# General + Definite Purpose Contactors

# Contactors–General Purpose and Definite Purpose

## A rugged and comprehensive range of contactors from 5 to 900 HP


*Sprecher+Schuh IEC contactors are designed and manufactured in plants that are quality certified to international standard ISO 9001*

Sprecher + Schuh's broad line of general purpose contactors combine performance and reliability in space saving designs that are well proven and used the world over. Sprecher + Schuh's IEC design is dimensionally among the smallest devices in the industry. A range of definite purpose contactors is also available, providing reliable and economic performance in commercial applications.

## Economy and selection

Four different contactor families provide 24 contactor sizes, one for practically every horsepower increment! The ability to select intermediate sizes assures a closer match for your motor and provides economy not found with traditionally sized devices. Definite purpose contactors are available in one, two, three and four pole, up to 90A.

## Precisely match the contactor to the application

Unique to IEC-style contactors is the ability to select the exact device required for a specific application. By identifying the conditions under which the contactor will be used, i.e., resistive loads, reversing, inching and plugging, etc., published "life-curve" data predicts contact life in millions of operations. This information enables you to select the precise contactor for your application… without buying too much or too little.

## Designed for long life

Destructive electrical arcs are common when opening or "breaking" the contacts of larger contactors. Sprecher + Schuh contactors in this size class are designed to dramatically reduce electrical arcing by quickly guiding the arc off of the contacts and into specially designed "arc chutes." This special design divides and eliminates the electrical arcs quickly, significantly increasing contact life and assuring reliable operation.

## Limitless choices

A comprehensive selection of modular accessories is available for all contactor families, which allows infinite contactor and starter combinations, both open and enclosed.

## Safety in mind…

Virtually all Sprecher + Schuh contactors are designed to be safe from accidental contact with the finger or back-of-hand. On the smaller contactors, terminals and set screws are recessed, while larger devices (up to Series CA6) accept terminal covers that provide protection according to VDE 0106, Part 100.

## Manufactured to rigorous quality standards

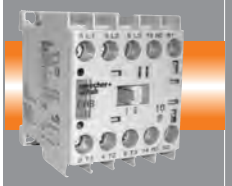
Sprecher + Schuh contactors are designed and manufactured in plants that maintain quality certification to the most rigorous international standard… ISO 9001. Sprecher + Schuh manufacturing facilities renew ISO certification every three years by passing an exacting quality assurance audit.

## International standards and approvals

All Sprecher+Schuh IEC contactors are UL Listed and CSA Approved. They also carry the CE Mark and meet IEC 60947-1 requirements. They are approved in virtually every international market.

GENERAL PURPOSE

7.5HP 50HP 60HP 700HP 900HP



## CA8 Series Contactor

- Provides commercial-grade performance for motors up to 7.5 HP
- Features low-profile design and 45mm width
- Maintains narrow width with modular, snap-on accessories
- Performs up to 700,000 electrical and 15,000,000 mechanical operations


## CA7 Series Contactor

- Covers up to 60HP industrial applications
- Features small dimensions, as little as 45mm wide
- Uses interchangeable accessories for all contactor sizes
- Provides flexibility with reversible coils for group installation
- Has dual-cage clamp lugs on CA7-30 and larger units
- Designed and tested with respect to Type 1 and 2 Coordination


## CA6 Series Contactor

- Averages 50% smaller dimensions than others in its class
- Offers 10 contactors in 4 frame sizes – up to 700 HP
- Provides extended life with arc-quenching technology
- Features enclosed and interlocked arc chambers for safety
- Includes electronic coils for 24V, 50mA electronic interface

## CA5 Series Contactor

- Covers up to 900HP applications
- Averages 40% smaller dimensions than others in its class
- Offers four contactors in three frame sizes
- Provides extended life with “bounce-free” contact system
- Mechanically interlocks vertically or horizontally
- Includes unique coil “feeder group” design on all models

DEFINITE PURPOSE

## CDP Definite Purpose Contactors

- Covers commercial applications up to 90A / 50HP
- Available in one, two, three and four pole
- Meet or exceed electrical and mechanical requirements defined by definite purpose contactor standards
- Three convenient wire connection methods

