

# ACS800

## Marine Supplement

ACS800-01+C132 Drives (0.55 to 160 kW)

ACS800-U1+C132 Drives (0.75 to 200 HP)

ACS800-04+C132 Drive Modules (0.55 to 160 kW)

ACS800-U4+C132 Drive Modules (0.75 to 200 HP)



# ACS800 Single Drive Manuals

**HARDWARE MANUALS** (appropriate manual is included in the delivery)

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ACS800-01/U1 Hardware Manual 0.55 to 200 kW (0.75 to 150 HP)  
3AFE64382101 (English)

ACS800-01/U1/04/U4 Marine Supplement 0.55 to 160 kW (0.75 to 200 HP) 3AFE68291275 (English)

ACS800-11/U11 Hardware Manual 5.5 to 110 kW (7.5 to 125 HP)  
3AFE68367883 (English)

ACS800-31/U31 Hardware Manual 5.5 to 110 kW (7.5 to 125 HP)  
3AFE68599954 (English)

ACS800-02/U2 Hardware Manual 90 to 500 kW (125 to 600 HP)  
3AFE64567373 (English)

ACS800-04/U4 Hardware Manual 0.55 to 200 kW (0.75 to 200 HP)  
3AFE68372984 (English)

ACS800-04/04M/U4 Hardware Manual 45 to 560 kW (60 to 600 HP) 3AFE64671006 (English)

ACS800-04/04M/U4 Cabinet Installation 45 to 560 kW (60 to 600 HP) 3AFE68360323 (English)

ACS800-07/U7 Hardware Manual 45 to 560 kW (50 to 600 HP)  
3AFE64702165 (English)

ACS800-07/U7 Dimensional Drawings 45 to 560 kW (50 to 600 HP) 3AFE64775421

ACS800-07 Hardware Manual 500 to 2800 kW  
3AFE64731165 (English)

ACS800-17 Hardware Manual 55 to 2500 kW (75 to 2800 HP)  
3AFE68397260 (English)

ACS800-37 Hardware Manual 55 to 2700 kW (75 to 3000 HP)  
3AFE68557925 (English)

- Safety instructions
- Electrical installation planning
- Mechanical and electrical installation
- Motor control and I/O board (RMIO)
- Maintenance
- Technical data
- Dimensional drawings
- Resistor braking

## **FIRMWARE MANUALS, SUPPLEMENTS AND GUIDES**

(appropriate documents are included in the delivery)

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Standard Control Program Firmware Manual  
3AFE64527592 (English)

System Control Program Firmware Manual  
3AFE64670646 (English)

Control Program Template Firmware Manual  
3AFE64616340 (English)

Master/Follower 3AFE64590430 (English)

Pump Control Program Firmware Manual  
3AFE68478952 (English)

Extruder Control Program Supplement 3AFE64648543 (English)

Centrifuge Control Program Supplement 3AFE64667246 (English)

Traverse Control Program Supplement 3AFE64618334 (English)

Crane Control Program Firmware Manual 3BSE11179 (English)

Adaptive Programming Application Guide  
3AFE64527274 (English)

## **OPTION MANUALS** (delivered with optional equipment)

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ACS800-01/U1 Vibration Damper Installation Guide  
3AFE68295351 (English)

Fieldbus Adapters, I/O Extension Modules etc.

ACS800-01+C132 Drives  
0.55 to 160 kW  
ACS800-U1+C132 Drives  
0.75 to 200 HP  
ACS800-04+C132 Drive Modules  
0.55 to 160 kW  
ACS800-U4+C132 Drive Modules  
0.75 to 200 HP

## **Marine Supplement**

3AFE68291275 Rev G EN  
EFFECTIVE: 2020-05-01



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# About this supplement

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This is a supplement to *ACS800-01/U1 Hardware Manual* (3AFE64382101 [English]) and *ACS800-04/U4 Hardware Manual* (3AFE68372984 [English]). The supplement contains additional instructions and information for marine-type-approved ACS800-01+C132, ACS800-U1+C132, ACS800-04+C132 and ACS800-U4+C132 units of frame sizes R2 to R6.

Option code	Description
+C131	Vibration dampers required for frame sizes R4 to R6 in wall installations. <b>Note:</b> IP55 drives and IP21 drives of frame sizes R2 to R3 are not compatible with the dampers.
+C132	Marine type approved drive (coated boards included, +C131 required for ACS800-01 and ACS800-U1 drives of frame sizes R4 to R6 in wall installations. +C131 is not required in cabinet installations)

## What this chapter contains

The chapter describes the supplement in short.

## Intended audience

The supplement is intended for people who plan the installation, install, commission, use and service the drive. Read the supplement before working on the drive. The reader is expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

The supplement is written for readers worldwide. Both SI and imperial units are shown.

## Contents

The chapters of this supplement are briefly described below.

*About this supplement* describes the supplement.

*Installation and maintenance instructions* tells how to install the marine approved drive mechanically.

*Technical data* contains the ratings and technical requirements for the marine approved drive.

*Dimensional drawings* contains dimensional drawings of ACS800-01/U1 units of frame sizes R4 to R6 (IP 55, UL type 12) with marine support bracket. For dimensional drawings of other units, refer to *ACS800-01/U1 Hardware Manual* (3AFE64382101 [English]) or *ACS800-04/U4 Hardware Manual* (3AFE68372984 [English]).





# Installation and maintenance instructions

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## What this chapter contains

This chapter contains additions to the hardware manual:

- how to install the marine approved drive mechanically.

## Cabinet installations

The ACS800-01, ACS800-U1, ACS800-04 and ACS800-U4 can be mounted in a cabinet without vibration dampers.

## Wall installations of ACS800-01/U1 frame sizes R2 and R3 (IP 21, UL type 1, IP 55, UL type 12)

Install the units on wall as described in *ACS800-01/U1 Hardware Manual* (3AFE64382101 [English]). No vibration dampers are needed.

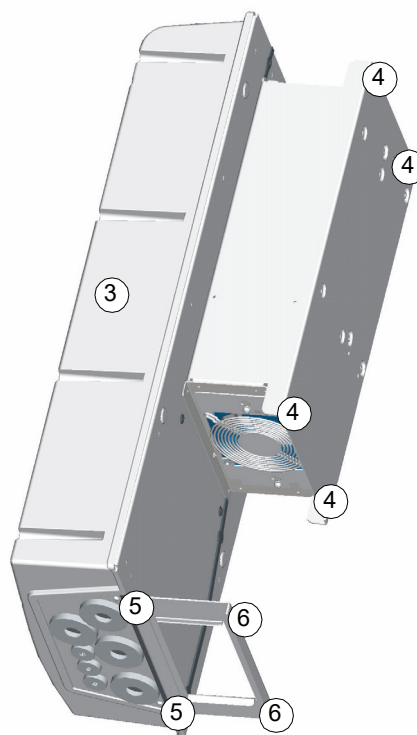
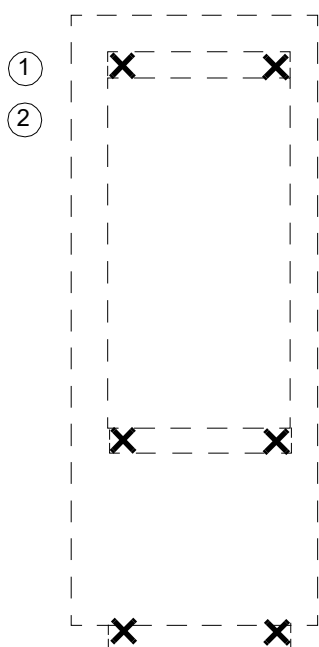
## Wall installations of ACS800-01/U1 frame sizes R4 to R6 (IP 21, UL type 1)

