required by the local regulations.
7. Ask for a permit to work from the person in control of the electrical installation work.

## Instructions in other manuals

See the drive hardware manual and option guides for the drive-specific instructions.

## Power connections

### ■ Connection diagram



1	Use a separate grounding PE cable (1a) or a cable with a separate PE conductor (1b) if the conductivity of the shield does not meet the requirements for the PE conductor.
2	360-degree grounding is recommended if shielded cable is used. Ground the other end of the input cable shield or PE conductor at the distribution board.
3	360-degree grounding is required.
4	Line contactor
5	Output filter(s)
6	Use a separate grounding cable if the shield does not meet the requirements of IEC 61439-1 and there is no symmetrically constructed grounding conductor in the cable.
7	Drive module

**Note:** If there is a symmetrically constructed grounding conductor on the motor cable in addition to the conductive shield, connect the grounding conductor to the grounding terminal at the drive and motor ends.

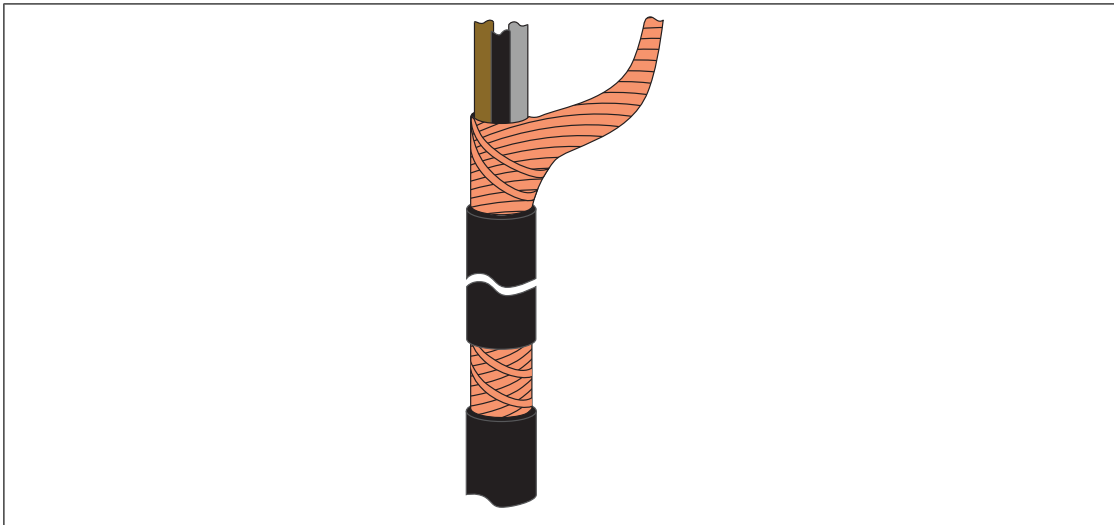
Do not use an asymmetrically constructed motor cable. Connecting its fourth conductor at the motor end increases bearing currents and causes extra wear.

\*) Switch-disconnector

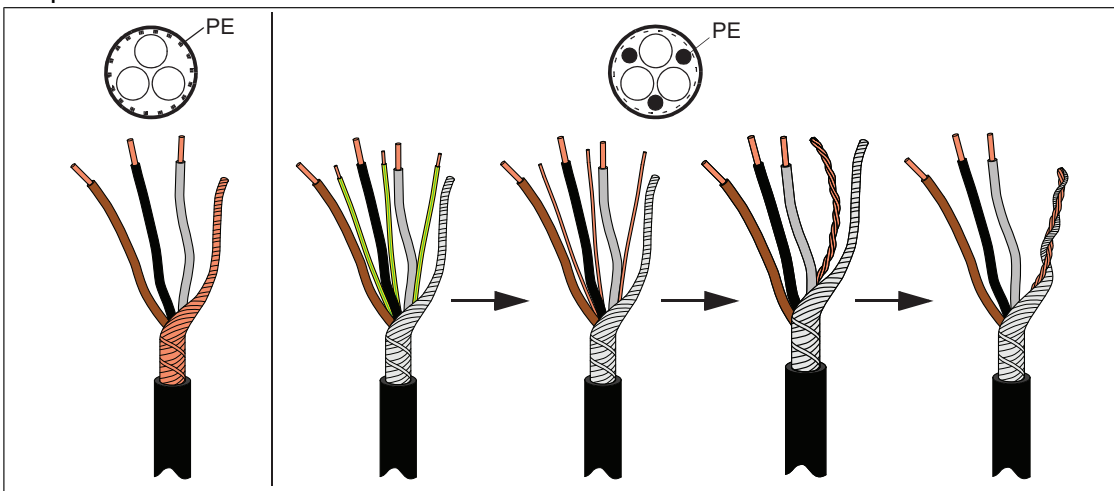
\*\*) Output terminals U2, V2 and W2 are included with  $du/dt$  filter.

### ■ Power cable connection procedure

1. Peel off 3...5 cm (1 1/4 ... 2 in) of the outer insulation of the cables at the cable entries with the conductive sleeves for the 360° high-frequency grounding.



2. Prepare the ends of the cables.

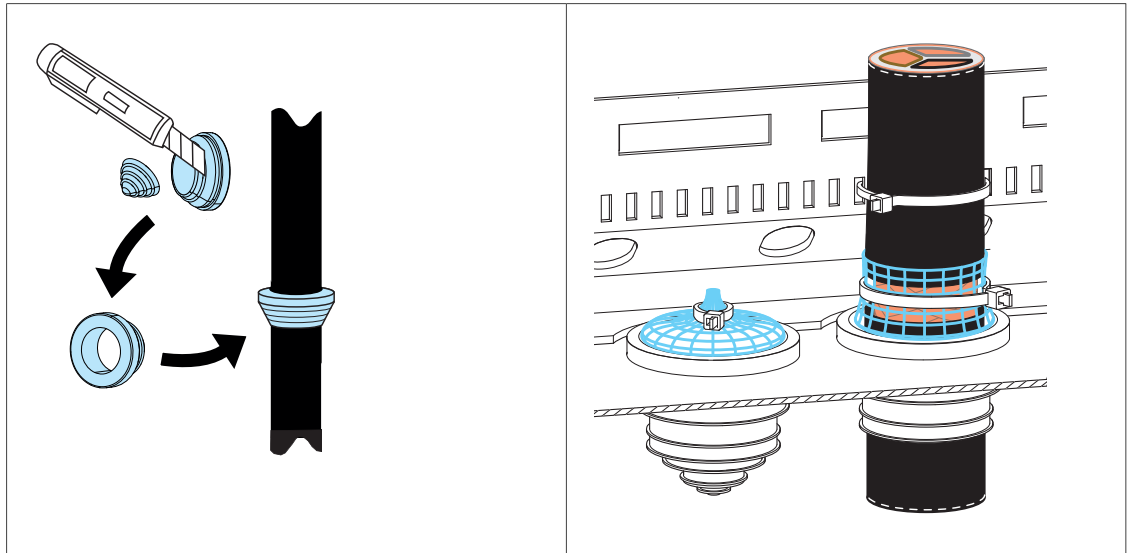


**WARNING!**

Apply grease to stripped aluminum conductors before attaching them to non-coated aluminum cable lugs. Obey the grease manufacturer's instructions. Aluminum-aluminum contact can cause oxidation in the contact surfaces.

3. If fire insulation is used, make an opening in the mineral wool sheet according to the diameter of the cable.
4. Put the cables through the entry plate.

5. Remove rubber grommets from the entry plate for the cables to be connected. Cut adequate holes into the rubber grommets. Slide the grommets onto the cables. Slide the cables through the entry plate and attach the grommets to the holes.
6. Attach the conductive sleeves to the cable shields with cable ties. Tie up the unused conductive sleeves with cable ties. An example of bottom entry is shown below. For top entry, place the grommet upwards.

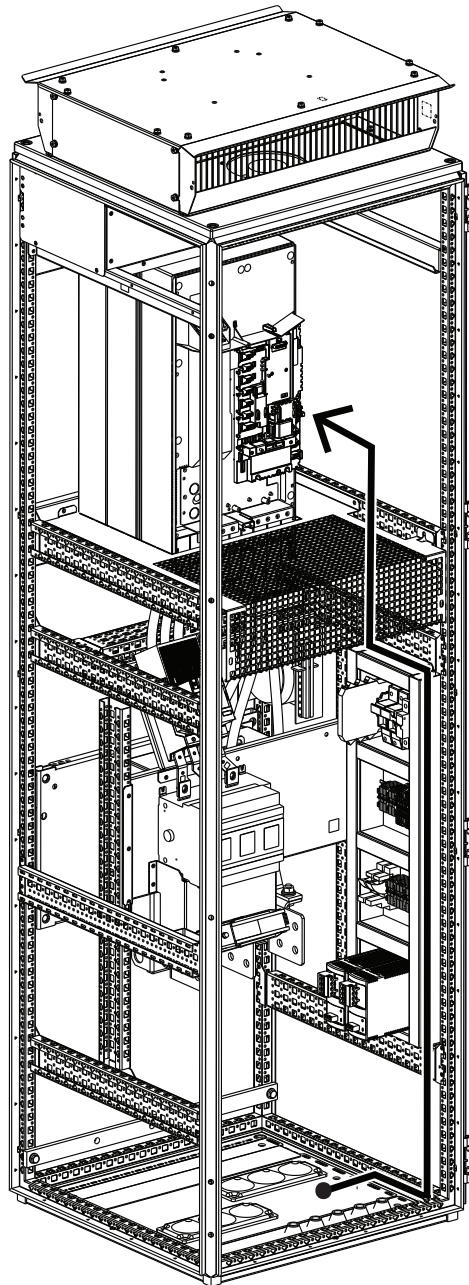


## Connecting the control cables

See the hardware manual for instructions.

### ■ Routing the control cables inside the enclosure

The route of the control cables is shown below for frames R6 and R7 in 600 mm wide enclosure. The route is similar for other applicable frame sizes and for 400 mm wide enclosure.



## Installing option modules, connecting a PC

See the hardware manual for instructions.



## 4

# Installation checklist

---

## Contents of this chapter

This chapter contains a checklist of the mechanical and electrical installation of the drive.

## Checklist

Examine the mechanical and electrical installation of the drive before start-up. Go through the checklist together with another person.



### WARNING!

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur. If you are not a qualified electrical professional, do not do installation or maintenance work.



### WARNING!

Stop the drive and do the steps in section [Electrical safety precautions \(page 43\)](#) before you start the work.

<b>Make sure that ...</b>	<input checked="" type="checkbox"/>
The ambient operating conditions meet the drive ambient conditions specification, and enclosure rating (IP code or UL enclosure type).	<input type="checkbox"/>
The supply voltage matches the nominal input voltage of the drive. See the type designation label.	<input type="checkbox"/>
The insulation resistance of the input power cable, motor cable and motor is measured according to local regulations and the manuals of the drive.	<input type="checkbox"/>
The drive cabinet is attached to the floor, and if necessary due to vibration etc, also by its top to the wall or roof.	<input type="checkbox"/>
The drive module is fastened properly to the enclosure.	<input type="checkbox"/>

---

50 Installation checklist

<b>Make sure that ...</b>	<input checked="" type="checkbox"/>
The cooling air flows freely in and out of the drive. Air recirculation inside the cabinet is not possible (air baffle plates are on place, or there is another air guiding solution).	<input type="checkbox"/>
<b>If the drive is connected to a network other than a symmetrically grounded TN-S system:</b> You have done all the required modifications (for example, you may need to disconnect the EMC filter or ground-to-phase varistor). See the electrical installation instructions.	<input type="checkbox"/>
The enclosures of the equipment in the cabinet have proper galvanic connection to the cabinet protective earth (ground) busbar; The connection surfaces at the fastening points are bare (unpainted) and the connections are tight, or separate grounding conductors have been installed.	<input type="checkbox"/>
The main circuit connections inside the drive cabinet correspond to the circuit diagrams.	<input type="checkbox"/>
The control unit has been connected. See the circuit diagrams.	<input type="checkbox"/>
Appropriate AC fuses and main disconnecting device are installed.	<input type="checkbox"/>
There is an adequately sized protective earth (ground) conductor(s) between the drive and the switchboard, the conductor is connected to correct terminal, and the terminal is tightened to the correct torque. Proper grounding has also been measured according to the regulations.	<input type="checkbox"/>
The input power cable is connected to the correct terminals, the phase order is correct, and the terminals are tightened to the correct torque.	<input type="checkbox"/>
There is an adequately sized protective earth (ground) conductor between the motor and the drive, and the conductor is connected to the correct terminal, and the terminal is tightened to the correct torque. Proper grounding has also been measured according to the regulations.	<input type="checkbox"/>
The motor cable is connected to the correct terminals, the phase order is correct, and the terminals are tightened to the correct torque.	<input type="checkbox"/>
The motor cable is routed away from other cables.	<input type="checkbox"/>
No power factor compensation capacitors are connected to the motor cable.	<input type="checkbox"/>
The control cables are connected to the correct terminals, and the terminals are tightened to the correct torque.	<input type="checkbox"/>
<b>If a drive bypass connection will be used:</b> The direct-on-line contactor of the motor and the drive output contactor are either mechanically and/or electrically interlocked, that is, they cannot be closed at the same time. A thermal overload device must be used for protection when bypassing the drive. Refer to local codes and regulations.	<input type="checkbox"/>
There are no tools, foreign objects or dust from drilling inside the drive.	<input type="checkbox"/>
The area in front of the drive is clean: the drive cooling fan cannot draw any dust or dirt inside.	<input type="checkbox"/>
Cover(s) of the motor connection box are in place. Cabinet shrouds are in place and doors are closed.	<input type="checkbox"/>
The motor and the driven equipment are ready for power-up.	<input type="checkbox"/>



# 5

## Ordering information

---

### Contents of this chapter

This chapter gives ordering information of components for the drive module installation.