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## UL / CSA Maximum HP Rating Selection ❶

| Sprecher + Schuh Contactor Series | Maximum Horsepower | | | | | |
|---|---|---|---|---|---|---|
| | Single Phase | | Three Phase | | | |
| | 115 Volt | 230 Volt | 200 Volt | 230 Volt | 460 Volt | 575 Volt |
| CA7-9 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 |
| CA7-12 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 |
| CA7-16 | 1 | 3 | 5 | 5 | 10 | 15 |
| CA7-23 | 2 | 3 | 5 | 7-1/2 | 15 | 15 |
| CA7-30 | 2 | 5 | 7-1/2 | 10 | 20 | 25 |
| CA7-37 | 3 | 5 | 10 | 10 | 25 | 30 |
| CA7-43 | 3 | 7-1/2 | 10 | 15 | 30 | 30 |
| CA7-60 | 5 | 10 | 15 | 20 | 40 | 50 |
| CA7-72 | 5 | 15 | 20 | 25 | 50 | 60 |
| CA7-85 | 7-1/2 | 15 | 25 | 30 | 60 | 60 |
| CA6-95(-EI) | 7-1/2 | 15 | 25 | 30 | 60 | 75 |
| CA6-110(-EI) | 10 | 25 | 40 | 40 | 75 | 100 |
| CA6-140(-EI) | 15 | 30 | 40 | 50 | 100 | 125 |
| CA6-180(-EI) | ~ | 40 | 50 | 60 | 150 | 150 |
| CA6-210-EI | ~ | 50 | 60 | 75 | 150 | 200 |
| CA6-250-EI | ~ | ~ | 75 | 100 | 200 | 250 |
| CA6-300-EI | ~ | ~ | 100 | 125 | 250 | 300 |
| CA6-420-EI | ~ | ~ | 150 | 175 | 350 | 400 |
| CA5-700 | ~ | ~ | 200 | 250 | 500 | 500 |
| CA6-630-EI | ~ | ~ | 200 | 250 | 500 | 600 |
| CA5-860 | ~ | ~ | 250 | 300 | 600 | 600 |
| CA6-860-EI | ~ | ~ | 250 | 300 | 600 | 700 |
| CA5-1200 | ~ | ~ | 450 | 450 | 900 | 900 |

## NEMA Size Labeled Selection ❶

| NEMA Size | Sprecher + Schuh Contactor Series | Maximum Horsepower | | | | | |
|---|---|---|---|---|---|---|---|
| | | Single Phase | | Three Phase | | | |
| | | 115V | 230V | 200V | 230V | 460V | 575V |
| 00 | CAN7-12 | 1/3 | 1 | 1-1/2 | 1-1/2 | 2 | 2 |
| 0 | CAN7-16 | 1 | 2 | 3 | 3 | 5 | 5 |
| 1 | CAN7-37 | 2 | 3 | 7-1/2 | 7-1/2 | 10 | 10 |
| 2 | CAN7-43 | 3 | 7-1/2 | 10 | 15 | 25 | 25 |
| 3 | CAN7-85 | 7-1/2 | 15 | 25 | 30 | 50 | 50 |
| 4 | CAN6-180 | ~ | ~ | 40 | 50 | 100 | 100 |
| | CAN6-180-EI | ~ | ~ | 40 | 50 | 100 | 100 |
| 5 | CAN6-300-EI | ~ | ~ | 75 | 100 | 200 | 200 |

❶ "EI" designation indicates coil has electronic interface capability with a PLC.