Fasten the units of frame sizes R4 to R6 (IP 21, UL type 1, types ACS800-01-0016-2...-0070-2, -0025-3...-0205-3, -0030-5...-0255-5, -0011-7...-0205-7; ACS800-U1-0016-2...-0070-2, -0030-5...-0205-5, -0011-7...-0205-7) to wall with vibration dampers (+C131) as shown in *ACS800-01/U1 Vibration Damper Installation Guide* (3AFE68295351 [English]).

Drives with option code +C131 include four vibration dampers with fastening screws and installation guide packed in a box inside the drive package.

## Wall installations of ACS800-01/U1 frame sizes R4 to R6 (IP 55, UL type 12)

1. Mark the locations for the six mounting holes on the wall. The mounting points are shown in chapter [Dimensional drawings](#).
2. Drill the holes and fix the screws or bolts to the marked locations.
3. Remove the front cover by undoing the fixing screws.
4. Position the drive onto the screws on the wall. **Note:** Lift the drive by its chassis (R6: by its lifting holes), not by its cover. Tighten the screws in the wall securely.
5. Fasten the support bracket to the base of the drive.
6. Tighten the screws in the wall securely.
7. Replace the front cover.



## Type designation label

The ratings on the type designation label are given at an ambient temperature of 40 °C (104 °F). For the 40 °C (104 °F) ratings, refer to the *ACS800-01/U1 Hardware Manual* [3AFE64382101 (English)] or *ACS800-04/U4 Hardware Manual* [3AFE68372984 (English)].

An example type designation label is shown below.





# Technical data

## What this chapter contains

This chapter contains the ratings and technical requirements for the ACS800-01+C132 and ACS800-U1+C132, and for ACS800-04+C132 units of frame sizes R2 to R6. For other technical specifications of the drive, refer to *ACS800-01/U1 Hardware Manual* (3AFE64382101 [English]) or *ACS800-04 Hardware Manual* (3AFE68372984 [English]).

+C132 denotes marine type approval.

## IEC ratings

### ACS800-01+C132

The IEC ratings for the ACS800-01+C132 with 50 Hz and 60 Hz supplies at an ambient temperature of 45 °C (113 °F) are given below. The symbols are described on page 17.

Drive type ACS800-01-	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow	Heat dissipation
	$I_{\text{cont.max}}$ A	$I_{\text{max}}$ A		$P_{\text{cont.max}}$ kW	$I_{2N}$ A	$P_N$ kW	$I_{2\text{hd}}$ A			
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V										
-0001-2	4.8	6.5	0.75	4.5	0.75	3.2	0.55	R2	35	100
-0002-2	6.2	8.2	1.1	5.7	1.1	4.1	0.75	R2	35	100
-0003-2	8.1	10.8	1.5	7.3	1.5	5.4	1.1	R2	35	100
-0004-2	10.4	13.8	2.2	9.7	2.2	7.1	1.5	R2	35	120
-0005-2	13.2	17.6	3	12	3	8.8	1.5	R2	35	140
-0006-2	18	24	4	17	4	13	3	R3	69	160
-0009-2	24	32	5.5	23	5.5	18	4	R3	69	200
-0011-2	32	46	7.5	29	7.5	22	5.5	R3	69	250
-0016-2	42	62	11	40	11	30	7.5	R4	103	340
-0020-2	52	72	11	48	11	35	7.5	R4	103	440
-0025-2	68	86	18.5	66	18.5	47	11	R5	168	530
-0030-2	82	112	22	76	22	57	15	R5	168	610
-0040-2	98	138	30	89	22	66	18.5	R5	168	810
-0050-2	134	164	37	125	37	92	22	R6	405	1190
-0060-2	158	202	45	147	45	109	30	R6	405	1190
-0070-2	192	282	55	175	45	134	37	R6	405	1440
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V										
-0003-3	4.8	6.5	1.5	4.5	1.5	3.2	1.1	R2	35	100
-0004-3	6.2	8.2	2.2	5.6	2.2	4.1	1.5	R2	35	120
-0005-3	8.1	10.8	3.0	7.3	3.0	5.4	2.2	R2	35	140
-0006-3	10.4	13.8	4.0	9.7	4.0	7.1	3.0	R2	35	160
-0009-3	13.2	17.6	5.5	12.3	5.5	9.0	4.0	R2	35	200
-0011-3	18	24	7.5	17	7.5	13	5.5	R3	69	250
-0016-3	24	32	11	23	7.5	18	7.5	R3	69	340
-0020-3	32	46	15	29	11	22	7.5	R3	69	440
-0025-3	42	62	18.5	39	18.5	31	11	R4	103	530