### Kit code key

The kit codes shown in this chapter break down as follows.

The format of the kit code is x-w-s-VXyyy, for example, A-4-67-VX101

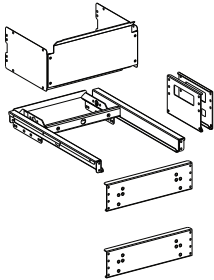
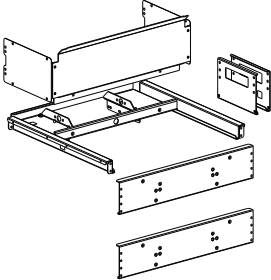
where:

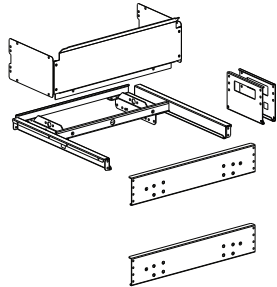
- x = cooling method
  - A = air-cooled
- w = cabinet width
  - 4 = 400 mm
  - 6 = 600 mm
  - X = any, or not defined.

- s = module frame size / sizes
  - 6 = R6
  - 7 = R7
  - 8 = R8
  - 9 = R9
  - X = any, or not defined.
- yyy = consecutive numbering
  - 001...199 = Kits related to module installation
  - 200...299 = Kits related to input
  - 300...399 = Kits related to output
  - 400...499 = Kits related to cabinets

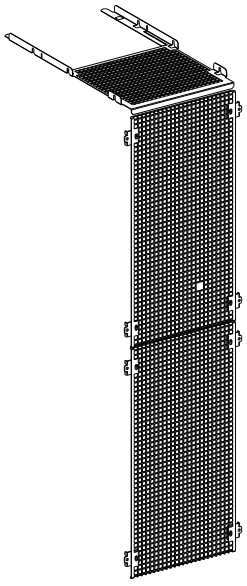
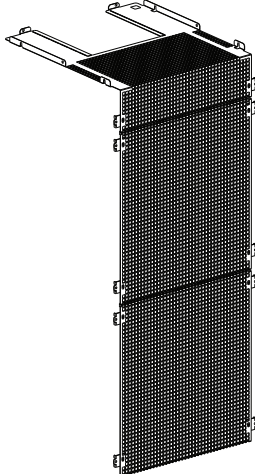
## Mechanical installation accessories and tools

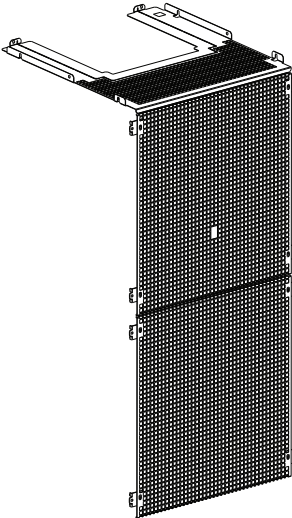
### ■ Module installation parts

Used with...	Qty	Ordering code	Kit code	Illustration
R6...R7 VX25 400 mm	1	3AXD50000556793	A-4-67-VX101	 <p>Instruction code: 3AXD50000577859</p>
R6...R7 VX25 600 mm	1	3AXD50000557165	A-6-67-VX102	 <p>Instruction code: 3AXD50000580064</p>

Used with...	Qty	Ordering code	Kit code	Illustration
R8...R9 VX25 600 mm	1	3AXD50000557158	A-6-89-VX103	 <p>Instruction code: 3AXD50000579143</p>

■ Shrouds

Used with...	Qty	Ordering code	Kit code	Illustration
R6...R7 VX25 400 mm	1	3AXD50000557134	A-4-67-VX401	 <p>Instruction code: 3AXD50000577828</p>
R6...R7 VX25 600 mm	1	3AXD50000557349	A-6-67-VX403	 <p>Instruction code: 3AXD50000579686</p>

Used with...	Qty	Ordering code	Kit code	Illustration
R8...R9 VX25 600 mm	1	3AXD50000557332	A-6-89-VX405	 <p>Instruction code: 3AXD50000579310</p>

■ **Lifting device**

Use a lifting device for installing or replacing modules in Rittal VX25 enclosure.

Used with...	Qty	Ordering code	Kit code	Illustration
R6...R9	1	3AXD50000439997	-	 <p>Instruction code: 3AXD50000439409, 3AXD50000210268</p>

■ **Rittal parts**

The Rittal parts necessary for the installation are listed below:

**400 mm enclosure**

Part	Qty	Rittal ordering code
VX25 enclosure (bottom plates, door and back panel included)	1	8406.000
PE busbar	1	9661.340
Support beam 23×64×600 mm	4	8617.130
Support beam 23×64×800 mm	2	8617.140
Support beam 23×64×400 mm	1	8617.110

Part	Qty	Rittal ordering code
Support beam 18×64×600 mm	1	8617.030
Cabinet cooling fan (if OS250D03 main switch is used)	1	3108.100
Side panels	2	8106.245
Cage nut M6	12	4164.500
Multi-tooth screw 5,5×13 mm	86	2486.500

### 600 mm enclosure

Part	Qty	Rittal ordering code
VX25 enclosure (bottom plates, door and back panel included)	1	8606.000
PE busbar	1	9661.360
Support beam 18×64×600 mm (for R6 and R7 only)	1	8617.030
Support beam 23×64×600 mm	5	8617.130
Support beam 23×64×800 mm	2	8617.140
Cabinet cooling fan (if OS250D03 main switch is used)	1	3108.100
Cage nut M6	12	4164.500
Multi-tooth screw 5,5×13 mm	82	2486.500
Additional multi-tooth screw 5,5×13 mm (if FOCH0320-50 is used)	10	2486.500

## Output filters

### ■ Common mode filter

Common mode filtering reduces bearing currents and is required for electromagnetic compatibility (EMC).

Used with...	Qty	Ordering code	Kit code	Illustration
R6...R7	1	3AXD50000557127	A-X-67-VX302	 <p>Instruction code: 3AXD50000578399</p>
R8...R9	1	3AXD50000557318	A-X-89-VX304	 <p>Instruction code: 3AXD50000579181</p>

Kit contents:

- Common mode filter ring
- Installation parts.

#### ■ du/dt filters

For more information on the du/dt filters and installation instructions, see *FOCH du/dt filters hardware manual* ([3AFE68577519](#) [English]). ACHO5730 technical data in dimension drawing *ACHO5730* (page 72).

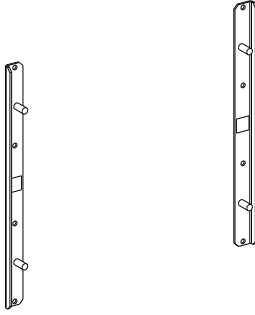
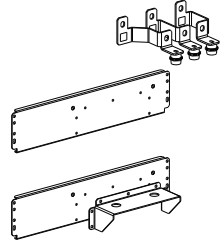
ACS880-01-... ACS580-01-... ACH580-01-... ACQ880-01-...	Filter type	Qty	Ordering code
<b>U<sub>N</sub> = 208...240 V</b>			
0115A-2	-	-	-
0145A-2			
0170A-2			
0206A-2			
0274A-2			
<b>U<sub>N</sub> = 380...415 V</b>			
0105A-3	ACHO5730	1	68264693
0145A-3	FOCH0260-70	1	68490308
0169A-3			
0206A-3			
0246A-3			
0293A-3	FOCH0320-50	1	68612209
0363A-3			
0430A-3			
<b>U<sub>N</sub> = 380...480 V</b>			
0145A-4	FOCH0260-70	1	68490308
0169A-4			
0206A-4			
0246A-4			
0293A-4	FOCH0320-50	1	68612209
0363A-4			
0430A-4			
<b>U<sub>N</sub> = 380...500 V</b>			
096A-5	ACHO5730	1	68264693
0124A-5	FOCH0260-70	1	68490308
0156A-5			
0180A-5			
0240A-5			
0260A-5			

ACS880-01-... ACS580-01-... ACH580-01-... ACQ880-01-...	Filter type	Qty	Ordering code
0361A-5	FOCH0320-50	1	68612209
0414A-5			
$U_N = 525 \dots 690 \text{ V}$			
061A-7	ACHO5730	1	68264693
084A-7	FOCH0260-70	1	68490308
098A-7			
0119A-7			
0142A-7			
0174A-7			
0210A-7	FOCH0320-50	1	68612209
0271A-7			

$du/dt$  filter installation parts are not included and must be ordered separately. See below.

#### **$du/dt$ filter installation parts**

$du/dt$  filter installation parts are necessary for installation of frame sizes R6 and R7 into 400 mm wide Rittal VX25 enclosure and frame size R9 into 600 mm wide Rittal VX25 enclosure.

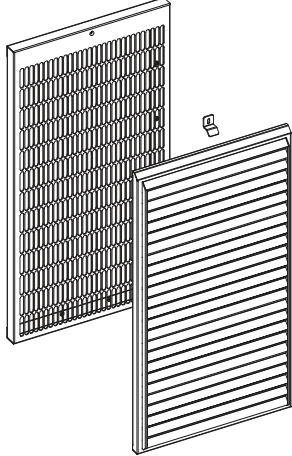
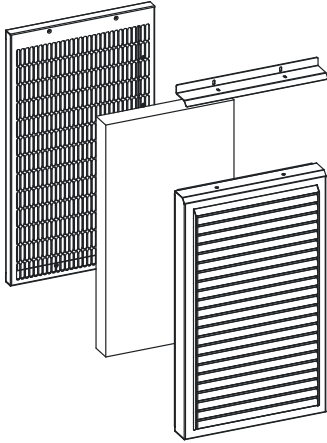
Used with...	Qty	Ordering code	Kit code	Illustration
R6...R7 VX25 400 mm	1	3AXD50000557141	A-4-67-VX301	 <p>Instruction code: 3AXD50000578405</p>
R9 VX25 600 mm	1	3AXD50000557325	A-6-9-VX303	 <p>Instruction code: 3AXD50000579174</p>

## **Cabinet ventilation**

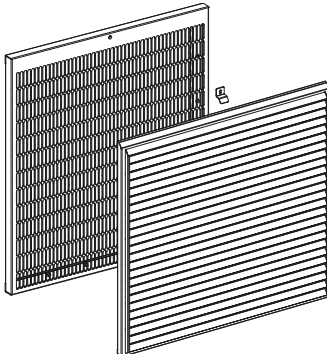
Select the cabinet ventilation components according to the necessary protection class.

■ Air inlet kits

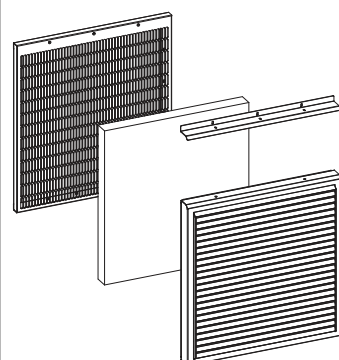
400 mm enclosure

Used with ...	Qty	Ordering code	Kit code	Illustration
IP21 / IP42	1	3AUA0000117007	A-4-X-024	 <p>Instruction code: 3AUA0000116873</p>
IP54	1	3AXD50000009184	A-4-X-027	 <p>Instruction code: 3AXD50000009989</p>

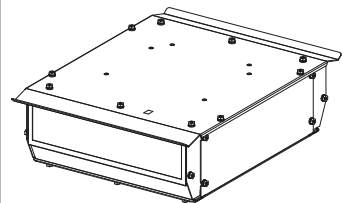
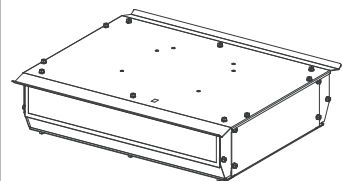
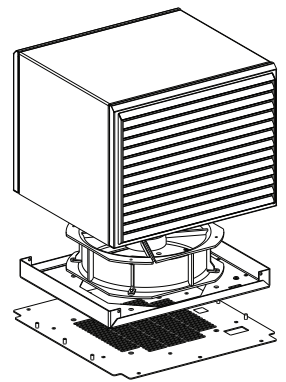
600 mm enclosure

Used with ...	Qty	Ordering code	Kit code	Illustration
IP21 / IP42	1	3AUA0000117008	A-6-X-025	 <p>Instruction code: 3AUA0000116874</p>



Used with ...	Qty	Ordering code	Kit code	Illustration
IP54	1	3AXD5000009185	A-6-X-028	 <p>Instruction code: 3AXD5000009990</p>

■ Air outlet kits

Used with ...	Qty	Ordering code	Kit code	Illustration
IP21 / IP42 VX25 400 mm	1	3AUA0000114968	A-4-X-040	 <p>Instruction code: 3AUA0000115292 <b>Note:</b> Fan and air guide to be ordered separately</p>
IP21 / IP42 VX25 600 mm	1	3AUA0000114789	A-6-X-041	 <p>Instruction code: 3AUA0000115166 <b>Note:</b> Fan and air guide to be ordered separately</p>
IP54 VX25 400 mm / 600 mm	1	3AXD50000557356	A-X-X-VX406	 <p>Instruction code: 3AXD50000579884 <b>Note:</b> Fan to be ordered separately</p>

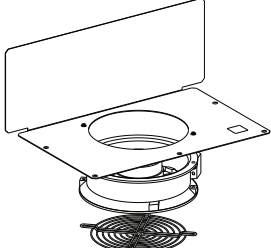
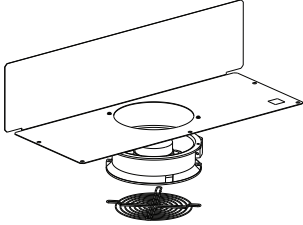
## ■ Cooling fans

A cooling fan must be installed inside the air outlet compartment to ensure sufficient cooling of the cabinet.