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| Horsepower | 60 Hz AC Induction Motor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Single Phase | | Three Phase | | | | |
| | 115 Volt | 230 Volt | 200 Volt | 230 Volt | 380-415 Volt | 460 Volt | 575 Volt |
| **1/6** | 4.4 | 2.2 | ~ | ~ | | ~ | ~ |
| **1/4** | 5.8 | 2.9 | ~ | ~ | | ~ | ~ |
| **1/3** | 7.2 | 3.6 | ~ | ~ | | ~ | ~ |
| **1/2** | 9.8 | 4.9 | 2.5 | 2.2 | 1.3 | 1.1 | 0.9 |
| **3/4** | 13.8 | 6.9 | 3.7 | 3.2 | 1.8 | 1.6 | 1.3 |
| **1** | 16.0 | 8.0 | 4.8 | 4.2 | 2.3 | 2.1 | 1.7 |
| **1 1/2** | 20.0 | 10.0 | 6.9 | 6.0 | 3.3 | 3.0 | 2.4 |
| **2** | 24.0 | 12.0 | 7.8 | 6.8 | 4.3 | 3.4 | 2.7 |
| **3** | 34.0 | 17.0 | 11.0 | 9.6 | 6.1 | 4.8 | 3.9 |
| **5** | 56.0 | 28.0 | 17.5 | 15.2 | 9.7 | 7.6 | 6.1 |
| **7 1/2** | 80.0 | 40.0 | 25.0 | 22.0 | 14.0 | 11.0 | 9.0 |
| **10** | 100 | 50.0 | 32.0 | 28.0 | 18.0 | 14.0 | 11.0 |
| **15** | 135 | 68.0 | 48.0 | 42.0 | 27.0 | 21.0 | 17.0 |
| **20** | ~ | 88.0 | 62.0 | 54.0 | 34.0 | 27.0 | 22.0 |
| **25** | ~ | 110 | 78.0 | 68.0 | 43.0 | 34.0 | 27.0 |
| **30** | ~ | 136 | 92.0 | 80.0 | 51.0 | 40.0 | 32.0 |
| **40** | ~ | 176 | 120 | 104 | 66.0 | 52.0 | 41.0 |
| **50** | ~ | 216 | 150 | 130 | 83.0 | 65.0 | 52.0 |
| **60** | ~ | ~ | 177 | 154 | 103 | 77.0 | 62.0 |
| **75** | ~ | ~ | 221 | 192 | 128 | 96.0 | 77.0 |
| **100** | ~ | ~ | 285 | 248 | 165 | 124 | 99.0 |
| **125** | ~ | ~ | 359 | 312 | 208 | 156 | 125 |
| **150** | ~ | ~ | 414 | 360 | 240 | 180 | 144 |
| **175** | ~ | ~ | 475 | 413 | 275 | 207 | 168 |
| **200** | ~ | ~ | 552 | 480 | 320 | 240 | 192 |
| **250** | ~ | ~ | 692 | 602 | 403 | 302 | 242 |
| **300** | ~ | ~ | ~ | ~ | 482 | 361 | 289 |
| **350** | ~ | ~ | ~ | ~ | 560 | 414 | 336 |
| **400** | ~ | ~ | ~ | ~ | 636 | 477 | 382 |
| **450** | ~ | ~ | ~ | ~ | 711 | 515 | 412 |
| **500** | ~ | ~ | ~ | ~ | 786 | 590 | 472 |

The information in this chart was derived from Table 430-148 & 430-150 of the NEC and Table 50.1 of UL standard 508A. The voltages listed are rated motor voltages. The currents listed shall be permitted for system voltage ranges of 110-120, 220-240, 380-415, 440-480 and 550-600 volts.

The full-load current values are for motors running at usual speeds and motors with normal torque characteristics. Motors built for especially low speeds or high torques may have higher full-load currents, and multi-speed motors will have full-load currents varying with speed. In these cases, the nameplate current ratings shall be used.

**Caution: The actual motor amps may be higher or lower than the average values listed above. For more reliable motor protection, use the actual motor current as listed on the motor nameplate. Use this table as a guide only**

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**Table 50.2**
**Full-load motor-running currents in amperes corresponding to various DC horsepower ratings**
Table 50.2 effective April 25, 2003

| Horsepower | 90 Volts | 110-120 Volts | 180 Volts | 220-240 Volts | 500 Volts | 550-600 Volts |
|---|---|---|---|---|---|---|
| 1/10 | ~ | 2.0 | ~ | 1.0 | ~ | ~ |
| 1/8 | ~ | 2.2 | ~ | 1.1 | ~ | ~ |
| 1/6 | ~ | 2.4 | ~ | 1.2 | ~ | ~ |
| 1/4[a] | 4.0 | 3.1 | 2.0 | 1.6 | ~ | ~ |
| 1/3 | 5.2 | 4.1 | 2.6 | 2.0 | ~ | ~ |
| 1/2 | 6.8 | 5.4 | 3.4 | 2.7 | ~ | ~ |
| 3/4 | 9.6 | 7.6 | 4.8 | 3.8 | ~ | 1.6 |
| 1 | 12.2 | 9.5 | 6.1 | 4.7 | ~ | 2.0 |
| 1-1/2 | ~ | 13.2 | 8.3 | 6.6 | ~ | 2.7 |
| 2 | ~ | 17 | 10.8 | 8.5 | ~ | 3.6 |
| 3 | ~ | 25 | 16 | 12.2 | ~ | 5.2 |
| 5 | ~ | 40 | 27 | 20 | ~ | 8.3 |
| 7-1/2 | ~ | 58 | ~ | 29 | 13.6 | 12.2 |
| 10 | ~ | 76 | ~ | 38 | 18 | 16 |
| 15 | ~ | 110 | ~ | 55 | 27 | 24 |
| 20 | ~ | 148 | ~ | 72 | 34 | 31 |

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## Predicting Electrical Life

Sprecher + Schuh contactors are designed for superior performance in a wide variety of applications, by giving consideration to the specific load, utilization category and required electrical life, you can purchase exactly the type and size of contactor required. This assures reliable operation and high value the ability to very closely match the contactor to the application.