Drive type ACS800-01-	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow m <sup>3</sup> /h	Heat dissipation W
	$I_{\text{cont.max}}$ A	$I_{\text{max}}$ A		$I_{2N}$ A	$P_N$ kW	$I_{2\text{hd}}$ A	$P_{\text{hd}}$ kW			
-0030-3	52	72	22	48	22	35	15	R4	103	610
-0040-3	68	86	30	66	30	47	22	R5	168	810
-0050-3	82	112	37	76	37	57	30	R5	168	990
-0060-3	98	138	45	89	45	66	30	R5	168	1190
-0075-3	137	170	55	134	55	95	45	R5	405	1440
-0070-3 *	134	164	55	125	55	92	45	R6	405	1440
-0100-3	158	202	75	147	75	109	55	R6	405	1940
-0120-3	192	282	90	175	90	134	55	R6	405	2310
-0135-3	214	326	110	209	110	155	75	R6	405	2810
-0165-3	247	326	132	242	132	204	110	R6	405	3260
-0205-3	276	351	132	271	132	222	110	R6	405	4200
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>										
-0004-5	4.7	6.5	2.2	4.3	2.2	3.2	1.5	R2	35	120
-0005-5	5.9	8.2	3.0	5.3	2.2	4.0	1.5	R2	35	140
-0006-5	7.7	10.8	4.0	7.3	4.0	5.3	3.0	R2	35	160
-0009-5	10	13.8	5.5	9.5	5.5	7.1	4.0	R2	35	200
-0011-5	12.5	17.6	7.5	11	5.5	8.9	4.0	R2	35	250
-0016-5	18.5	24	11	17	7.5	12.4	7.5	R3	69	340
-0020-5	24	32	11	22	11	17	7.5	R3	69	440
-0025-5	32	46	18.5	29	18.5	22	11	R3	69	530
-0030-5	40	62	22.0	37	22	30	18.5	R4	103	610
-0040-5	46	72	30	42	22	34	22.0	R4	103	810
-0050-5	62	86	37	58	37	48	30	R5	168	990
-0060-5	75	112	45	71	45	58	37	R5	168	1190
-0070-5	92	138	55	84	55	66	37	R5	168	1440
-0105-5	137	170	90	134	90	95	55	R5	405	2150
-0100-5 *	118	164	75	109	55	85	55	R6	405	1940
-0120-5	149	202	90	138	90	107	55	R6	405	2310
-0140-5	171	282	110	155	90	134	90	R6	405	2810
-0165-5	214	326	132	209	132	155	110	R6	405	3260
-0205-5	247	326	160	242	160	204	132	R6	405	3800
-0255-5	276	351	160	271	160	222	132	R6	405	4500
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or <b>690 V</b>										
-0011-7	12	14	7.5	10.9	7.5	8.1	5.5	R4	103	300
-0016-7	16.5	19	11	14.3	11	10.5	7.5	R4	103	340
-0020-7	21	28	15	19	15	14	11	R4	103	440
-0025-7	24	38	18.5	22	18.5	18	15	R4	103	530
-0030-7	31	44	22	29	22	21	18.5	R4	103	610
-0040-7	34	54	30	32	30	26	22	R4	103	690
-0050-7	48	68	37	44	37	32	30	R5	168	840
-0060-7	54	84	45	49	45	40	37	R5	168	1010
-0070-7	75	104	55	69	55	51	45	R6	405	1220
-0100-7	88	124	75	82	75	59	55	R6	405	1650
-0120-7	107	172	90	103	90	82	75	R6	405	1960
-0145-7	127	245	110	118	110	90	90	R6	405	2660
-0175-7	157	245	132	152	132	124	110	R6	405	3470
-0205-7	180	245	160	171	160	140	132	R6	405	4180

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### ACS800-04+C132

The IEC ratings for the ACS800-04+C132 with 50 Hz and 60 Hz supplies at an ambient temperature of 45 °C (113 °F) are given below. The symbols are described on page 17.

Drive type ACS800-04-	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow	Heat dissipation
	$I_{\text{cont.max}}$ A	$I_{\text{max}}$ A	$P_{\text{cont.max}}$ kW	$I_{2N}$ A	$P_N$ kW	$I_{2\text{hd}}$ A	$P_{\text{hd}}$ kW		m <sup>3</sup> /h	W
Three-phase supply voltage 208 V, 220 V, <b>230 V</b> or 240 V										
-0001-2	4.8	6.5	0.75	4.5	0.75	3.2	0.55	R2	35	100
-0002-2	6.2	8.2	1.1	5.7	1.1	4.1	0.75	R2	35	100
-0003-2	8.1	10.8	1.5	7.3	1.5	5.4	1.1	R2	35	100
-0004-2	10.4	13.8	2.2	9.7	2.2	7.1	1.5	R2	35	120
-0005-2	13.2	17.6	3	12	3	8.8	1.5	R2	35	140
-0006-2	18	24	4	17	4	13	3	R3	69	160
-0009-2	24	32	5.5	23	5.5	18	4	R3	69	200
-0011-2	32	46	7.5	29	7.5	22	5.5	R3	69	250
-0016-2	42	62	11	40	11	30	7.5	R4	103	340
-0020-2	52	72	11	48	11	35	7.5	R4	103	440
-0025-2	68	86	18.5	66	18.5	47	11	R5	250	530
-0030-2	82	112	22	76	22	57	15	R5	250	610
-0040-2	98	138	30	89	22	66	18.5	R5	250	810
-0050-2	134	164	37	125	37	92	22	R6	405	1190
-0060-2	158	202	45	147	45	109	30	R6	405	1190
-0070-2	192	282	55	175	45	134	37	R6	405	1440
Three-phase supply voltage 380 V, <b>400 V</b> or 415 V										
-0003-3	4.8	6.5	1.5	4.5	1.5	3.2	1.1	R2	35	100
-0004-3	6.2	8.2	2.2	5.6	2.2	4.1	1.5	R2	35	120
-0005-3	8.1	10.8	3.0	7.3	3.0	5.4	2.2	R2	35	140
-0006-3	10.4	13.8	4.0	9.7	4.0	7.1	3.0	R2	35	160
-0009-3	13.2	17.6	5.5	12.3	5.5	9.0	4.0	R2	35	200
-0011-3	18	24	7.5	17	7.5	13	5.5	R3	69	250
-0016-3	24	32	11	23	7.5	18	7.5	R3	69	340
-0020-3	32	46	15	29	11	22	7.5	R3	69	440
-0023-3	38	46	18.5	37	18.5	27	11	R3	69	520
-0025-3	42	62	18.5	39	18.5	31	11	R4	103	530
-0030-3	52	72	22	48	22	35	15	R4	103	610
-0035-3	56	72	30	54	22	39	18.5	R4	103	660
-0040-3	68	86	30	66	30	47	22	R5	168	810
-0050-3	82	112	37	76	37	57	30	R5	168	990
-0060-3	98	138	45	89	45	66	30	R5	168	1190
-0075-3	137	170	55	134	55	95	45	R5	405	1440
-0070-3 *	134	164	55	125	55	92	45	R6	405	1440
-0100-3	158	202	75	147	75	109	55	R6	405	1940
-0120-3	192	282	90	175	90	134	55	R6	405	2310
-0135-3	214	326	110	209	110	155	75	R6	405	2810
-0165-3	247	326	132	242	132	204	110	R6	405	3260
-0205-3	276	351	132	271	132	222	110	R6	405	4200