Enclosure width Degree of protection (Auxiliary voltage)	Component		Qty	Ordering code
	Name	Data		
400 mm / 600 mm IP21 / IP42 (230 V)	Fan	W2E143-AA09-93	1	10005019
400 mm / 600 mm IP54 (230 V)	Fan	W2E250-HL06-21	1	3AUA0000125508
	Connector	STV S 3 SB	1	3AUA0000044128
	Connector	STV S 3 SS	1	3AUA0000044127

**Note:** Additional cabinet cooling fan (available from Rittal, part number 3108.100) is necessary in cabinet constructions that use OS250D03 main switch/disconnector.

## ■ Air guides

Used with ...	Qty	Ordering code	Kit code	Illustration
IP21 / IP42 VX25 400 mm	1	3AXD50000569571	A-4-X-VX402	 <p>Instruction code: 3AXD50000578795 <b>Note:</b> Fan and air outlet to be ordered separately</p>
IP21 / IP42 VX25 600 mm	1	3AXD50000569595	A-6-X-VX404	 <p>Instruction code: 3AXD50000579211 <b>Note:</b> Fan and air outlet to be ordered separately</p>

## Main switch/disconnector

Used with ...	Frame size	Main switch/disconnector type	Qty	Ordering code
VX25 400 mm / 600 mm	R6...R7	ABB OS250D03	1	3AXD50000585588

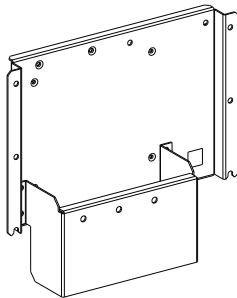
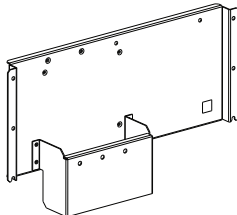
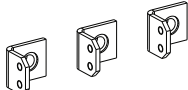
Used with ...	Frame size	Main switch/disconnector type	Qty	Ordering code
VX25 600 mm	R8	ABB OT400E03	1	3AXD50000585595
	R9	ABB OT630E03P	1	3AXD50000585601

Kit contents:

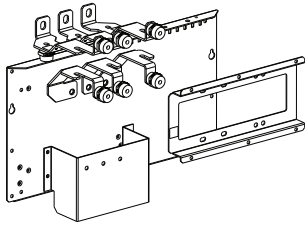
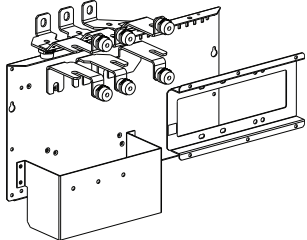
- Main switch/disconnector
- OXP6X290 or OXP12X250 shaft
- OHZX10 shaft alignment ring
- OHB65J6 or OHB125J12 handle.

Main switch/disconnector installation parts are not included and must be ordered separately. See below.

### ■ Installation parts

Used with ...	Qty	Ordering code	Kit code	Illustration
OS250D03 VX25 400 mm	1	3AXD50000556908	A-4-67- VX201	 <p>Instruction code: 3AXD50000578627</p>
OS250D03 VX25 600 mm	1	3AXD50000557196	A-6-67- VX204	 <p>Instruction code: 3AXD50000579693</p>
OS250D03 VX25 400 mm / 600 mm	1	3AXD50000569588	A-X-67- VX202	 <p>Instruction code: 3AXD50000578627</p> <p><b>Note:</b> Necessary if a contactor is not installed</p>

## 62 Ordering information

Used with ...	Qty	Ordering code	Kit code	Illustration
OT400E03 VX25 600 mm	1	3AXD50000557189	A-6-8-VX206	 <p>Instruction code: 3AXD50000579334</p>
OT630E03P VX25 600 mm	1	3AXD50000557172	A-6-9-VX205	 <p>Instruction code: 3AXD50000579259</p>

### ■ Fuses

#### Frame R6 or R7 in Rittal VX25 enclosure

The fuses are included in the OS250D03 main switch/disconnector.

#### Frame R8 or R9 in Rittal VX25 enclosure

Install fuses with OT400E03 and OT630E03P main switch/disconnector types.

ACS880-01-... ACS580-01-... ACH580-01-... ACQ880-01-...	Fuse		Qty	Ordering code
	Type	Data		
$U_N = 208...240\text{ V}$				
0115A-2	170M3816D	250 A, 690 V	3	10028574
0145A-2				
0170A-2	170M3817D	315 A, 690 V	3	10030510
0206A-2	170M5810D	500 A, 690 V	3	10012708
0274A-2	170M5408	400 A, 690 V	3	3AXD50000003785
$U_N = 380...415\text{ V}$				
0105A-3	170M3816D	250 A, 690 V	3	10028574
0145A-3				
0169A-3				
0206A-3	170M3817D	315 A, 690 V	3	10030510
0246A-3	170M5408	400 A, 690 V	3	3AXD50000003785
0293A-3	170M5410	500 A, 690 V	3	3AXD50000003787
0363A-3	170M6410	630 A, 690 V	3	68335418
0430A-3	170M6411	700 A, 690 V	3	3AXD50000000175
$U_N = 380...480\text{ V}$				

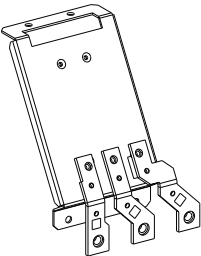
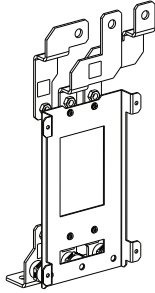
ACS880-01-... ACS580-01-... ACH580-01-... ACQ880-01-...	Fuse		Qty	Ordering code
	Type	Data		
0145A-4	170M3816D	250 A, 690 V	3	10028574
0169A-4				
0206A-4	170M3817D	315 A, 690 V	3	10030510
0246A-4	170M5408	400 A, 690 V	3	3AXD50000003785
0293A-4	170M5410	500 A, 690 V	3	3AXD50000003787
0363A-4	170M6410	630 A, 690 V	3	68335418
0430A-4	170M6411	700 A, 690 V	3	3AXD50000000175
U <sub>N</sub> = 380...500 V				
096A-5	170M3816D	250 A, 690 V	3	10028574
0124A-5				
0156A-5				
0180A-5	170M3817D	315 A, 690 V	3	10030510
0240A-5	170M3416	250 A, 690 V	3	3AXD50000003781
0260A-5	170M4410	315 A, 690 V	3	3AXD50000000234
0361A-5	170M6410	630 A, 690 V	3	68335418
0414A-5	170M6411	700 A, 690 V	3	3AXD50000000175
U <sub>N</sub> = 525...690 V				
061A-7	170M3816D	250 A, 690 V	3	10028574
084A-7				
098A-7				
0119A-7	170M3817D	315 A, 690 V	3	10030510
0142A-7	170M3416	250 A, 690 V	3	3AXD50000003781
0174A-7	170M4410	315 A, 690 V	3	3AXD50000000234
0210A-7				
0271A-7	170M5410	500 A, 690 V	3	3AXD50000003787

## Contactors

Used with ...	Frame size	Contactors type	Qty	Ordering code
VX25 400 mm / 600 mm	R6...R7	AF146-30-22B-13	1	3AXD50000025712
VX25 600 mm	R8	AF265-30-22-13	1	3AUA0000145463
	R9	AF370-30-22-13	1	3AXD50000025711

Contactors installation parts are not included and must be ordered separately. See below.

■ Installation parts

Used with ...	Qty	Ordering code	Kit code	Illustration
AF146-30-22B-13	1	3AXD50000557110	A-X-67-VX203	 <p data-bbox="1038 618 1230 667">Instruction code: 3AXD50000578634</p>
AF265-30-22-13 AF370-30-22-13	1	3AXD50000557202	A-X-89-VX207	 <p data-bbox="1038 994 1230 1043">Instruction code: 3AXD50000579198</p>



## Dimension drawings

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### Contents of this chapter

This chapter contains the dimension drawings of the related equipment.

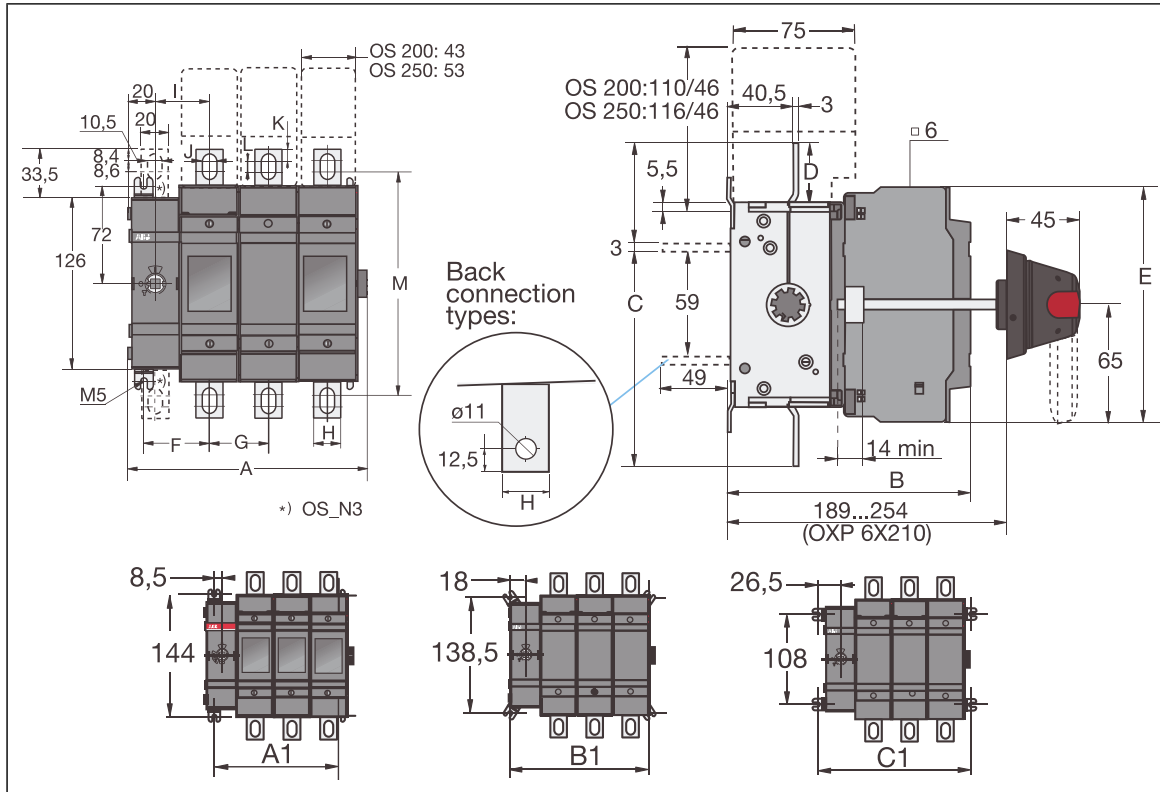
For module dimensions, see *ACS880...+P940 and +P944 drive modules supplement* ([3AUA0000145446](#) [English]) or *ACS580..., ACH580... and ACQ580...+P940 and +P944 drive modules supplement* ([3AXD50000210305](#) [English]).

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# Switchgear

## ■ OS\_switch/disconnectors

### OS250D03



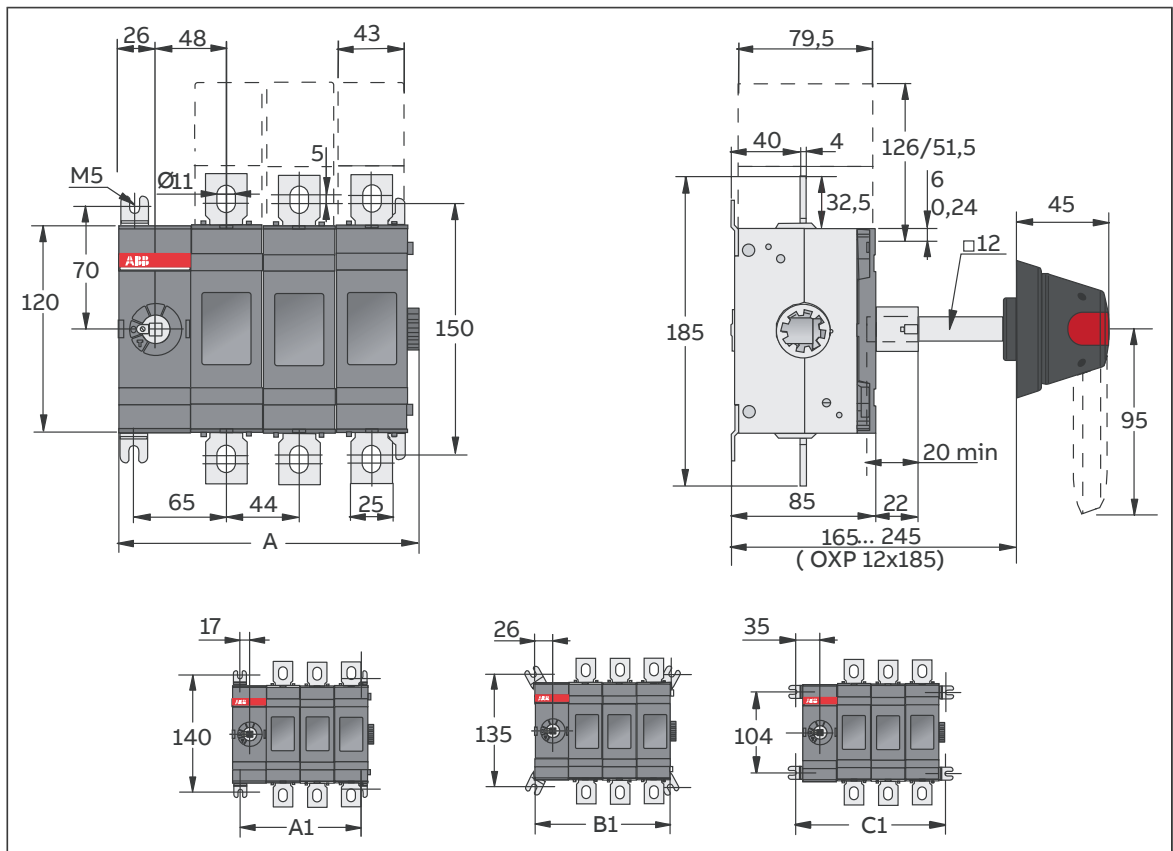
	mm	in
<b>A</b>	207.5	8.17
<b>B</b>	154	6.06
<b>C</b>	193	7.60
<b>D</b>	33.5	1.32
<b>E</b>	148.5	5.85
<b>F</b>	53.5	2.11
<b>G</b>	54	2.13
<b>H</b>	25	0.98
<b>I</b>	45	1.77
<b>J</b>	11	0.43
<b>K</b>	11.5	0.45
<b>L</b>	4	0.18
<b>M</b>	162	6.38

