

## Capacitors

### Reforming

The drive DC link capacitors need to be reformed (re-aged) if the drive has been non-operational for more than one year. Without reforming, capacitors may be damaged when the drive starts to operate. It is therefore recommended to reform the capacitors once a year. See section [Serial number](#) on page 17 for how to check the date of manufacture from the serial number shown on the drive labels.

For information on reforming the capacitors, refer to *Guide for Capacitor Reforming in ACS50, ACS55, ACS150, ACS310, ACS350, ACS355, ACS550, ACH550 and R1-R4 OINT-/SINTboards* (3AFE68735190 [English]), available on the Internet (go to [www.abb.com](http://www.abb.com) and enter the code in the Search field).

### Replacement

The drive intermediate circuit employs several electrolytic capacitors. Capacitor life can be prolonged by lowering the ambient temperature.

It is not possible to predict a capacitor failure. Capacitor failure is usually followed by an input power fuse failure or a fault trip. Contact ABB if capacitor failure is suspected. Replacements for frame size R5 and R6 are available from ABB. Do not use other than ABB specified spare parts.

## Control panel

### Cleaning

Use a soft damp cloth to clean the control panel. Avoid harsh cleaners which could scratch the display window.

### Battery

A battery is only used in Assistant Control Panels that have the clock function available and enabled. The battery keeps the clock operating in memory during power interruptions.

To remove the battery, use a coin to rotate the battery holder on the back of the control panel. Replace the battery with type CR2032.

---

**Note:** The battery is NOT required for any control panel or drive function, except the clock.

---

# Technical data

---

## Ratings

By type designation, the table below provides ratings for the ACS550 adjustable speed AC drive, including:

- IEC ratings
- NEMA ratings (shaded columns)
- frame size.

### Ratings, 208...240 V drives

Abbreviated column headers are described in section [Symbols](#) on page 279.

Type ACS550-x1- see below	Normal use			Heavy-duty use			Frame size
	$I_{2N}$ A	$P_N$ kW	$P_N$ hp	$I_{2hd}$ A	$P_{hd}$ kW	$P_{hd}$ hp	
Three-phase supply voltage, 208...240 V							
-04A6-2	4.6	0.75	1	3.5	0.55	0.75	R1
-06A6-2	6.6	1.1	1.5	4.6	0.75	1	R1
-07A5-2	7.5	1.5	2	6.6	1.1	1.5	R1
-012A-2	11.8	2.2	3	7.5	1.5	2	R1
-017A-2	16.7	4	5	11.8	2.2	3	R1
-024A-2	24.2	5.5	7.5	16.7	4	5	R2
-031A-2	30.8	7.5	10	24.2	5.5	7.5	R2
-046A-2	46.2	11	15	30.8	7.5	10	R3
-059A-2	59.4	15	20	46.2	11	15	R3
-075A-2	74.8	18.5	25	59.4	15	20	R4
-088A-2	88.0	22	30	74.8	18.5	25	R4
-114A-2	114	30	40	88.0	22	30	R4
-143A-2	143	37	50	114	30	40	R6
-178A-2	178	45	60	150	37	50	R6
-221A-2	221	55	75	178	45	60	R6
-248A-2	248	75	100	192	55	75	R6

00467918.xls C

## Ratings, 380...480 V drives

Abbreviated column headers are described in section [Symbols](#) on page 279.

Type	Normal use			Heavy-duty use			Frame size
	$I_{2N}$ A	$P_N$ kW	$P_N$ hp	$I_{2hd}$ A	$P_{hd}$ kW	$P_{hd}$ hp	
Three-phase supply voltage, 380...480 V							
-03A3-4	3.3	1.1	1.5	2.4	0.75	1	R1
-04A1-4	4.1	1.5	2	3.3	1.1	1.5	R1
-05A4-4	5.4	2.2	Note 1	4.1	1.5	Note 1	R1
-06A9-4	6.9	3	3	5.4	2.2	3	R1
-08A8-4	8.8	4	5	6.9	3	3	R1
-012A-4	11.9	5.5	7.5	8.8	4	5	R1
-015A-4	15.4	7.5	10	11.9	5.5	7.5	R2
-023A-4	23	11	15	15.4	7.5	10	R2
-031A-4	31	15	20	23	11	15	R3
-038A-4	38	18.5	25	31	15	20	R3
-045A-4	45	22	30	38	18.5	25	R3
-059A-4	59	30	40	44	22	30	R4
-072A-4	72	37	50	59	30	40	R4
-078A-4	77	Note 2	60	72	Note 2	50	R4
-087A-4	87	45	Note 1	72	37	Note 1	R4
-097A-4	97	Note 2	75	77	Note 2	60	R4
-125A-4	125	55	Note 1	87	45	Note 1	R5
-125A-4	125	Note 2	100	96	Note 2	75	R5
-157A-4	157	75	125	124	55	100	R6
-180A-4	180	90	150	156	75	125	R6
-195A-4	205	110	Note 1	162	90	Note 1	R6
-246A-4	246	132	200	192	110	150	R6
-290A-4	290	160	Note 1	246	132	200	R6

00467918.xls C

1. Not available in ACS550-U1 series.
2. Not available in ACS550-01 series.

## Ratings, 500...600 V drives

Abbreviated column headers are described in section [Symbols](#) on page 279.