Drive type ACS800-04-	Nominal ratings		No-overload use	Light-overload use		Heavy-duty use		Frame size	Air flow  m³/h	Heat dissipation  W
	I <sub>cont.max</sub> A	I <sub>max</sub> A		P <sub>cont.max</sub> kW	I <sub>2N</sub> A	P <sub>N</sub> kW	I <sub>2hd</sub> A			
Three-phase supply voltage 380 V, 400 V, 415 V, 440 V, 460 V, 480 V or <b>500 V</b>										
-0004-5	4.7	6.5	2.2	4.3	2.2	3.2	1.5	R2	35	120
-0005-5	5.9	8.2	3.0	5.3	2.2	4.0	1.5	R2	35	140
-0006-5	7.7	10.8	4.0	7.3	4.0	5.3	3.0	R2	35	160
-0009-5	10	13.8	5.5	9.5	5.5	7.1	4.0	R2	35	200
-0011-5	12.5	17.6	7.5	11	5.5	8.9	4.0	R2	35	250
-0016-5	18.5	24	11	17	7.5	12.4	7.5	R3	69	340
-0020-5	24	32	11	22	11	17	7.5	R3	69	440
-0025-5	32	46	18.5	29	18.5	22	11	R3	69	530
-0028-5	36	46	18.5	35	18.5	26	15	R3	69	590
-0030-5	40	62	22.0	37	22	30	18.5	R4	103	610
-0040-5	46	72	30	42	22	34	22.0	R4	103	810
-0045-5	53	72	37	51	30	37	22.0	R4	103	950
-0050-5	62	86	37	58	37	48	30	R5	168	990
-0060-5	75	112	45	71	45	58	37	R5	168	1190
-0070-5	92	138	55	84	55	66	37	R5	168	1440
-0105-5	137	170	90	134	90	95	55	R5	405	2150
-0100-5 *	118	164	75	109	55	85	55	R6	405	1940
-0120-5	149	202	90	138	90	107	55	R6	405	2310
-0140-5	171	282	110	155	90	134	90	R6	405	2810
-0165-5	214	326	132	209	132	155	110	R6	405	3260
-0205-5	247	326	160	242	160	204	132	R6	405	3800
-0255-5	276	351	160	271	160	222	132	R6	405	4500
Three-phase supply voltage 525 V, 550 V, 575 V, 600 V, 660 V or <b>690 V</b>										
-0011-7	12	14	7.5	10.9	7.5	8.1	5.5	R4	103	300
-0016-7	16.5	19	11	14.3	11	10.5	7.5	R4	103	340
-0020-7	21	28	15	19	15	14	11	R4	103	440
-0025-7	24	38	18.5	22	18.5	18	15	R4	103	530
-0030-7	31	44	22	29	22	21	18.5	R4	103	610
-0040-7	34	54	30	32	30	26	22	R4	103	690
-0050-7	48	68	37	44	37	32	30	R5	168	840
-0060-7	54	84	45	49	45	40	37	R5	168	1010
-0070-7	75	104	55	69	55	51	45	R6	405	1220
-0100-7	88	124	75	82	75	59	55	R6	405	1650
-0120-7	107	172	90	103	90	82	75	R6	405	1960
-0145-7	127	245	110	118	110	90	90	R6	405	2660
-0175-7	157	245	132	152	132	124	110	R6	405	3470
-0205-7	180	245	160	171	160	140	132	R6	405	4180

PDM code: 00096931-J



## Symbols

### Nominal ratings

$I_{\text{cont.max}}$	continuous rms output current. No overload capability at 45 °C.
$I_{\text{max}}$	maximum output current. Available for 10 s at start, otherwise as long as allowed by drive temperature.

### Typical ratings:

#### No-overload use

$P_{\text{cont.max}}$	typical motor power. The power ratings apply to most IEC 34 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.
-----------------------	--

#### Light-overload use (10% overload capability)

$I_{2N}$	continuous rms current. 10% overload is allowed for one minute every 5 minutes.
$P_N$	typical motor power. The power ratings apply to most IEC 34 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.

#### Heavy-duty use (50% overload capability)

$I_{2hd}$	continuous rms current. 50% overload is allowed for one minute every 5 minutes.
$P_{hd}$	typical motor power. The power ratings apply to most IEC 34 motors at the nominal voltage, 230 V, 400 V, 500 V or 690 V.

\* Drive types ACS800-01-0070-3, ACS800-01-0100-5, ACS800-04-0070-5 and ACS800-04-0100-5 are not available any more. They can be replaced with types -0075-3, -0105-5, -0100-3 or -0120-5.

## Ratings below 45 °C (+113 F)

Apply the IEC ratings given in *ACS800-01/U1 Hardware Manual* [3AFE64382101 (English)] or *ACS800-04/U4 Hardware Manual* [3AFE68372984 (English)].

## Temperature derating at ambient temperatures above 45 °C (+113 °F)

The load capacity (current and power) decreases if the ambient temperature exceeds 45 °C (113 °F).

In the temperature range of +45 °C (+113 °F) to +55 °C (+131 °F), the rated output current is decreased 1% for every additional 1 °C (1.8 °F). The output current is calculated by multiplying the current given in the rating table by the derating factor.

**Note:** At high temperatures the lifespan of the drive decreases. Example: The lifespan is approximately 100 000 hours at an ambient temperature of 45 °C (113 °F), whereas the lifespan at 50 °C (+122 °F) is approximately 50 000 hours.

*Example: derated values at an ambient temperature of 50 °C (+122 °F)*

If the ambient temperature is 50 °C (+122 °F), the derating factor is  $100\% - 1 \frac{\%}{^{\circ}\text{C}} \cdot 5^{\circ}\text{C} = 95\%$  or 0.95 when compared to the nominal ratings in the rating tables. The output current is then  $0.95 \cdot I_{2N}$  or  $0.95 \cdot I_{2hd}$ .

## NEMA ratings

### ACS800-U1+C132

Apply the NEMA ratings given in *ACS800-01/U1 Hardware Manual* [3AFE64382101 (English)].

**Note:** The nominal ambient temperature is +45 °C (+113 °F).

### ACS800-04+C132

Apply the NEMA ratings given in *ACS800-04/U4 Hardware Manual* [3AFE68372984 (English)].

**Note:** The nominal ambient temperature is +45 °C (+113 °F).

### Temperature derating

In the temperature range of +45 °C (+113 °F) to +55 °C (+131 °F), the rated output current is decreased 1% for every additional 1 °C (1.8 °F). The output current is calculated by multiplying the current given in the rating table by the derating factor.

### Ambient conditions (ACS800-01+C132, ACS800-U1+C132)

	Operation installed for stationary use	Storage in the protective package	Transportation in the protective package
<b>Air temperature</b>	<u>IP 21 (UL type 1) units:</u> -15 to +55 °C (5 to 131 °F). <u>IP 55 (UL type 12) units:</u> -15 to +50 °C (5 to 122 °F). No frost allowed. See temperature derating, page <a href="#">17</a> or <a href="#">18</a> .	-40 to +70 °C (-40 to +158 °F)	-40 to +70 °C (-40 to +158 °F)

### Ambient conditions (ACS800-04+C132)

	Operation installed for stationary use	Storage in the protective package	Transportation in the protective package
<b>Air temperature</b>	<u>IP 20 (UL type open) units:</u> -15 to +55 °C (5 to 131 °F). No frost allowed. See temperature derating, page <a href="#">17</a> or <a href="#">18</a> .	-40 to +70 °C (-40 to +158 °F)	-40 to +70 °C (-40 to +158 °F)

### Applicable standards

- EN 501578 (1997)
- EN 60204-1 (2006)  
+A1:2009

The drive complies with the following standards. The compliance with the European Low Voltage Directive is verified according to standards EN 501578 and EN 60204-1.

Electronic equipment for using power installations

Safety of machinery. Electrical equipment of machines. Part 1: General requirements.

*Provisions for compliance:* The final assembler of the machine is responsible for installing

- emergency-stop device
- supply disconnecting device
- ACS800-04/U4 into a cabinet.

- EN 60529: 1991 (IEC 60529) +corrigendum May 1993 A1:2000 Degrees of protection provided by enclosures (IP code)
- IEC 60664-1 (2007) Insulation coordination for equipment within low-voltage systems. Part 1: Principles, requirements and tests.
- EN 61800-3 (2004) Adjustable speed electrical power drive systems. Part 3: EMC requirements and specific test methods
- IEC 60533 Electrical and electronic installations in ships - Electromagnetic compatibility (immunity)
- UL 508C (2002) UL Standard for Safety, Power Conversion Equipment, second edition
- NEMA 250 (2003) Enclosures for Electrical Equipment (1000 Volts Maximum)
- CSA C22.2 No. 14-05 (2005) Industrial control equipment

## UL and CSA approvals

The ACS800-01+C132 and ACS800-U1+C132 units of UL type 1 are cULus Listed and CSA certified.