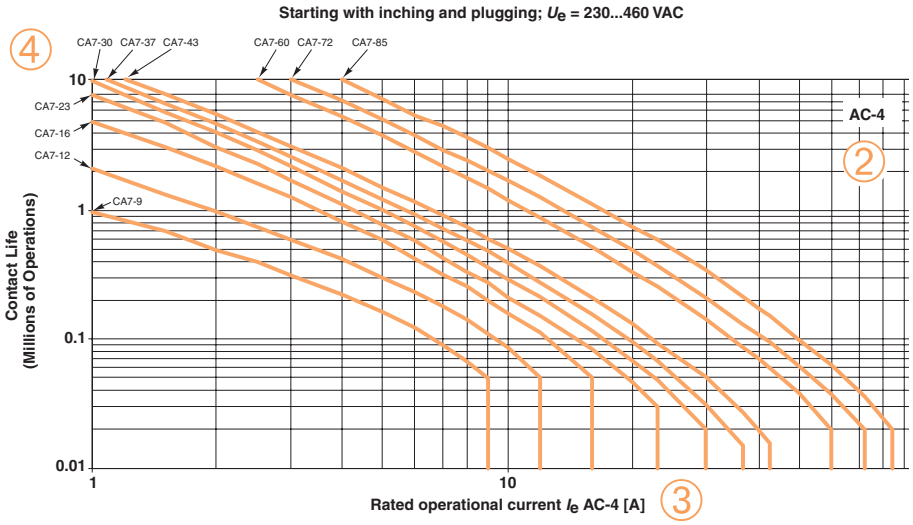
① Identify the appropriate utilization category. For this example, we will determine CA7 contact life for inching and plugging squirrel-cage motors. ❶

| Utilization Category | Definition | |
|---|---|---|
| **AC-1** | Resistance Furnaces | Non inductive or slightly inductive loads, Resistive Furnaces |
| **AC-2** | Slip-ring motors | Starting and stopping of running motors |
| **AC-3** | Squirrel-cage motors | Starting and stopping of running motors |
| **AC-4** ① | Squirrel-cage motors | Starting, plugging, and inching (Plugging is understood as stopping or reversing the motor rapidly by reversing the motor primary connections while the motor is running. Inching [or jogging] is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.) |
| **AC-15** | Electromagnets | Electromagnets for contactors, valves, solenoid actuators |

② Choose the graph for the utilization category selected. (a graph pertaining to most Utilization Categories can be found in each contactor section.)

③ Locate the Rated Operational Current (Ie) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.

④ Read the estimated contact life along the vertical axis. ❷




❶ A comprehensive list of Utilization Categories can be found in each contactor section, however, these are the primary categories used in most industrial motor applications.
❷ The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in a given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

## Determining Contact Life

To determine the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate Utilization Category from Table A.
2. On the following pages, choose the graph for the Utilization Category selected.
3. Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
4. Read the estimated contact life along the vertical axis.

## Table A – IEC Special Utilization Categories, DC Ratings ❶

| Category | Typical Applications | Rated Current | Conditions for testing electrical life | | | | | | Ops. | Conditions for testing making and breaking capacity | | | | | | Ops. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Make | | | Break | | | | Make | | | Break | | | |
| | | | *I/Ie* | *U/ue* | cos | *Ic/Ie* | *Ur/Ue* | cos | | *I/Ie* | *U/ue* | cos | *I/Ie* | *U/ue* | cos | |
| **DC-1** | Non-inductive or slightly inductive loads, resistance furnaces | All Values | 1 | 1 | 1 | 1 | 1 | 1 | | 1.5 ❷ | 1.1 ❷ | 1 ❷ | 1.5 ❷ | 1.1 ❷ | 1 ❷ | |
| **DC-2** | Shunt-motors: Starting, switching off motors during running | All Values | 2.5 | 1 | 2 | 1 | 0.1 | 7.5 | | 4 | 1.1 | 2.5 | 4 | 1.1 | 2.5 | |
| **DC-3** | Shunt motors: Starting, plugging, inching | All Values | 2.5 | 1 | 2 | 2.5 | 1 | 2 | | 4 | 1.1 | 2.5 | 4 | 1.1 | 2.5 | |
| **DC-4** | Series-motors: Starting , switching off motors during running | All Values | 2.5 | 1 | 7.5 | 1 | 0.3 | 10 | | 4 | 1.1 | 15 | 4 | 1.1 | 15 | |
| **DC-5** | Series-motors: Starting, plugging, inching | All Values | 2.5 | 1 | 7.5 | 2.5 | 1 | 7.5 | | 4 | 1.1 | 15 | 4 | 1.1 | 15 | |
| **DC-15** | Electromagnets for contactors, valves, solenoid actuators | All Values | 1 | 1 | 6 x P ❸ | 1 | 1 | 6 x P ❸ | | 1.1 | 1.1 | 6 x P ❸ | 1.1 | 1.1 | 6 x P ❸ | |