	mm	in
<b>A1</b>	178.5	7.03
<b>B1</b>	197.5	7.76
<b>C1</b>	214.5	8.44



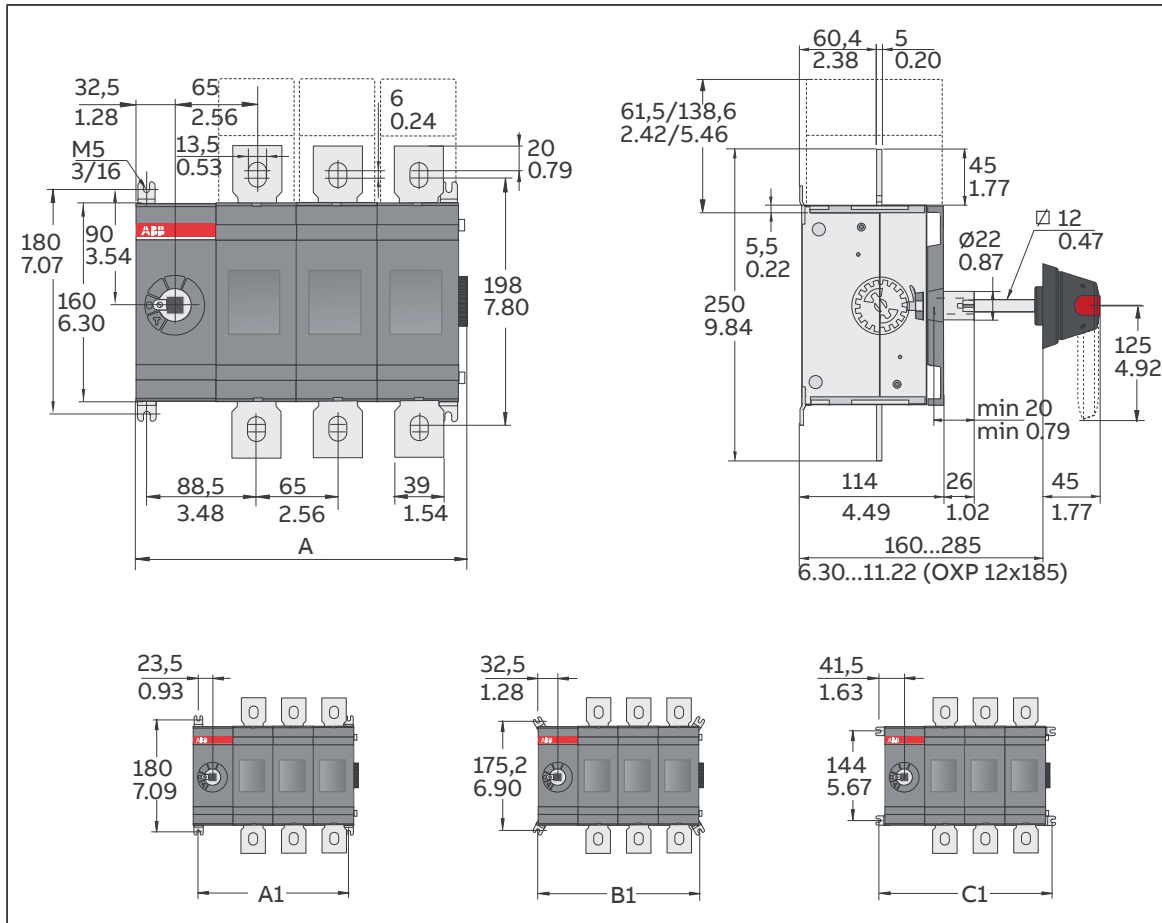
■ OT\_switch/disconnectors

OT400E03



	mm	in
<b>A</b>	191	7.52
<b>A1</b>	166	6.54
<b>B1</b>	184	7.24
<b>C1</b>	202	7.95

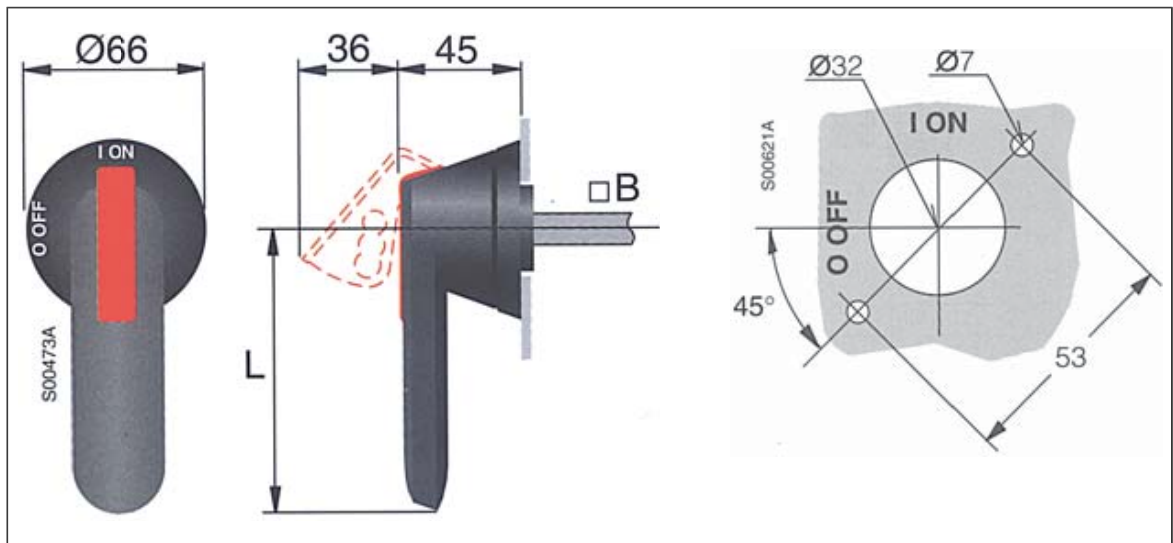
**OT630E03P**



	mm	in
<b>A</b>	266	10.47
<b>A1</b>	242	9.53
<b>B1</b>	260	10.42
<b>C1</b>	278	10.95

■ OHB\_ switch handles

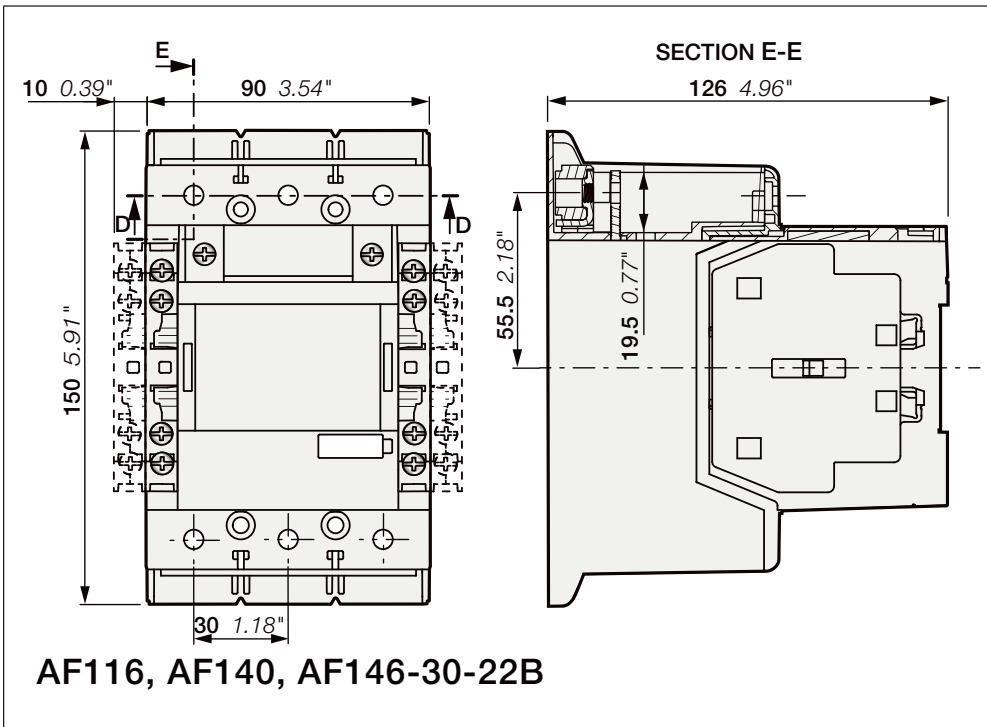
OHB65J6 and OHB125J12



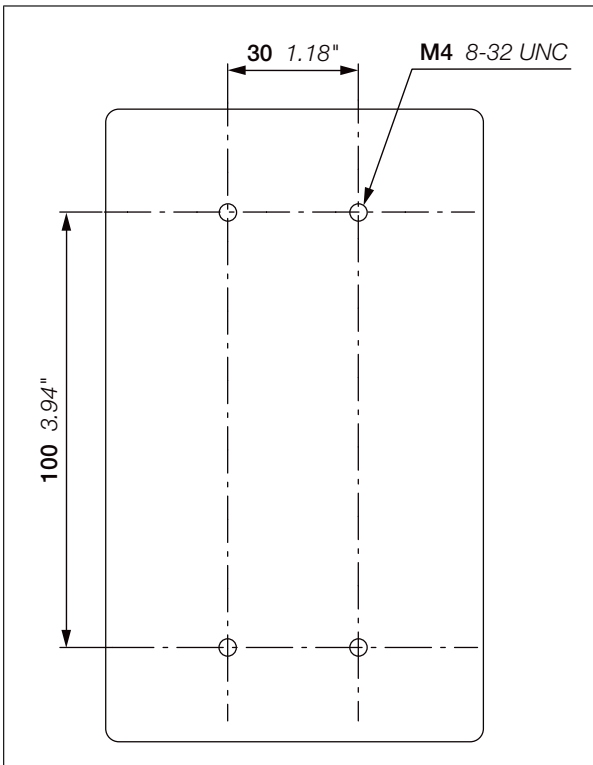
Handle type	L mm (in)	B mm (in)	Notes
OHB65J6	65 (2.56)	6 × 6 (0.24 × 0.24)	Used with OS250D03
OHB125J12	125 (4.92)	12 × 12 (0.47 × 0.47)	Used with OT400E03 and OT630E03P