The ACS800-04+C132 and ACS800-U4+C132 units of UL type open are cULus Listed and CSA certified.

## Marine type approvals

The drives are type approved by Det Norske Veritas, Lloyd's Register of Shipping, Nippon Kaiji Kyokai and RINA as shown in the table below.

	ACS800-01+C132	ACS800-U1+C132	ACS800-04+C132	ACS800-U4+C132
<b>Det Norske Veritas</b>	x	x	x	
<b>Lloyd's Register of Shipping</b>	x		x	
<b>Nippon Kaiji Kyokai</b>	x	x	x	
<b>RINA</b>	x	x	x	x

**Note:** The Certificates by American Bureau of Shipping, and Bureau Veritas have been withdrawn.

The certificates are shown in the following pages.

## Det Norske Veritas

DNV GL

Certificate No:  
**TAE00003XV**

## TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Frequency Converter**

with type designation(s)

**ACS800-01 / ACS800-U1 / ACS800-04**

Issued to

**ABB Oy, Drives  
Helsinki, Finland**

is found to comply with

**DNV GL rules for classification – Ships, offshore units, and high speed and light craft****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2020-03-25**This Certificate is valid until **2025-01-25**.DNV GL local station: **Helsinki FIS**Approval Engineer: **Nicolay Horn**for **DNV GL**

Digitally Signed By: Alonso Pontes, Marta

Location: DNV GL Høvik, Norway

**Marta Alonso Pontes  
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Form code: TA 251

Revision: 2016-12

www.dnvgl.com

Page 1 of 5

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## Lloyd's Register of Shipping



Page 1 of 2  
 Certificate No: LR2001926TA  
 Issue Date: 25/02/2020  
 Expiry Date: 05/07/2024

### Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

<b>Manufacturer</b>	<b>ABB Oy - Drives</b>
<b>Address</b>	Hiomotie 13, 00380 Helsinki, Finland
<b>Type</b>	Electronic Frequency Convertor
<b>Description</b>	Electronic Frequency Converters
<b>Trade Name</b>	ACS800-01/-04 frames R2-R6 with option +C132
<b>Application</b>	Marine and offshore use in environmental categories ENV1 and ENV2 as defined in LR Test Specification No. 1:2002
<b>Specified Standard</b>	Manufacturer's specification
<b>Ratings</b>	refer to the Appendix for details
<b>Other Conditions</b>	Installation of this equipment for marine applications on LR classed ships is to be in accordance with the applicable Lloyd's Register Rules and Regulations.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

71 Fenchurch Street, London, EC3M 4BS, UK

**Thorsten Wolff**  
 Senior Specialist to Lloyd's Register EMEA  
 A member of the Lloyd's Register group

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

TA01 1.0.0



Page 2 of 2  
Certificate No: LR2001926TA  
Issue Date: 25/02/2020  
Expiry Date: 05/07/2024

# Type Approval Certificate

The Design Appraisal Document No. HTS/ETS 39548-20/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

71 Fenchurch Street, London, EC3M 4BS, UK

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TA01 1.0.0





Page 1 of 1  
 Certificate No: LR2001926TA  
 Issue Date: 25.02.2020  
 Expiry Date: 24.02.2024  
 Reference: HTS/ETS 39548-20/TW

**LLOYD'S REGISTER TYPE APPROVAL – DESIGN APPRAISAL DOCUMENT**  
**ISSUED BY: HAMBURG TECHNICAL SUPPORT OFFICE (HPC1462139)**  
**ISSUED TO: ABB OY- DRIVES, HELSINKI, FINLAND**  
**FOR: ELECTRONIC FREQUENCY CONVERTERS**  
**TYPES ACS800-01/-04**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register Type Approval System Procedure TA14 Version 03 (July 2017) and this Design Appraisal Document forms part of the Certificate.

**APPROVAL DOCUMENTATION**

Unnumbered	Type Approval Application Checklist	07.11.2019
HTS/ETS 30675-14	Marine Design Appraisal Document for Certificate No. 10/20030 (E4)	21.11.2014
10/20030 (E4)	Type Approval Certificate Extension	21.11.2014
PRJ11100232957-2	Production Quality Assessment Form	01.11.2019

  
 Thorsten Wolff  
 Hamburg Technical Support Office  
 Lloyd's Register EMEA  
LR0311.T.2016.06

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 E thorsten.wolff@lr.org

**Supplementary Type Approval Terms and Conditions**

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the Lloyd's Register Type Approval System Procedure.*

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## Nippon Kaiji Kyokai



NIPPON KAIJI KYOKAI

### TYPE APPROVAL CERTIFICATE FOR AUTOMATIC DEVICES AND EQUIPMENT

Certificate No. TA20120M

**This is to certify** that the undernoted product(s) has/have been approved in accordance with the requirements specified in Chapter 1, Part 7 of "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" and the relevant Society's Rules.

This certificate is issued to

Manufacturer:	<b>ABB Oy Drives</b>
Place of Manufacturing:	<b>P. O. Box 184, Hiomotie13, FIN-00381 Helsinki, Finland</b>
Product description:	<b>Frequency Converter</b>
Model:	<b>ACS 800-01/-U1/-04 series</b>

Approval No.:	<b>10A002</b>
Valid until:	<b>24 January 2025</b>

This certificate is subject to the conditions specified in the attached sheet(s).

Issued at Tokyo on 25 January 2020.

T. Shimada  
General Manager  
Machinery Department

Note: The manufacturer, if desired, is requested to apply to the Society for renewal prior to the expiration date.



RINA



**TYPE APPROVAL CERTIFICATE**  
No. ELE369418XG

**This is to certify** that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	<b>FREQUENCY CONVERTERS</b>
<i>Type</i>	<b>ACS800-01+C132 Drives; ACS800-U1+C132 Drives; ACS800-04+C132 Drive Modules; ACS800-U4+C132 Drive Modules</b>
<i>Applicant</i>	<b>ABB OY BAU DRIVES PO BOX 184 FIN 00381 HELSINKI FINLAND</b>
<i>Manufacturer</i>	<b>ABB OY BAU DRIVES</b>
<i>Place of manufacture</i>	<b>PO BOX 184 FIN 00381 HELSINKI FINLAND</b>
<i>Reference standards</i>	<b>RINA Rules Pt. C, Ch. 3, Sec. 6</b>

Issued in **HAMBURG** on **April 17, 2019**. This Certificate is valid until **April 16, 2024**

\_\_\_\_\_  
RINA Services S.p.A.  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure



RINA Services S.p.A.  
Via Corsica, 12 - 16128 Genova  
Tel +39 010 53851  
Fax +39 010 5351000



## American Bureau of Shipping (ABS)

Certificate Number: 04-LD417612-4-PDA  
28/MAR/2013



### *Confirmation of Product Type Approval*

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 24/AUG/2014. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 21/MAR/2018 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

**Product Name:** Frequency Converter

**Model Name(s):** ACS800-01 +C132, ACS800-U1 +C132, and ACS800-04 +C132  
Frames R2-R6

**Presented to:**

ABB OY DRIVES  
(TYPE APPROVAL ONLY - INVOICES USE WCN 004531)  
HIOMOTIE 13  
HELSINKI  
Finland

**Intended Service:**

Electrical drives for Ships and Offshore Units.