### Legend

***Ue*** Rated operational voltage
***U*** Voltage before make
***Ur*** Recovery voltage
***Ie*** Rated operational current
***I*** Making current
***Ic*** Breaking current
**L** Inductance of test circuit
**R** Resistance of test circuit

### CA7 Contactors for Elevator Duty Minimum Operational Life

| Contactor | Cycles |
|---|---|
| **CA7-09** | 500,000 ❹ |
| **CA7-12** | |
| **CA7-16** | |
| **CA7-23** | |
| **CA7-30** | |
| **CA7-37** | |
| **CA7-43** | |
| **CA7-60** | |
| **CA7-72** | |
| **CA7-85** | |

### CNX Special Purpose Contactor Minimum Operational Life in Resistive Applications

| Contactor | Cycles |
|---|---|
| **CNX-205 (C)** | 250,000 ❹ |
| **CNX-205 (C)** | |
| **CNX-206 (C)** | |
| **CNX-207 (C)** | |
| **CNX-208 (C)** | |
| **CNX-209 (C)** | 100,000 ❹ |
| **CNX-212 (C)** | |
| **CNX-218 (D)** | |

❶ Utilization categories and test conditions for AC & DC. For contactors according to IEC 158-1, starters according to IEC 292-1 ... 4 and control switches according to IEC 337-1 and IEC 337-1A.
❷ Only according to VDE.
❸ *P = Ue x Ie* rated power [W]. The value "6 x P" has been derived from an empiric relationship which covers most magnetic loads for DC up to an upper limit of P = 50W.
❹ Life data shown are the minimum test requirements per UL/CSA. Actual life in application may exceed these values.

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## Determining Contact Life

To determine the contactor's estimated electrical life, follow these guidelines:

1. Identify the appropriate Utilization Category from Table A.
2. On the following pages, choose the graph for the Utilization Category selected.
3. Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
4. Read the estimated contact life along the vertical axis.