■ Contactors

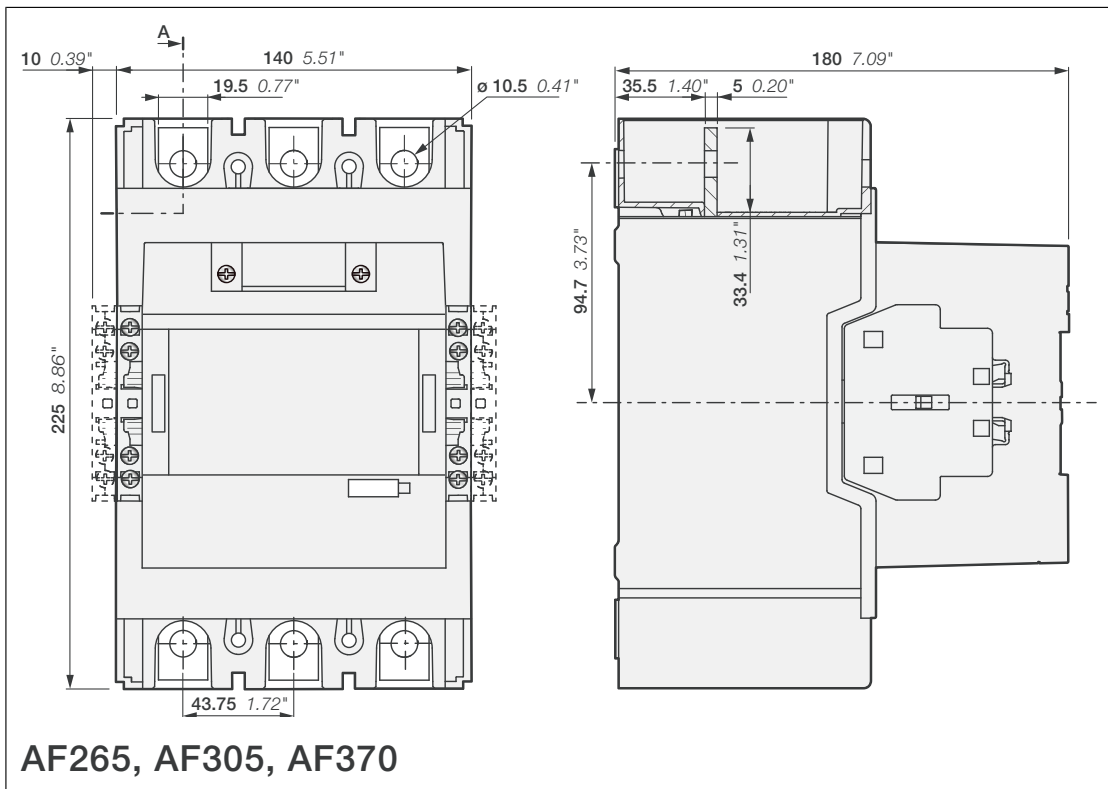
**AF146-30-22B-13**



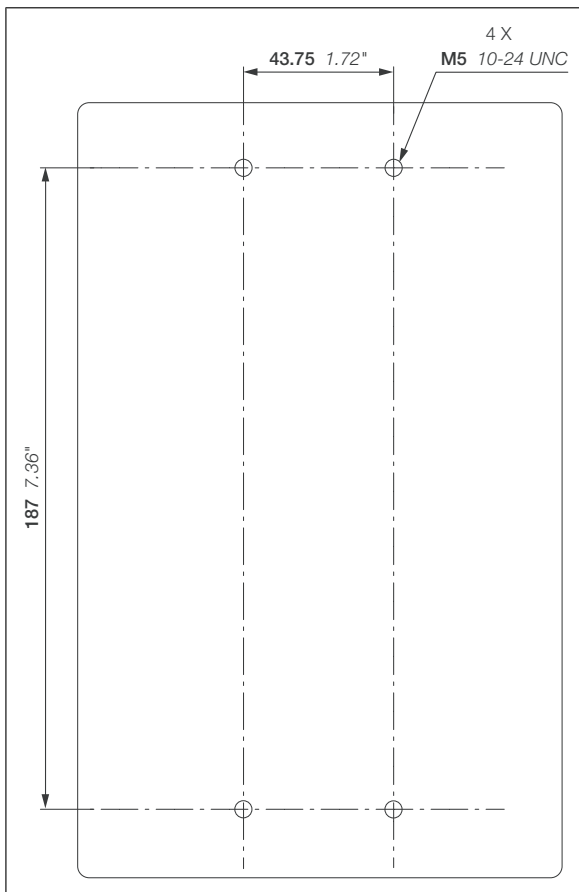
Drilling pattern



**AF265-30-22-13 and AF370-30-22-13**



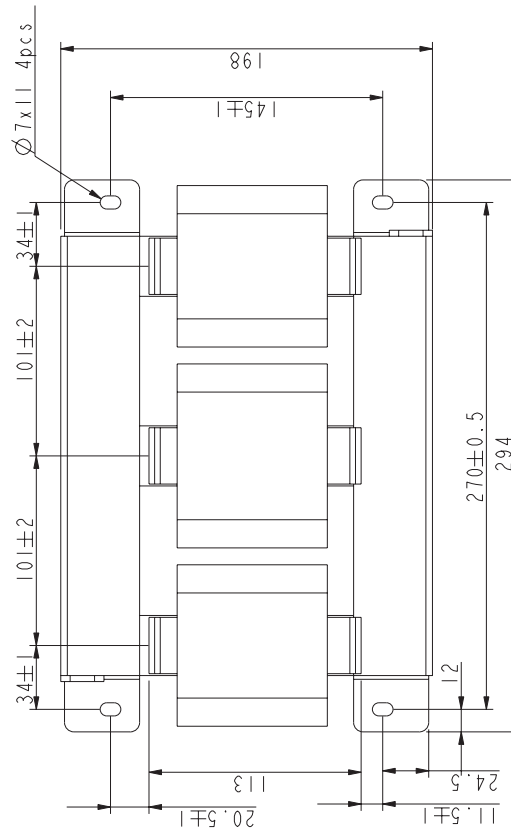
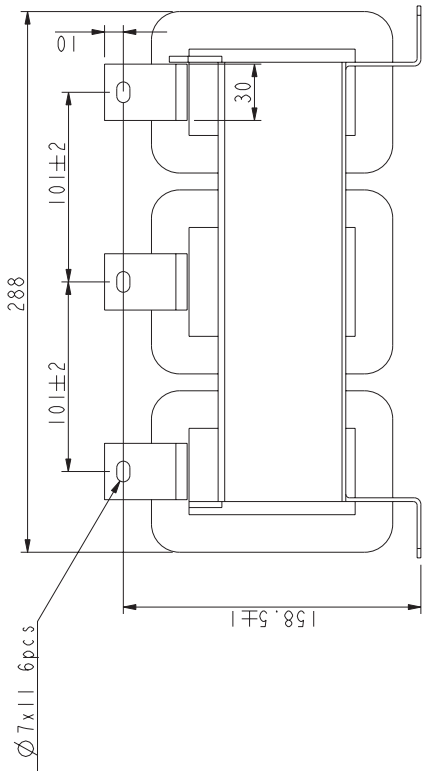
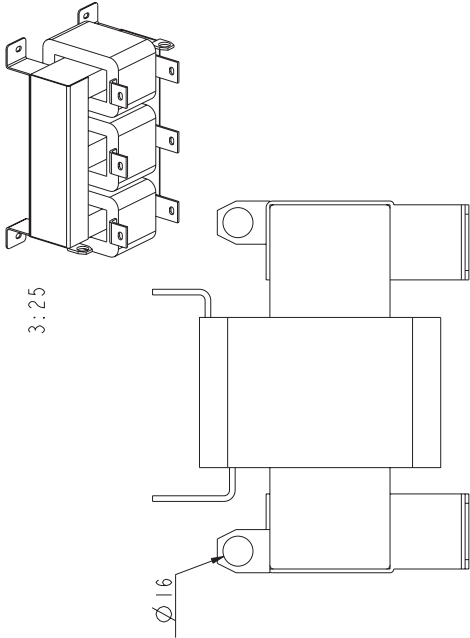
**Drilling pattern**



# Output filters

## ■ du/dt filters

### ACHO5730

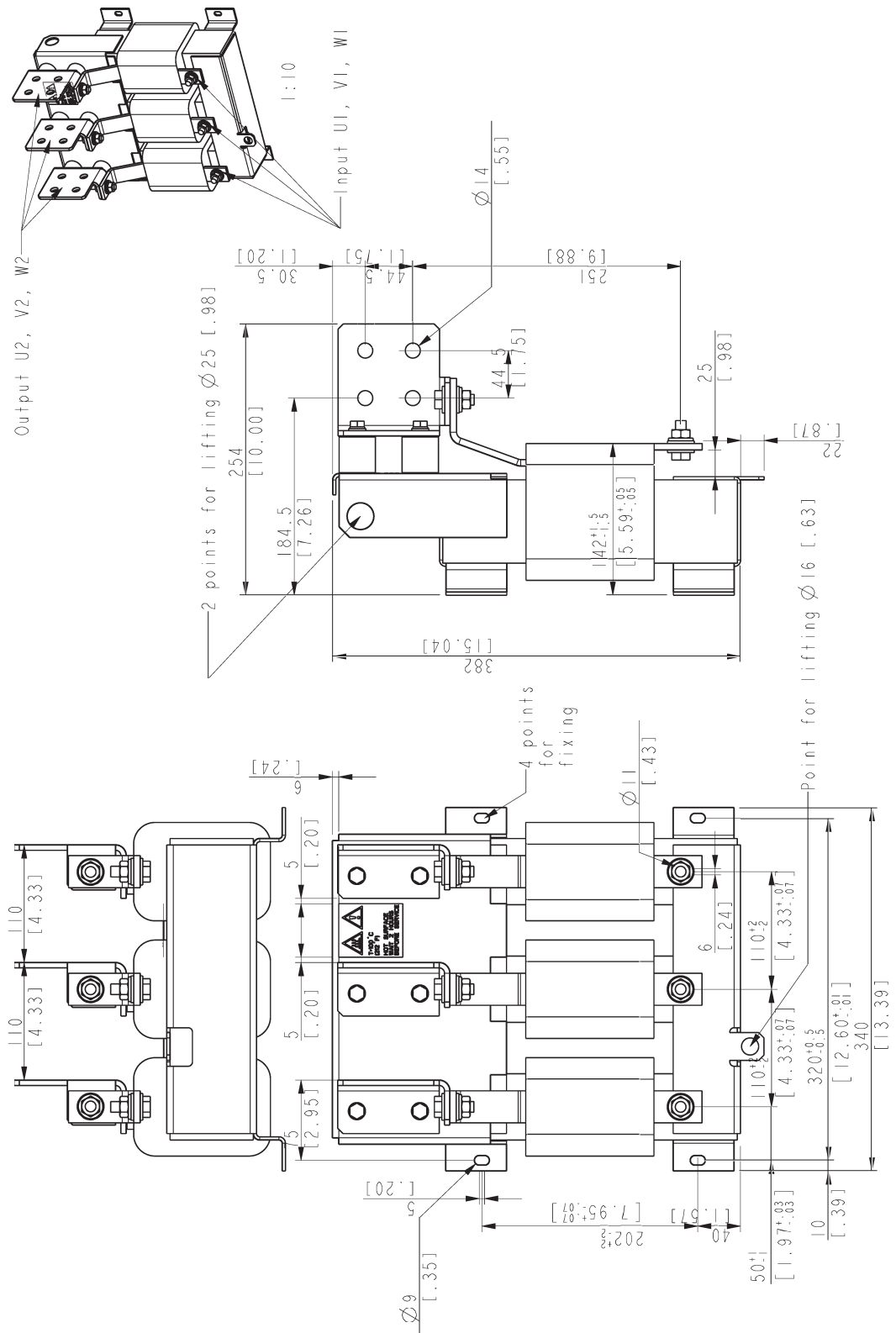


Parameter	Unit	ACHO5730
$L_N$	$\mu H$	80
$I_N$	A	510
$L_{SAT}$	$\mu H$	55
$I_{SAT}$	A	580
$I_{TH}$	A	290(210)
$U_N$	V	690

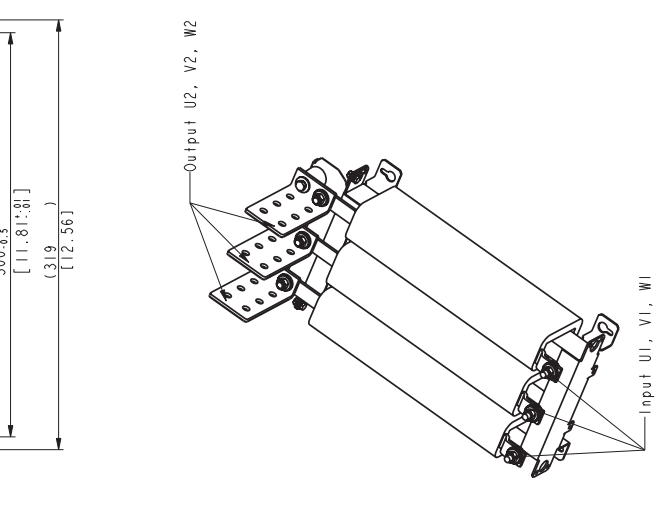
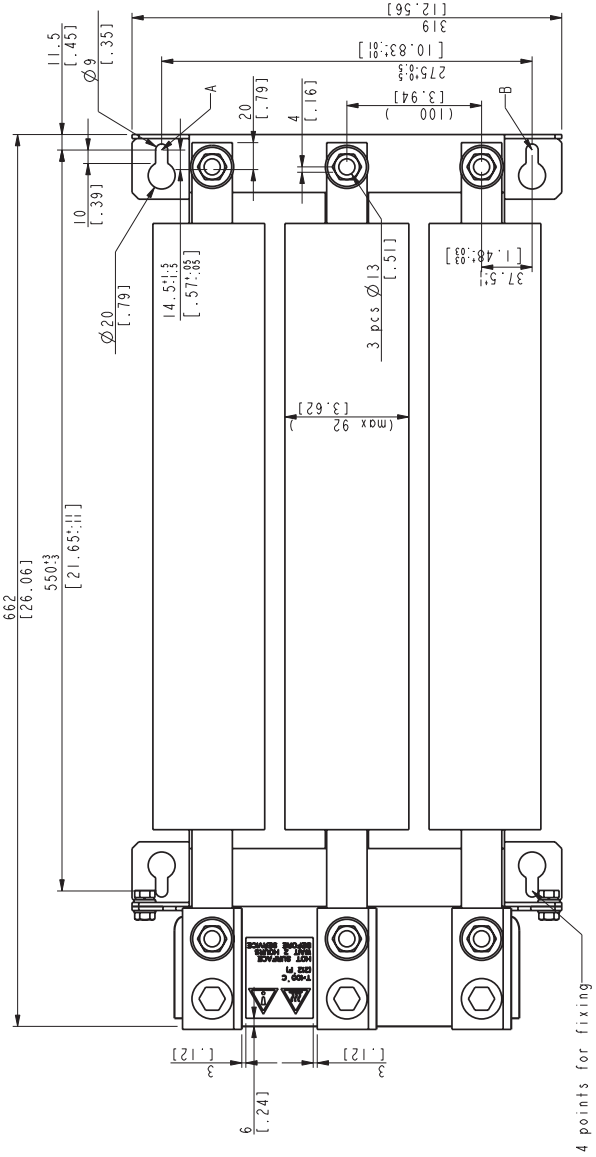
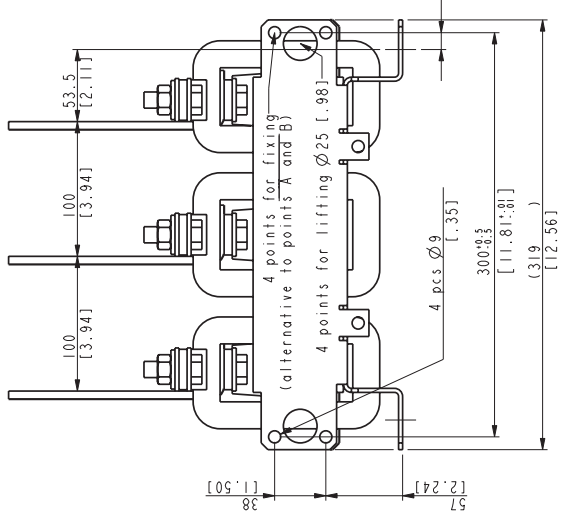
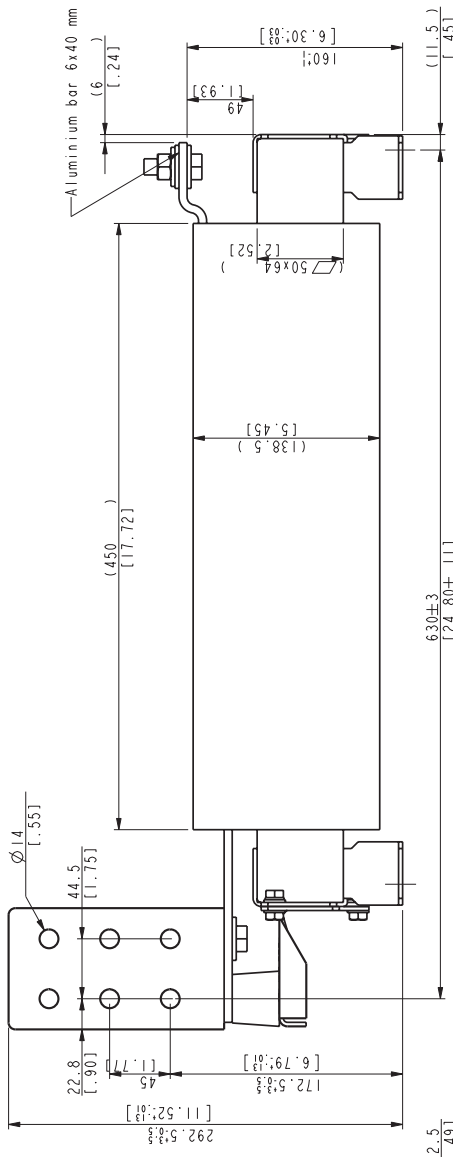
3:10