**Description:**


The ACS800-01 +C132 drives are suitable for controlling the speed and torque of induction motors up to 132 kW at 400V or 160 kW at 500V or 690V. The ACS800-U1 +C132 version is similar, except that a cable gland box suitable for use with U.S. standard cables is placed on the lower part of the unit for power cables. The above are suitable for wall-mounting and are either in IP 21 or IP 55 enclosures. The ACS800-04+C132 frames R2-R6 drive modules are based on ACS800-01 hardware (but without top cover and cable connection box) for installation into a cabinet. The ACS800-04 are suitable for motors up to 132 kW at 400 V or 160 kW at 500 V or 690 V. The modules can be supplied with an optional flange, which separates the air flow to control part and cooling heat sink, and allows the location of the heat sink outside the cabinet enclosure. This optional flange mounting makes it possible to use outside air for cooling the heat sink, and filtered air inside the cabinet for cooling the control part. Protection class IP20 or UL open type.

**Ratings:**

Nominal 3-phase supply : range 208-690 V. For full ratings, refer to attachment ACS800-01 and ACS800-04 ratings table at 45 degrees ambient temperature to the PDA certificate.

Certificate Number: 04-LD417612-4-PDA

<b>Service Restrictions:</b>	Unit Certification is required for this product when used in propulsion applications, as per the ABS Steel Vessel Rules 2013, 4-1-1/Table 3 and 4-8-3/5.11.		
<b>Comments:</b>	For marine applications vibration dampers are to be used as specified by manufacturer. Vibration dampers are however not required for ACS800-04+C132 module installation into a cabinet.		
<b>Notes / Documentation:</b>	This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.		
<b>Term of Validity:</b>	This Product Design Assessment (PDA) Certificate 04-LD417612-4-PDA, dated 22/Mar/2013 remains valid until 21/Mar/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.		
<b>ABS Rules:</b>	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. The Rules applicable to this assessment are: 2013 Rules for Building and Classing Steel Vessels 1-1-4/7.7, 4-8-3/7.5, 4-9-7/Table 9 and Table 10		
<b>National Standards:</b>			
<b>International Standards:</b>	IEC60092, IEC61000, IEC60068, IEC60947, IEC60529, IEC60533, IEC61800 (relevant sections)		
<b>Government Authority:</b>			
<b>EUMED:</b>			
<b>Others:</b>			
<b>Model Certificate</b>	<b>Model Certificate No</b>	<b>Issue Date</b>	<b>Expiry Date</b>
PDA	04-LD417612-4-PDA	22/MAR/2013	21/MAR/2018



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

## Bureau Veritas

Page 1 / 4



MARINE DIVISION

Certificate number: 14370/C0 BV

File number: AP 3635

Product code: 25921

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

www.veristar.com

### TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

**ABB Oy Drives**  
Helsinki - FINLAND

*for the type of product*

### FREQUENCY CONVERTERS

ACS800-01 Single Drives

#### Requirements:

BV Rules for the Classification of Steel Ships.

*This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 29 May 2017**

**For BUREAU VERITAS,**

At BV HELSINKI, on 29 May 2012,

Tommy Andersson



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

BV Mod. Ad.E 530 May 2009

This certificate consists of 4 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

3 - Phase variable speed drive for motor applications.

#### 1. Output data for input voltage 230 V.

Type designation	Mains supply (V)	Frame size	Nominal ratings	
			I con. max (A)	I max (A)
ACS800-01-0001-2 + C132	208 - 240	R2	4.8	6.5
ACS800-01-0002-2 + C132	208 - 240	R2	6.2	8.2
ACS800-01-0003-2 + C132	208 - 240	R2	8.1	10.8
ACS800-01-0004-2 + C132	208 - 240	R2	10.4	13.8
ACS800-01-0005-2 + C132	208 - 240	R2	13.2	17.6
ACS800-01-0006-2 + C132	208 - 240	R3	18	24
ACS800-01-0009-2 + C132	208 - 240	R3	24	32
ACS800-01-0011-2 + C132	208 - 240	R3	32	46
ACS800-01-0016-2 + C132	208 - 240	R4	42	62
ACS800-01-0020-2 + C132	208 - 240	R4	52	72
ACS800-01-0025-2 + C132	208 - 240	R5	68	86
ACS800-01-0030-2 + C132	208 - 240	R5	82	112
ACS800-01-0040-2 + C132	208 - 240	R5	98	138
ACS800-01-0050-2 + C132	208 - 240	R6	134	164
ACS800-01-0060-2 + C132	208 - 240	R6	158	202
ACS800-01-0070-2 + C132	208 - 240	R6	192	282

#### 2. Output data for input voltage 400 V.

Type designation	Mains supply (V)	Frame size	Nominal ratings	
			I con. max (A)	I max (A)
ACS800-01-0003-3 + C132	380 - 415	R2	4.8	6.5
ACS800-01-0004-3 + C132	380 - 415	R2	6.2	8.2
ACS800-01-0005-3 + C132	380 - 415	R2	8.1	10.8
ACS800-01-0006-3 + C132	380 - 415	R2	10.4	13.8
ACS800-01-0009-3 + C132	380 - 415	R2	13.2	17.6
ACS800-01-0011-3 + C132	380 - 415	R3	18	24
ACS800-01-0016-3 + C132	380 - 415	R3	24	32
ACS800-01-0020-3 + C132	380 - 415	R3	32	46
ACS800-01-0025-3 + C132	380 - 415	R4	42	62
ACS800-01-0030-3 + C132	380 - 415	R4	52	72
ACS800-01-0040-3 + C132	380 - 415	R5	68	86
ACS800-01-0050-3 + C132	380 - 415	R5	82	112
ACS800-01-0060-3 + C132	380 - 415	R5	98	138
ACS800-01-0075-3 + C132	380 - 415	R5	137	170
ACS800-01-0070-3 + C132	380 - 415	R6	134	164
ACS800-01-0100-3 + C132	380 - 415	R6	158	202
ACS800-01-0120-3 + C132	380 - 415	R6	192	282
ACS800-01-0135-3 + C132	380 - 415	R6	214	326
ACS800-01-0165-3 + C132	380 - 415	R6	247	326
ACS800-01-0205-3 + C132	380 - 415	R6	276	351