## Table A – IEC Special Utilization Categories, AC Ratings ❶

| | Category | Typical Applications | Rated Current | Conditions for testing electrical life | | | | | | Ops. | Conditions for testing making and breaking capacity | | | | | | Ops. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Make | | | Break | | | | Make | | | Break | | | |
| | | | | *I/Ie* | *U/ue* | cos | *Ic/Ie* | *Ur/Ue* | cos | | *I/Ie* | *U/ue* | cos | *I/Ie* | *U/ue* | cos | |
| CONTACTORS | AC-1 | Non-inductive or slightly inductive loads; resistance furnaces | All values | 1 | 1 | 0.95 | 1 | 1 | 0.95 | 6000 | 1.5 | 1.05 | 0.8 | 1.5 | 1.05 | 0.8 | 50 |
| | AC-2 | Slip-ring motors: Starting, plugging | All values | 2 | 1.05 | 0.65 | 2 | 1.05 | 0.65 | 6000 | 4 | 1.05 | 0.65 | 4 | 1.05 | 0.65 | 50 |
| | AC-3 | Slip-ring motors: Starting, switching off motors during running | *Ie* 17Amp | 6 | 1 | 0.65 | 1 | 0.17 | 0.65 | 6000 | 10 | 1.1 | 0.65 | 8 | 1.1 | 0.65 | 50 |
| | | | 17Amp <*Ie* 100Amp | 6 | 1 | 0.35 | 1 | 0.17 | 0.35 | | 10 | 1.1 | 0.35 | 8 | 1.1 | 0.35 | |
| | | | *Ie*> 100Amp | 6 | 1 | 0.35 | 1 | 0.17 | 0.35 | | 8 ❷ | 1.1 | 0.35 | 6 ❸ | 1.1 | 0.35 | |
| | AC-4 | Squirrel-cage motors: Starting, plugging, inching ❺ | *Ie* 17Amp | 6 | 1 | 0.65 | 6 | 1 | 0.65 | 6000 | 12 | 1.1 | 0.65 | 10 | 1.1 | 0.65 | 50 |
| | | | 17Amp <*Ie* 100Amp | 6 | 1 | 0.35 | 6 | 1 | 0.35 | | 12 | 1.1 | 0.35 | 10 | 1.1 | 0.35 | |
| | | | *Ie*> 100Amp | 6 | 1 | 0.35 | 6 | 1 | 0.35 | | 10 ❹ | 1.1 | 0.35 | 8 ❷ | 1.1 | 0.35 | |
| | AC-5a | Switching of electric discharge lamp control | | 2 | 1.05 | 0.45 | 2 | 1.05 | 0.45 | 6000 | 3 | 1.05 | 0.45 | 3 | 1.05 | 0.45 | 50 |
| | AC-5b | Switching of incandescent lamps | | 1 | 1.05 | | 1 | 1.05 | | 6000 | 1.5 | 1.05 | | 1.5 | 1.05 | | 50 |
| | AC-6a | Switching of transformers | | | | | | | | | Rating derived from AC-3 rating (x 0.45) | | | | | | |
| | AC-6b | Switching of capacity banks | | | | | | | | | Depends on circuit conditions of application | | | | | | |
| CONTROL DEVICES | AC-12 | Control of resistive loads and solid state loads with isolation by opto couplers | All values | 1 | 1 | 0.9 | 1 | 1 | 0.9 | 6050 | | | | | | | |
| | AC-13 | Control of solid state loads with transformer isolation | | 2 | 1 | 0.65 | 1 | 1 | 0.65 | 6050 | 10 | 1.1 | 0.65 | 1.1 | 1.1 | 0.65 | 10 |
| | AC-14 | Control of small electromagnetic loads | 72 VA | 6 | 1 | 0.3 | 1 | 1 | 0.3 | 6050 | 6 | 1.1 | 0.7 | 6 | 1.1 | 0.7 | 10 |
| | AC-15 | Control of electromagnetic loads | 72 VA | 10 | 1 | 0.3 | 1 | 1 | 0.3 | 6050 | 10 | 1.1 | 0.3 | 10 | 1.1 | 0.3 | 10 |
| | AC-20 | Connecting and disconnecting under no load conditions | | No testing required | | | | | | | | | | | | | |
| SWITCHES | AC-21 | Switching or resistive loads, including moderate overloads | All values | 1 | 1 | 0.95 | 1 | 1 | 0.95 | 10000 | 1.5 | 1.05 | 0.95 | 1.5 | 1.05 | 0.95 | 5 |
| | AC-22 | Switching of mixed resistive & inductive loads, including moderate overloads | All values | 1 | 1 | 0.8 | 1 | 1 | 0.8 | 10000 | 3 | 1.05 | 0.65 | 3 | 1.05 | 0.65 | 5 |
| | AC-23 | Switching of motor loads or other highly inductive loads | All values | 1 | 1 | 0.65 | 1 | 1 | 0.65 | 10000 | 10 | 1.05 | 0.45 | 8 | 1.05 | 0.45 | 5 |

**Legend**

- ***Ue*** Rated operational voltage
- ***U*** Voltage before make
- ***Ur*** Recovery voltage
- ***Ie*** Rated operational current
- ***I*** Making current
- ***Ic*** Breaking current
- **L** Inductance of test circuit
- **R** Resistance of test circuit

❶ Utilization categories and test conditions for AC & DC. For contactors according to IEC 158-1, starters according to IEC 292-1 ... 4 and control switches according to IEC 337-1 and IEC 337-1A.
❷ With a minimum value of 1000A for *I* or *Ic*.
❸ With a minimum value of 800A for *Ic*.
❹ With a minimum value of 1200A for *I*.
❺ Plugging is understood as stopping or reversing the motor rapidly by reversing the motor primary connections while the motor is running. Inching [or jogging] is understood as energizing a motor once or repeatedly for short periods to obtain small movements of the driven mechanism.

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## Table 139.1 – Rating Codes for AC Control-Circuit Contacts at 50 and 60 Hz ❹