Type	Normal use			Heavy-duty use			Frame size
	$I_{2N}$ A	$P_N$ kW	$P_N$ hp	$I_{2hd}$ A	$P_{hd}$ kW	$P_{hd}$ hp	
Three-phase supply voltage, 500...600 V (Note 1)							
-02A7-6	2.7	1.5	2	2.4	1.1	1.5	R2
-03A9-6	3.9	2.2	3	2.7	1.5	2	R2
-06A1-6	6.1	4	5	3.9	2.2	3	R2
-09A0-6	9.0	5.5	7.5	6.1	4	5	R2
-011A-6	11	7.5	10	9.0	5.5	7.5	R2
-017A-6	17	11	15	11	7.5	10	R2
-022A-6	22	15	20	17	11	15	R3
-027A-6	27	18.5	25	22	15	20	R3
-032A-6	32	22	30	27	18.5	25	R4
-041A-6	41	30	40	32	22	30	R4
-052A-6	52	37	50	41	30	40	R4
-062A-6	62	45	60	52	37	50	R4
-077A-6	77	55	75	62	45	60	R6
-099A-6	99	75	100	77	55	75	R6
-125A-6	125	90	125	99	75	100	R6
-144A-6	144	110	150	125	90	125	R6

00467918.xls C

1. Not available in ACS550-01 series.

## Symbols

### Typical ratings:

#### Normal use (10% overload capability)

$I_{2N}$  continuous rms current. 10% overload is allowed for one minute in ten minutes.

$P_N$  typical motor power in normal use. The kilowatt power ratings apply to most IEC, 4-pole motors. The horsepower ratings apply to most 4-pole NEMA motors.

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

$I_{2hd}$  continuous rms current. 50% overload is allowed for one minute in ten minutes.

$P_{hd}$  typical motor power in heavy duty use. The kilowatt power ratings apply to most IEC, 4-pole motors. The horsepower ratings apply to most 4-pole NEMA motors.

## Sizing

The current ratings are the same regardless of the supply voltage within one voltage range. To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current. Also note that:

- the ratings apply for ambient temperature of 40 °C (104 °F)
- the maximum allowed motor shaft power is limited to  $1.5 \cdot P_{hd}$ . If the limit is exceeded, motor torque and current are automatically restricted. The function protects the input bridge of the drive against overload.

In multimotor systems, the output current of the drive must be equal to or greater than the calculated sum of the input currents of all motors.

## Derating

The load capacity (current and power) decreases for certain situations, as defined below. In such situations, where full motor power is required, oversize the drive so that the derated value provides sufficient capacity.

For example, if your application requires 15.4 A of motor current and a 8 kHz switching frequency, calculate the appropriate drive size requirement as follows:

The minimum size required =  $15.4 \text{ A} / 0.80 = 19.25 \text{ A}$

Where: 0.80 is the derating for 8 kHz switching frequency (see section [Switching frequency derating](#) on page [280](#)).

Referring to  $I_{2N}$  in the ratings tables (starting from page [277](#)), the following drives exceed the  $I_{2N}$  requirement of 19.25 A: ACS550-x1-023A-4, or ACS550-x1-024A-2.

### Temperature derating

In the temperature range +40 °C...50 °C (+104 °F...122 °F), the rated output current is decreased 1% for every 1 °C (1.8 °F) above +40 °C (+104 °F). Calculate the output current by multiplying the current given in the rating table by the derating factor.

**Example** If the ambient temperature is 50 °C (+122 °F), the derating factor is  $100\% - 1\%/^{\circ}\text{C} \cdot 10^{\circ}\text{C} = 90\%$  or 0.90.

The output current is then  $0.90 \cdot I_{2N}$  or  $0.90 \cdot I_{2hd}$ .

### Altitude derating

In altitudes 1000...4000 m (3300...13,200 ft) above sea level, the derating is 1% for every 100 m (330 ft). If the installation site is higher than 2000 m (6600 ft) above sea level, contact your local ABB representative for further information.

### Single phase supply derating

For 208...240 V series drives, a single phase supply can be used. In that case, the derating is 50%.

### Switching frequency derating

When using the 8 kHz switching frequency (parameter 2606),

- derate all rated currents and powers (including drive's overload currents) to 80%.

When using the 12 kHz switching frequency (parameter 2606),

- derate all rated currents and powers (including drive's overload currents) to 65% (to 50% for 600 V, R4 frame sizes, that is for ACS550-U1-032A-6 ... ACS550-U1-062A-6),
- derate ambient temperature maximum to 30 °C (86 °F).
- Note: The continuous maximum current is limited to  $I_{2hd}$ .

**Note:** Setting parameter 2607 SWITCH FREQ CTRL = 1 (ON) allows the drive to reduce the switching frequency if/when the drive's internal temperature exceeds 80 °C (with 12 kHz switching frequency) or 90 °C (with 8 kHz switching frequency). See the parameter description for 2607 for details.