64409671 KURISTIN ACHO5710 LN=110UH, IN=335A  
 64409689 KURISTIN ACHO5720 LN=95UH, IN=395A  
 64409719 KURISTIN ACHO5730 LN=80UH, IN=510A

**FOCH0260-70**



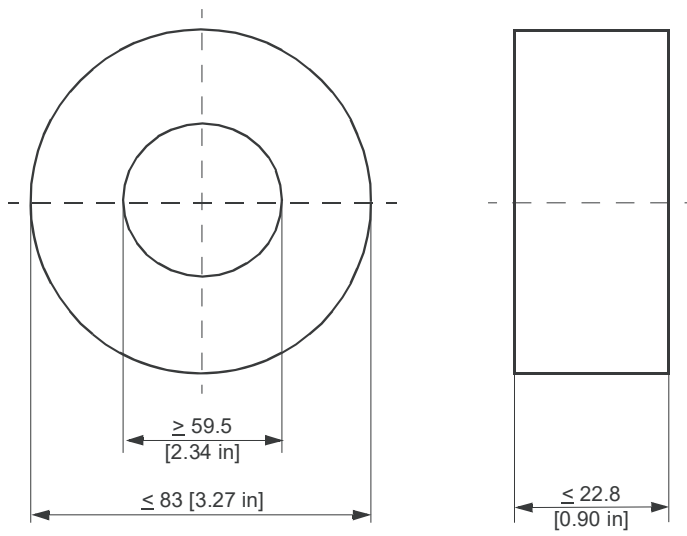
**FOCH0320-50**



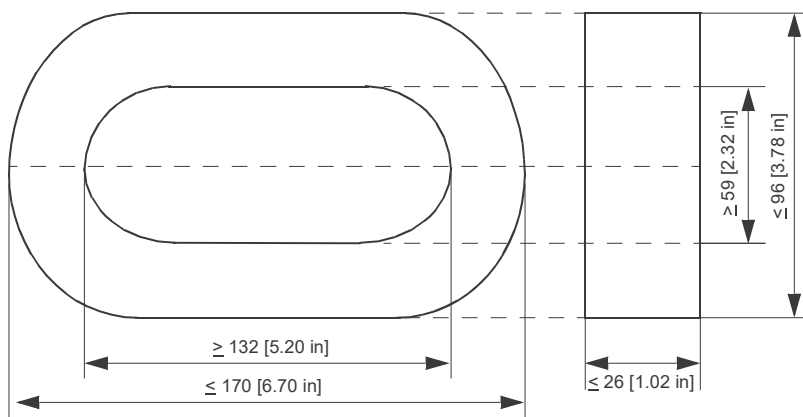


■ Common mode filters

R6...R7



R8...R9





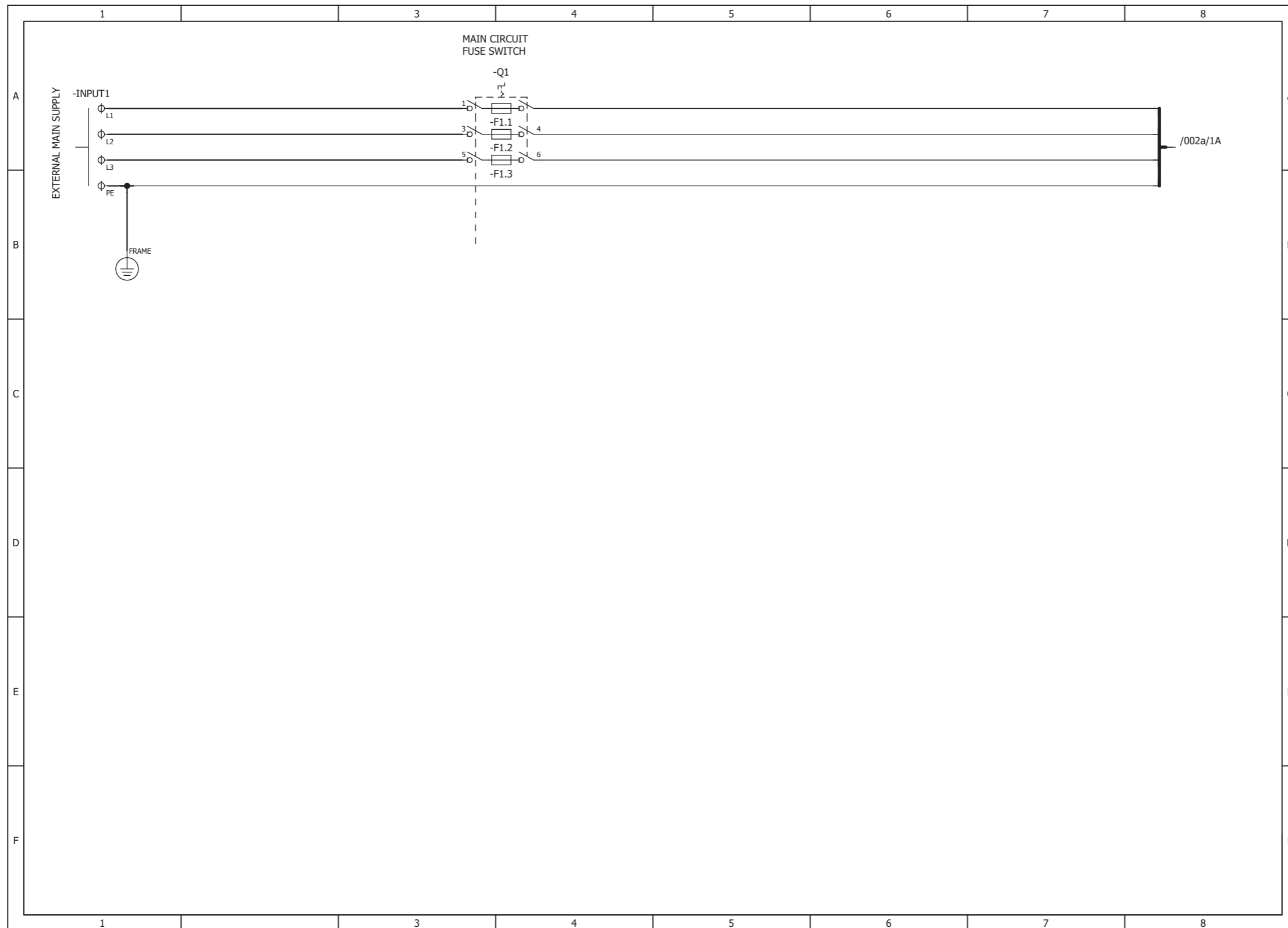
# 7. Circuit diagrams

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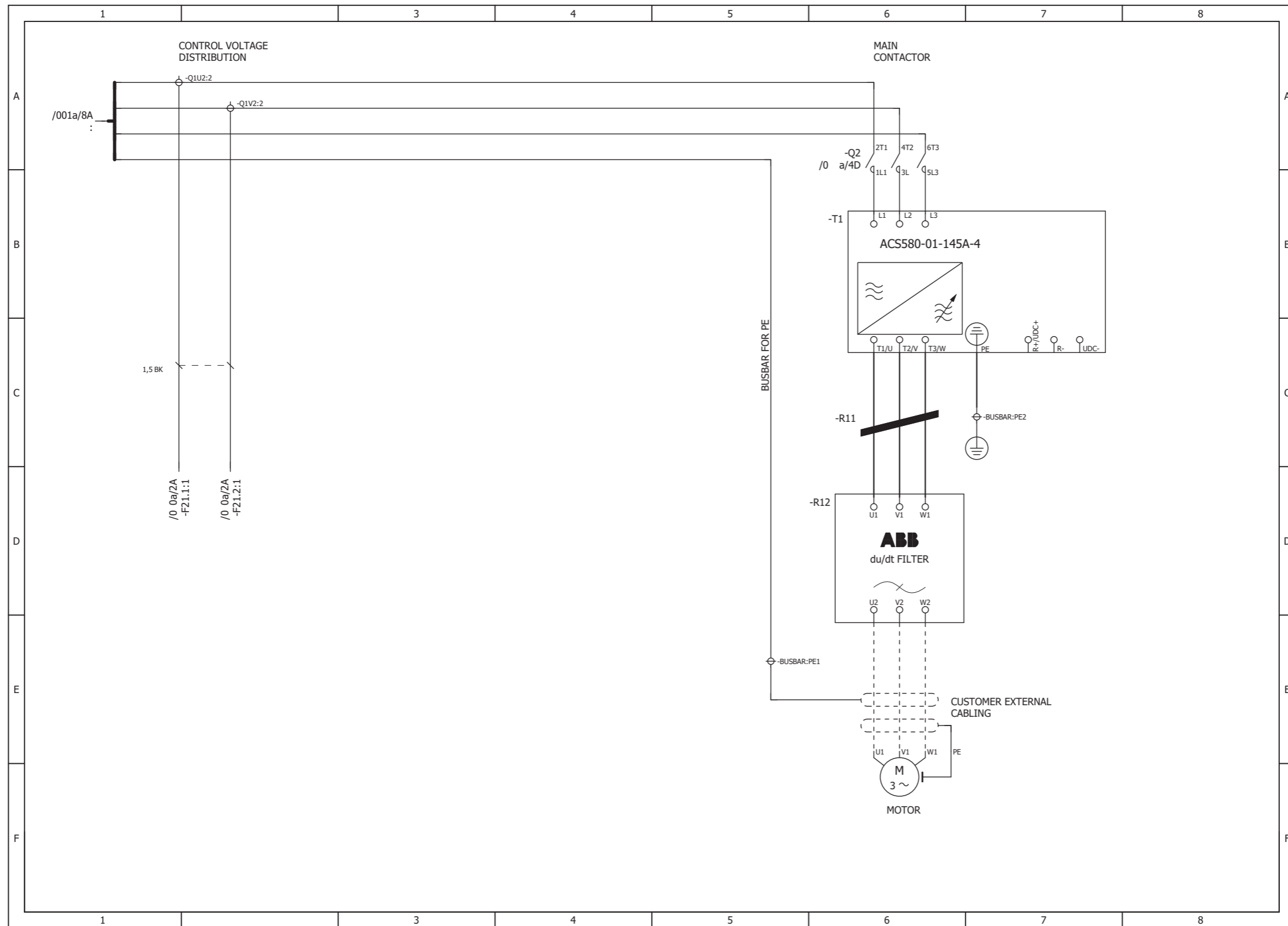
## Contents of this chapter

This chapter contains connection diagram examples for a cabinet-installed drive module.