| Contact Rating Code Designation ❶ | Thermal continuous test current Amperes | Maximum current, amperes ❷ | | | | | | | | Maximum volt-Amperes | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 120 Volt | | 240 Volt | | 480 Volt | | 600 Volt | | | |
| | | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break |
| A150 | 10 | 60 | 6.00 | ~ | ~ | ~ | ~ | ~ | ~ | 7200 | 720 |
| A300 | 10 | 60 | 6.00 | 30 | 3.00 | ~ | ~ | ~ | ~ | 7200 | 720 |
| A600 | 10 | 60 | 6.00 | 30 | 3.00 | 15 | 1.50 | 12 | 1.20 | 7200 | 720 |
| B150 | 5 | 30 | 3.00 | ~ | ~ | ~ | ~ | ~ | ~ | 3600 | 360 |
| B300 | 5 | 30 | 3.00 | 15 | 1.50 | ~ | ~ | ~ | ~ | 3600 | 360 |
| B600 | 5 | 30 | 3.00 | 15 | 1.50 | 7.50 | 0.75 | 6 | 0.60 | 3600 | 360 |
| C150 | 2.5 | 15 | 1.5 | ~ | ~ | ~ | ~ | ~ | ~ | 1800 | 180 |
| C300 | 2.5 | 15 | 1.5 | 7.5 | 0.75 | ~ | ~ | ~ | ~ | 1800 | 180 |
| C600 | 2.5 | 15 | 1.5 | 7.5 | 0.75 | 3.75 | 0.375 | 3.00 | 0.30 | 1800 | 180 |
| D150 | 1.0 | 3.60 | 0.60 | ~ | ~ | ~ | ~ | ~ | ~ | 432 | 72 |
| D300 | 1.0 | 3.60 | 0.60 | 1.80 | 0.30 | ~ | ~ | ~ | ~ | 432 | 72 |
| E150 | 0.5 | 1.80 | 0.30 | ~ | ~ | ~ | ~ | ~ | ~ | 216 | 36 |

## Table 139.2 – Rating Codes for DC Control-Circuit Contacts ❹

| Contact Rating Code Designation ❶ | Thermal continuous test current Aamperes | Maximum make or break ❸ current, Amperes | | | Maximum make or break volt-Amperes at 300 volts or less |
|---|---|---|---|---|---|
| | | 125 Volt | 250 Volt | 301 to 600 Volt | |
| N150 | 10 | 2.2 | ~ | ~ | 275 |
| N300 | 10 | 2.2 | 1.1 | ~ | 275 |
| N600 | 10 | 2.2 | 1.1 | 0.40 | 275 |
| P150 | 5.0 | 1.1 | ~ | ~ | 138 |
| P300 | 5.0 | 1.1 | 0.55 | ~ | 138 |
| P600 | 5.0 | 1.1 | 0.55 | 0.20 | 138 |
| Q150 | 2.5 | 0.55 | ~ | ~ | 69 |
| Q300 | 2.5 | 0.55 | 0.27 | ~ | 69 |
| Q600 | 2.5 | 0.55 | 0.27 | 0.10 | 69 |
| R150 | 1.0 | 0.22 | ~ | ~ | 28 |
| R300 | 1.0 | 0.22 | 0.11 | ~ | 28 |

❶ The numerical suffix designates the maximum voltage design values, which are to be 600, 300, and 150 volts for suffixes 600, 300, and 150 respectively. Test voltage shall be 600, 250, or 125 volts.

❷ For maximum ratings at voltages between the maximum design value and 120 volts, the maximum make and break ratings are to be obtained by dividing the volt-amperes rating by the application voltage. For voltages below 120 volts, the maximum make current is to be the same as for 120 volts, and the maximum break current is to be obtained by dividing the break volt-amperes by the application voltage, but these currents are not to exceed the thermal continuous test current.

❸ For maximum ratings at 300 volts or less, the maximum make and break ratings are to be obtained by dividing the volt-ampere rating by the application voltage, but the current values are not to exceed the thermal continuous test current.

❹ Data tables extracted from UL508 Standards for Industrial Control Equipment.

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## Catalog Number Coding

Sprecher+Schuh employs a catalog number coding system for contactors (and many other devices) that follows a logical pattern, where every digit signifies a specific device attribute. Where indicated, the use of dashes (–) serves to separate device characteristics and should always be used when ordering.

The following example illustrates all of the possible combinations when specifying contactors and reversing contactors (open type only). See Section C for an explanation of the catalog number coding system for enclosed contactors and starters.

**CA** **7-30** **-** **10** **-** **120**

### *Configuration*

| | |
|---|---|
| CA | *Contactor* |
| CAU | *Reversing Contactor* |
| CAQ | *Capacitor Switching Contactor* |
| CAN | *NEMA Labeled Contactor* |
| CA(V)L | *Lighting Contactor* |
| CNX | *Special Purpose Contactor* |

### *Contactor Series*

| Series CA8 | Series CA6-❷ |
|---|---|
| 8-09(C) | 6-95(-EI) |
| 8-12(C) | 6-110(-EI) |
| | 6-140(-EI) |
| Series CA7 ❶ | 6-180(-EI) |
| 7-9(C,D,E) | 6-210-EI |
| 7-12(C,D,E) | 6-250-EI |
| 7-16(C,D,E) | 6-300-EI |
| 7-23(C,D,E) | 6-420-EI |
| 7-30(C,D,E) | 6-630-EI |
| 7-37(C,D,E) | 6-860-EI |
| 7-43(C,D,E) | |
| 7-60(C,D) | Series CA5 |
| 7-72(C,D) | 5-700 |
| 7-85(C,D) | 5-860 |
| | 5-1000 |
| | 5-1200 |