## 3. Output data for input voltage 500 V.

Type designation	Mains supply (V)	Frame size	Nominal	ratings
			I con. max (A)	I max (A)
ACS800-01-0004-5 + C132	380 - 500	R2	4.7	6.5
ACS800-01-0005-5 + C132	380 - 500	R2	5.9	8.2
ACS800-01-0006-5 + C132	380 - 500	R2	7.7	10.8
ACS800-01-0009-5 + C132	380 - 500	R2	10	13.8
ACS800-01-0011-5 + C132	380 - 500	R2	12.5	17.6
ACS800-01-0016-5 + C132	380 - 500	R3	18.5	24
ACS800-01-0020-5 + C132	380 - 500	R3	24	32
ACS800-01-0025-5 + C132	380 - 500	R3	32	46
ACS800-01-0030-5 + C132	380 - 500	R4	40	62
ACS800-01-0040-5 + C132	380 - 500	R4	46	72
ACS800-01-0050-5 + C132	380 - 500	R5	62	86
ACS800-01-0060-5 + C132	380 - 500	R5	75	112
ACS800-01-0070-5 + C132	380 - 500	R5	92	138
ACS800-01-0105-5 + C132	380 - 500	R5	137	170
ACS800-01-0100-5 + C132	380 - 500	R6	118	164
ACS800-01-0120-5 + C132	380 - 500	R6	149	202
ACS800-01-0140-5 + C132	380 - 500	R6	171	282
ACS800-01-0165-5 + C132	380 - 500	R6	214	326
ACS800-01-0205-5 + C132	380 - 500	R6	247	326
ACS800-01-0255-5 + C132	380 - 500	R6	276	351

## 4. Output data for input voltage 690 V.

Type designation	Mains supply (V)	Frame size	Nominal	ratings
			I con. max (A)	I max (A)
ACS800-01-0011-7 + C132	525 - 690	R4	12	14
ACS800-01-0016-7 + C132	525 - 690	R4	16.5	19
ACS800-01-0020-7 + C132	525 - 690	R4	21	28
ACS800-01-0025-7 + C132	525 - 690	R4	24	38
ACS800-01-0030-7 + C132	525 - 690	R4	31	44
ACS800-01-0040-7 + C132	525 - 690	R4	34	54
ACS800-01-0050-7 + C132	525 - 690	R5	48	68
ACS800-01-0060-7 + C132	525 - 690	R5	54	84
ACS800-01-0070-7 + C132	525 - 690	R6	75	104
ACS800-01-0100-7 + C132	525 - 690	R6	88	124
ACS800-01-0120-7 + C132	525 - 690	R6	107	172
ACS800-01-0145-7 + C132	525 - 690	R6	127	245
ACS800-01-0175-7 + C132	525 - 690	R6	157	245
ACS800-01-0205-7 + C132	525 - 690	R6	180	245

I con. max - rated current available continuously without overload ability at 45°C.

I max - maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature.

## Input data:

- voltage: U2in = 208 to 240 V  $\pm$  10%,  
 U3in = 380 to 415 V  $\pm$  10%,  
 U5in = 380 to 500 V  $\pm$  10%,  
 U7in = 525 to 690 V  $\pm$  10%.

- frequency: 48 - 63 Hz.  
 - power factor: 0.98

## Output data:

- voltage: 0 to U2in/U3in/U5in/U7in.  
 - frequency control: 0 to  $\pm$  300 Hz,  
 0 to  $\pm$  120 Hz (with du/dt filters)

Enclosure protection: IP 21 (standard)  
 IP 55 (option).

**2. DOCUMENTS AND DRAWINGS:**

ABB Drives drawings N°s 3AFE 6454 2257, 3AFE 6454 3164.  
Technical catalogues 3AFE 68326753REV B EN29.4.2005.

**3. TEST REPORTS:**

NEMKO test reports N°s 1021188 dated 15.02.2002, 1011062B dated 26.03.2002, 1021498 dated 28.11.2002, 1031981 dated 08.12.2003, 1032037 and 1032038 dated 07.01.2004.

VTT AUTOMATION test reports N°s AUT46-010770 dated 31.12.2001, AUT46-020054 dated 11.02.2002, TUO26-033091 dated 18.09.2003, TUO26-033092 dated 18.09.2003, TUO26-033032 dated 18.09.2003, TUO26-033445 dated 03.12.2003, TUO26-033446 dated 03.12.2003, TUO26-044024 dated 29.03.2004, VTT-S-01192-07 dated 02.02.2007, VTT-06037-07 dated 02.07.2007.

ABB Industry Oy test reports N°s 3AFE 00170923 dated 15.05.2002, 3AFE 64592777 dated 08.03.2002, 3AFE 64592157 dated 25.02.2002, 3AFE 64625390 dated 08.05.2002, 3AFE 64625403 dated 08.05.2002, 3AFE 64625420 dated 08.05.2002 and 3AFE 64625438 dated 10.05.2002, 3AFE 00572862 dated 17.01.2007, 3AFE 68821606 dated 27.01.2007, 3AFE 68998905 dated 31.03.2008.

SGS Fimko investigation reports N°s 7530 dated 05.12.2002, 7099 dated 05.07.2002, 7579 dated 16.12.2002, 7655 dated 07.01.2003 and 7839 dated 31.03.2003.

Intertek Electromagnetic Compatibility (EMC) test reports N° T08-540A-EMC dated 10.04.2008, N° T08-560A-EMC dated 23.04.2008.

**4. APPLICATION / LIMITATION:**

4.1 - According to BV Rules for the Classification of Steel Ships.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The ACS800-01 Single Drives are to be manufactured, examined and tested by ABB Oy Drives in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Arrangements shall be made for a Society's Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits when an alternative survey scheme (BV Mode I) has been agreed. Relevant Bureau Veritas certificate will be issued after satisfactory completion of the procedure.

**6. MARKING OF PRODUCT:**

- Maker's name or trade mark,
- Serial number of the units,
- Equipment type number or model identification under which it was type-tested,
- \ or @ conformity marking, as relevant.

**7. OTHERS:**

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that ABB Oy Drives, Helsinki - Finland, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 14370/B1 BV issued on 10/09/2008 by the Society.