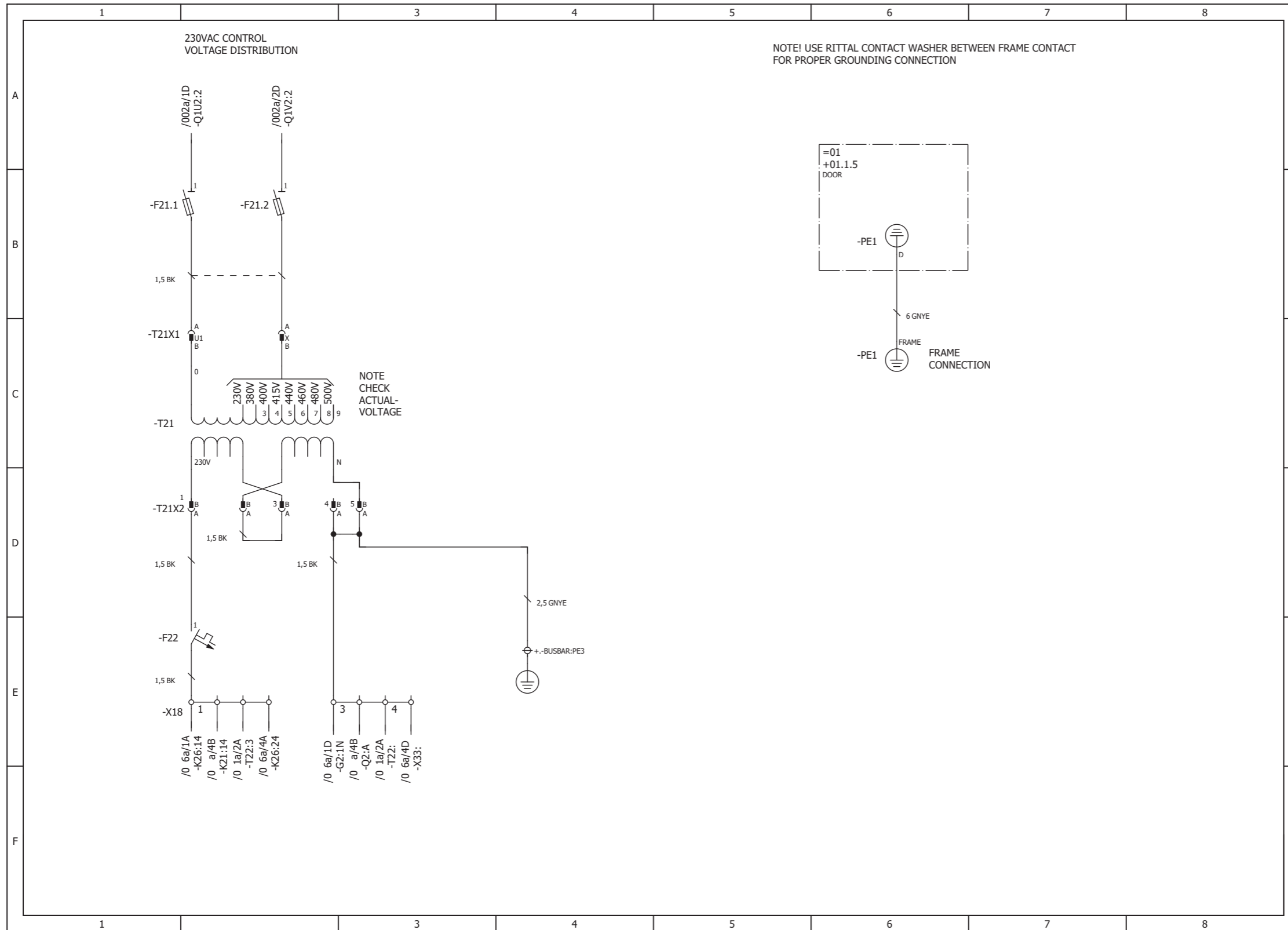
### 400 mm wide Rittal VX25 enclosure – Main circuit (1/2)



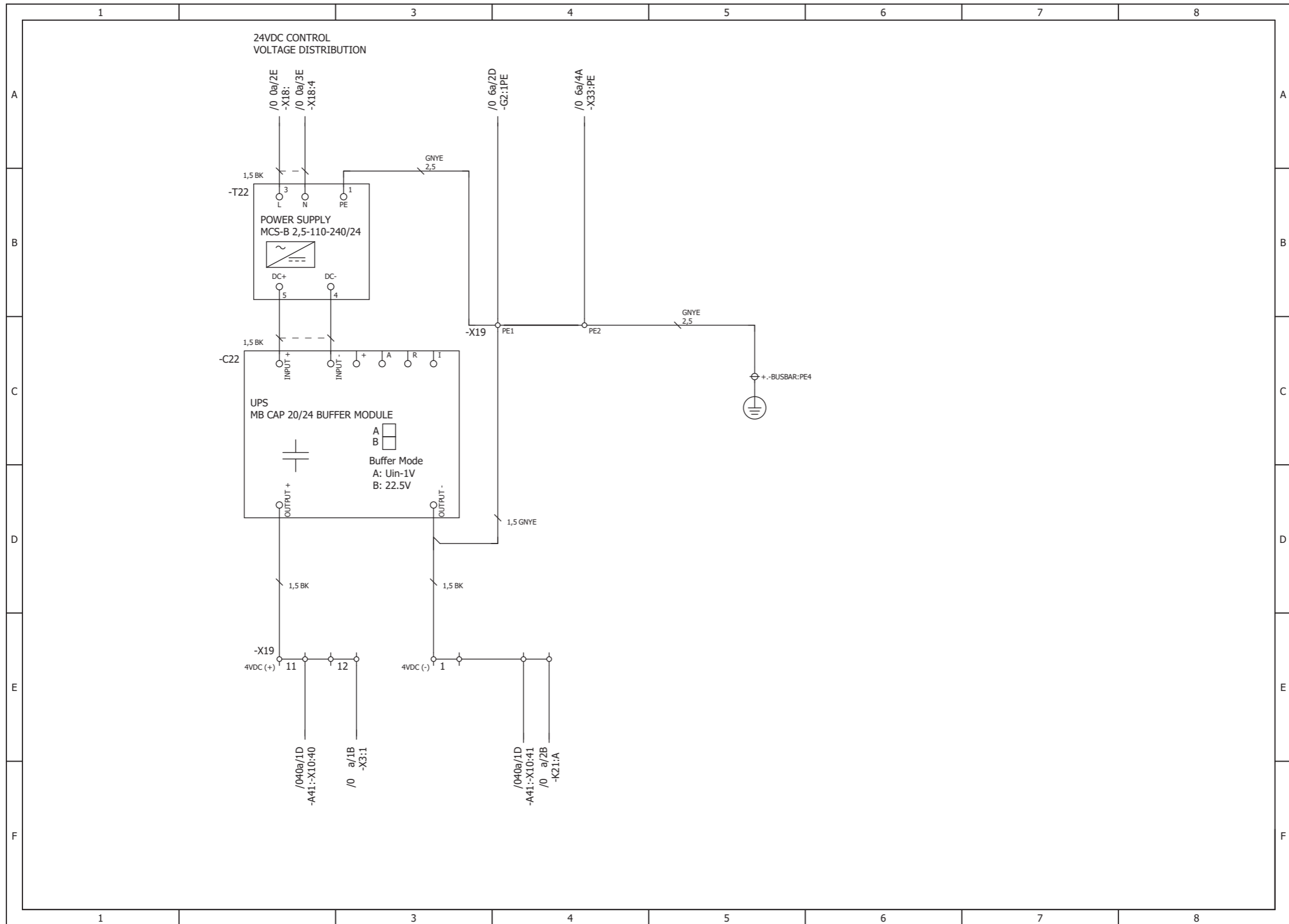
### 400 mm wide Rittal VX25 enclosure – Main circuit (2/2)



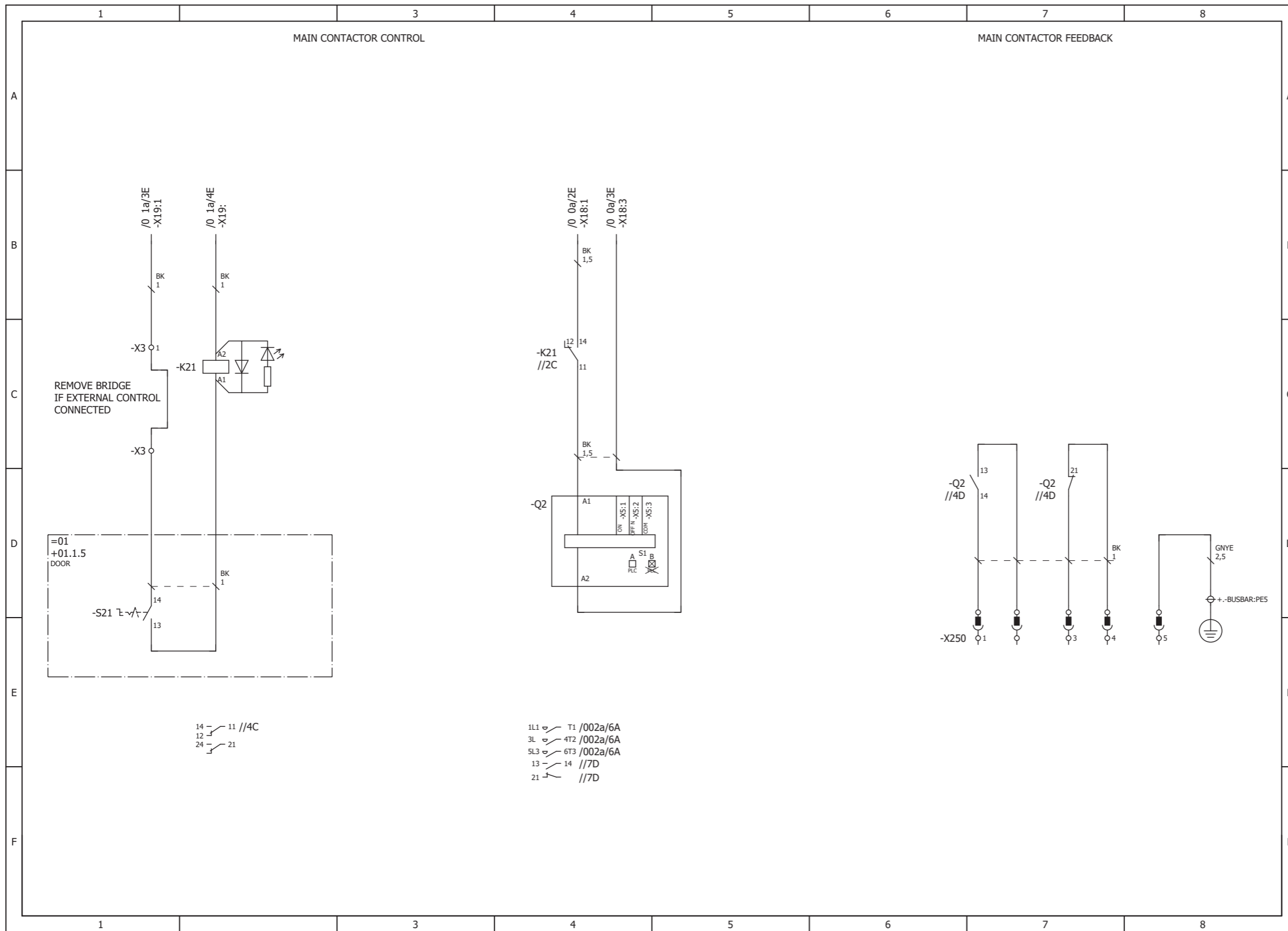
### 400 mm wide Rittal VX25 enclosure – Auxiliary voltage distribution (230 V)