\*\*\* END OF CERTIFICATE \*\*\*



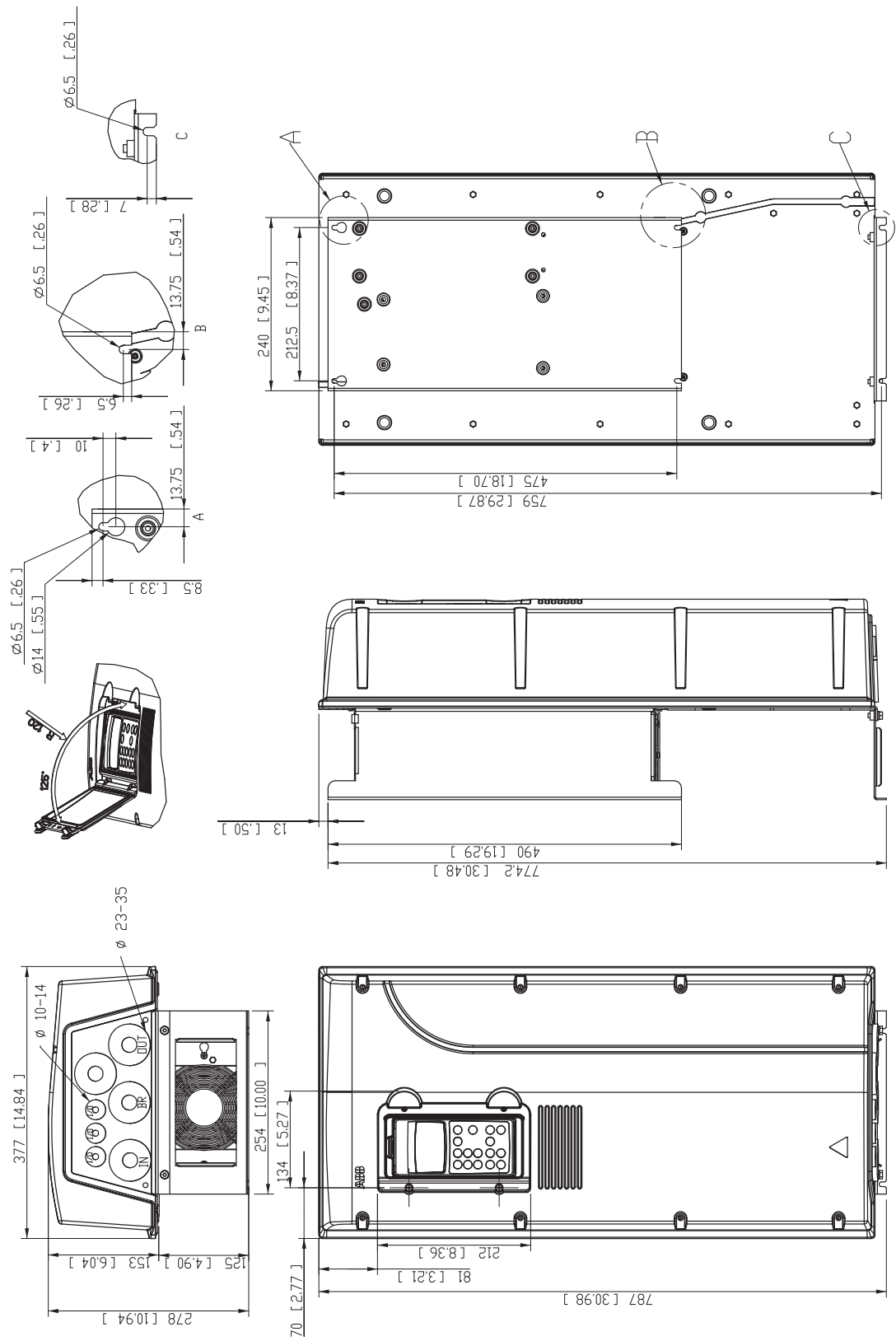


## Dimensional drawings

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The dimensions of ACS800-01+C132 units of frame sizes R4 to R6 (IP 55, UL type 12) are given in millimetres and [inches] below. For dimensional drawings of other ACS800-01/U1 types, refer to *ACS800-01/U1 Hardware Manual* (3AFE64382101 [English]).

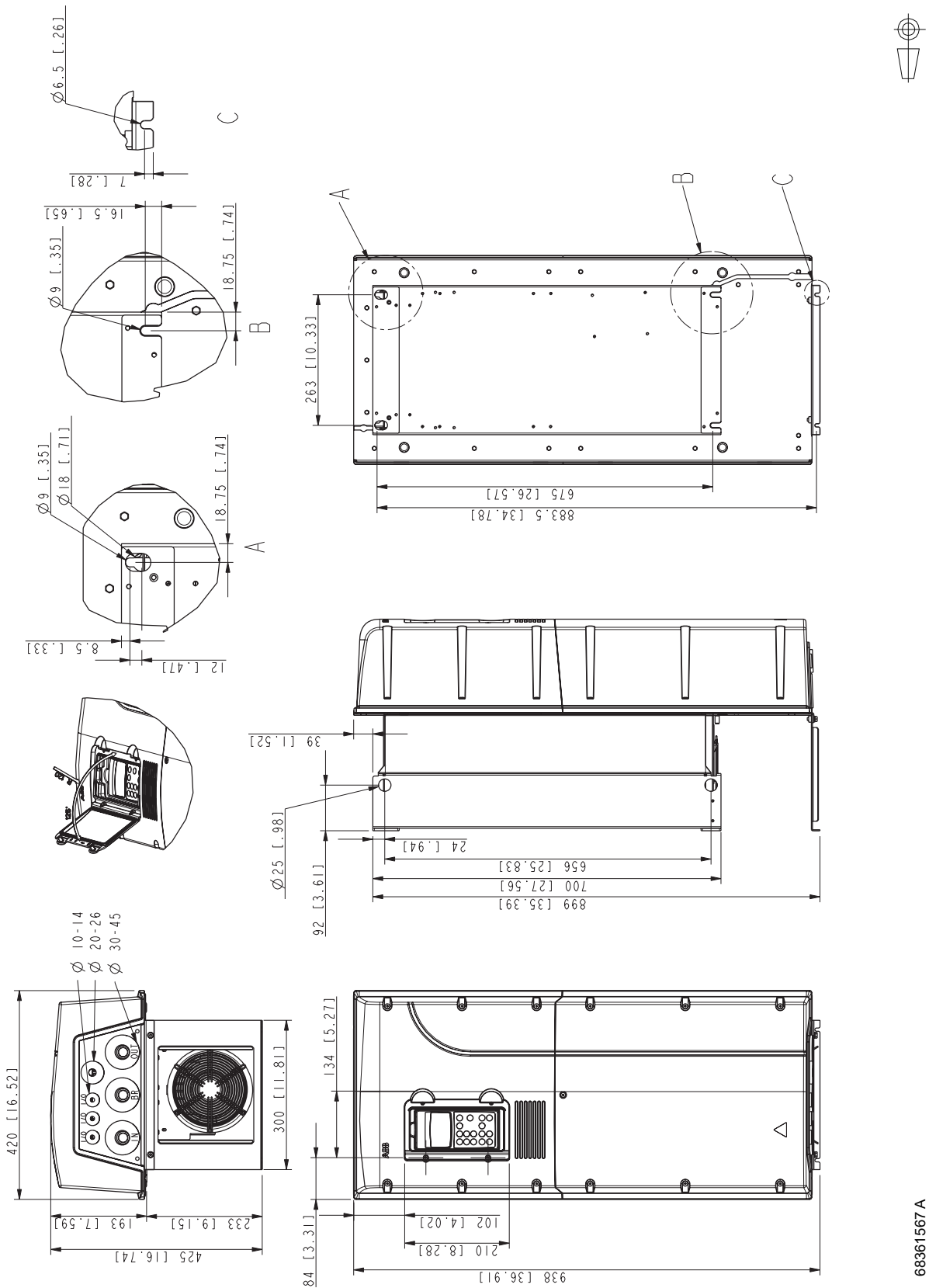
Frame size R4 (IP 55, UL type 12, +C132)



68360285



Frame size R6 (IP 55, UL type 12, +C132)





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