### 400 mm wide Rittal VX25 enclosure – Auxiliary voltage distribution (24 V)

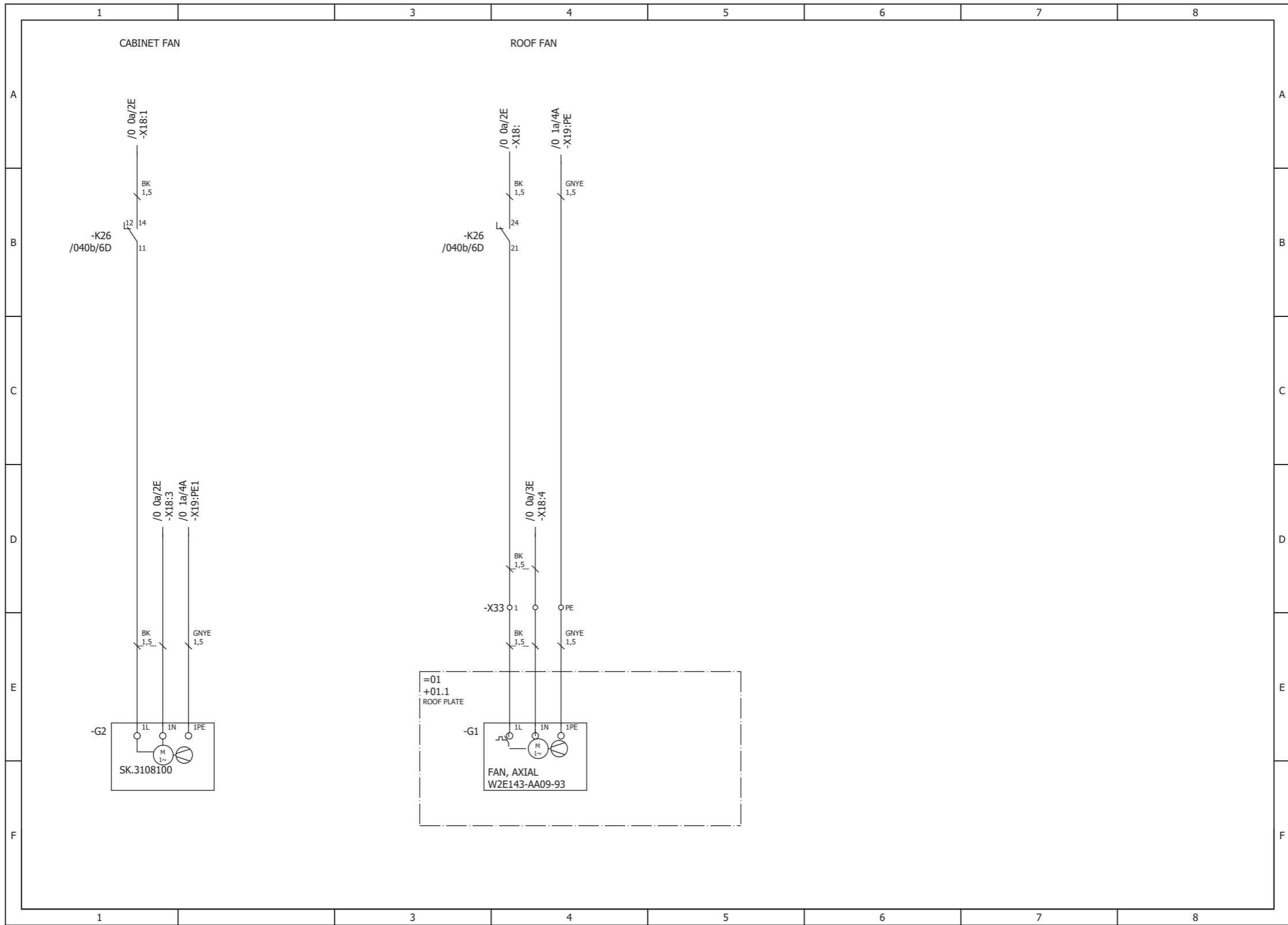


# 400 mm wide Rittal VX25 enclosure – Contactor control

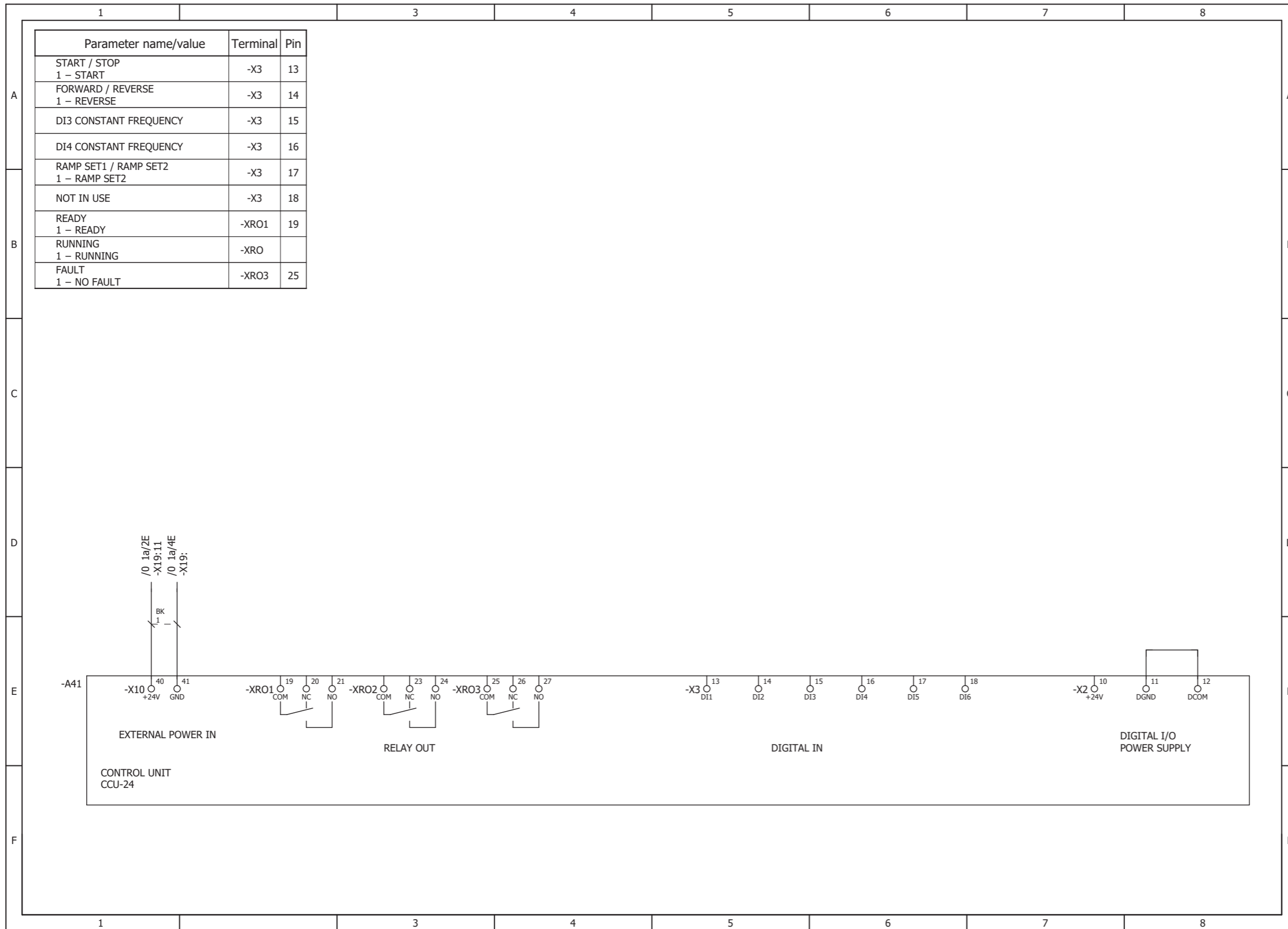




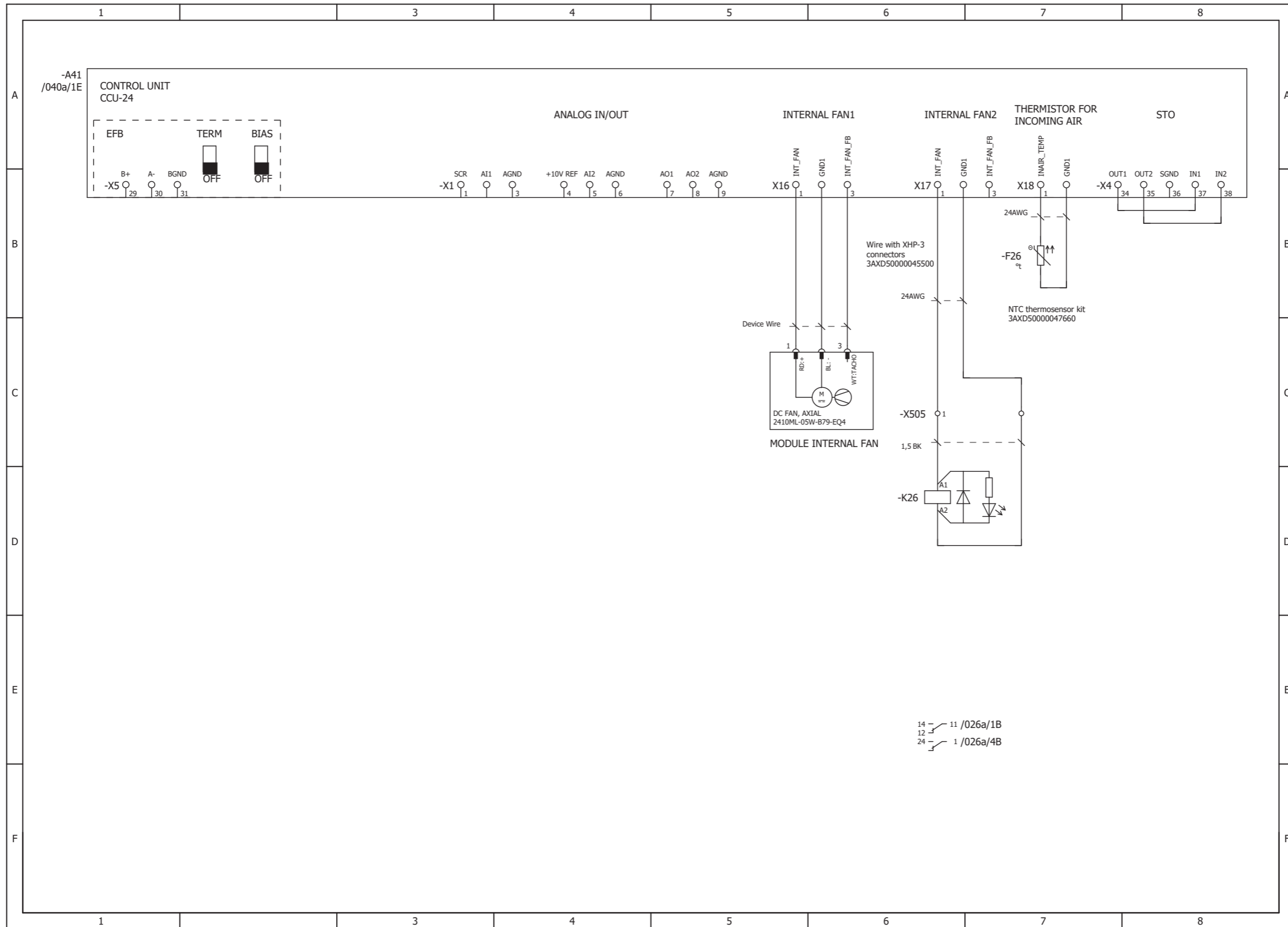
# 400 mm wide Rittal VX25 enclosure – Cabinet cooling and fan control



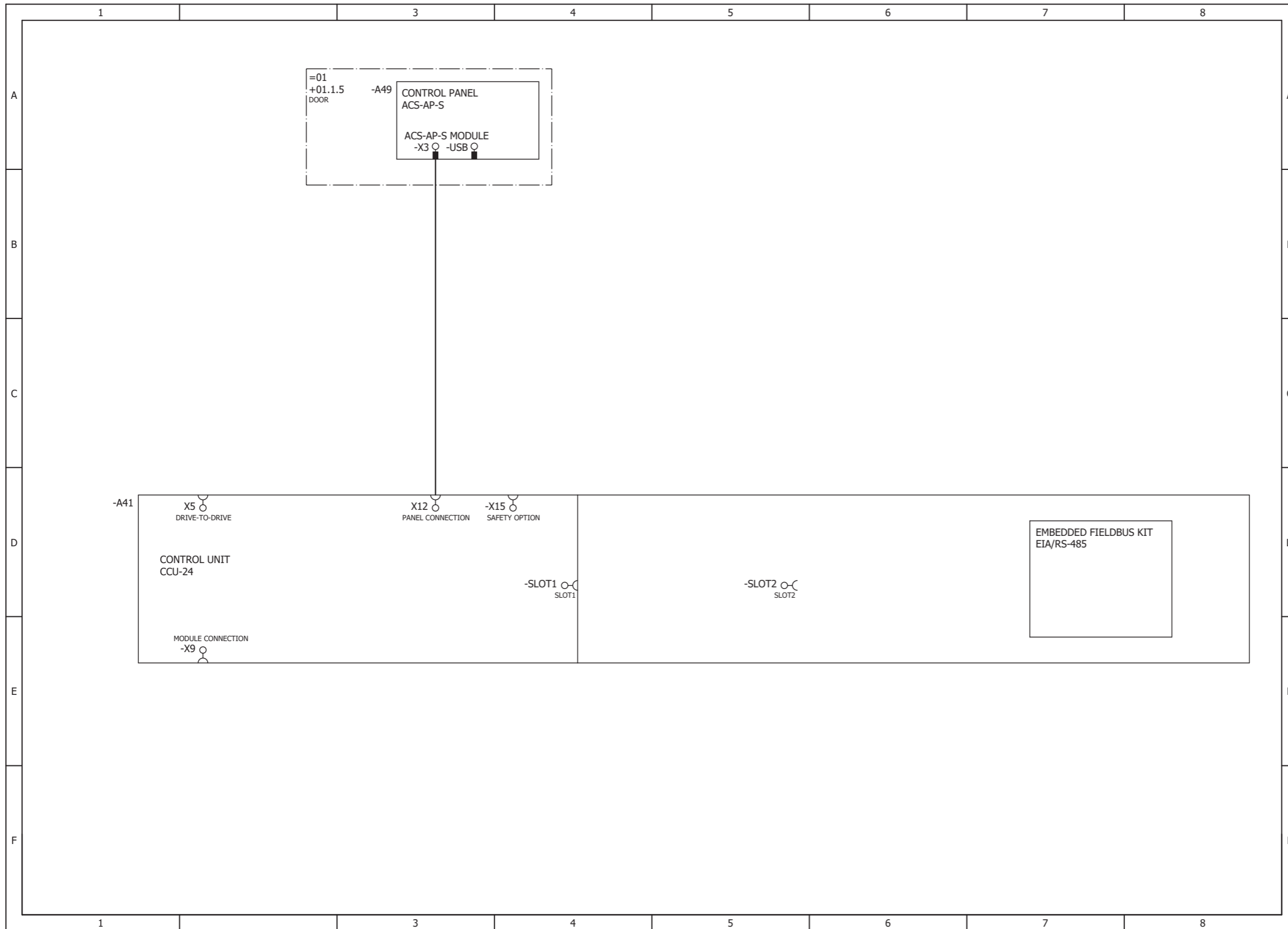
**400 mm wide Rittal VX25 enclosure – Control unit (1/3)**



### 400 mm wide Rittal VX25 enclosure – Control unit (2/3)



### 400 mm wide Rittal VX25 enclosure – Control unit (3/3)



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# Further information

## **Product and service inquiries**

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to [www.abb.com/searchchannels](http://www.abb.com/searchchannels).

## **Product training**

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[www.abb.com/drives](http://www.abb.com/drives)



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