### *Auxiliary Contacts*

| | |
|---|---|
| -10 | *N.O. Auxiliary* |
| -01 | *N.C. Auxiliary* |
| -11 | *N.O. & N.C. Auxiliary* |
| -00 | *No Auxiliaries* |

4-pole CA7 & CA8 Contactors ❸

| | |
|---|---|
| -M40 | *4 N.O. Power Poles* |
| -M31 | *3 N.O. Power Poles/ 1 N.C. Power Pole* |
| -M22 | *2 N.O. Power Poles/ 2 N.C. Power Poles* |

### *Coil Code*

| AC | DC |
|---|---|
| 24(Z) | 12D(D) |
| 24E | 24D(D) |
| 110 | 48D(D) |
| 120 | 110D(D) |
| 208 | 220D(D) |
| 220 | |
| 220W | |
| 240 | No Coil |
| 277 | XXX |
| 380 | (CA5 contactors only) |
| 440 | |
| 480 | |
| 575 | |
| 600 | |

**This illustration is for reference only.**

**Turn to the appropriate page to determine specific catalog number & pricing.**

❶ (C, D, & E) suffix designates DC contactors. (Y) suffix indicates two contactor Wye-Delta contactors.
❷ (-EI) suffix indicates electronic coil. Optional on CA6-95…180, standard on CA6-210…860.
❸ On four pole contactors, this number designates main power pole configuration.

SSNA9000

# *Series CA8 Contactors and CAT8 Starters*

## An ingenious miniature contactor and starter system

Sprecher + Schuh's CA8 Series of miniature contactors and starters provide an extremely compact and reliable method of controlling motors of 7.5 HP or less (@460V). The CA8 is an economical choice for applications where space is limited or where a minimal enclosure is desired.

## Small but rugged

Even though their contacts and coils are not replaceable, Sprecher + Schuh has subjected this series of contactors to monitored endurance tests that demonstrate their ruggedness. At full load, under 3-phase power, the contacts in the CA8 have an electrical life of 700,000 operations, while the AC magnet system has a mechanical life of 15,000,000 operations.

## The CAT8 Starter – Efficient and reliable

This miniature starter features the new CT8 Thermal Overload Relay. A complex current limiting calibration procedure performed after each unit ensures the consistent high quality of Sprecher + Schuh's thermal overload relay. Today's Class 10 T-frame design, like the CT Series, has been recognized by many motor manufacturers as the ideal type to assure optimum motor protection due to less use of copper and iron.

*CAT8 starters feature the CT8 thermal overload.*

## Accessories require no additional panel space

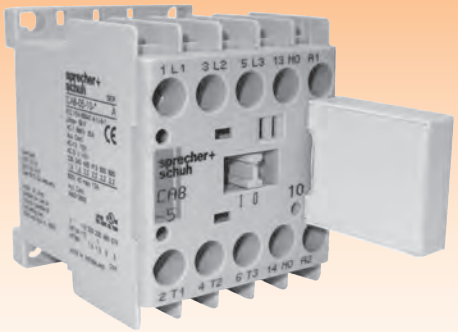
The entire CA8 System is logically engineered. Modular accessories like auxiliary contact blocks snap-on without increasing the CA8's original width of 45mm. Also, due to its horizontal switching movement, the basic contactor has the same low profile whether an AC or DC operating magnet is used. This permits the use of enclosures with shallow mounting depths. Once the CA8 is installed, all auxiliary contact blocks can be snapped-on or removed without changing any existing power wiring. Other accessories include a snap-on RC Link (surge suppressor), mechanical interlocks and space saving adaptors for connecting auxiliary components.

## Effortless installation

Both the CA8 Contactor and the CAT8 Starter are DIN-rail mountable for instant installation and modification. Fittings are also included on the CA8 for base mounting. All terminals are clearly marked and shipped in the open position for installation with either manual or power screwdrivers.

# *Series CA8 Miniature Contactors, Starters, Overloads & Industrial Relays*


- ✔ Rated 690V
- ✔ RoHs Compliant
- ✔ Conforming to U.S., Canadian, and IEC Standards
- ✔ Same Dimensions for AC and DC



## Pluggable Surge Suppressor Modules

- ➢ Suppressor modules are simply plugged on the front of the contactors, next to the auxiliary contact blocks.
- ➢ No wiring required.
- ➢ Fast and easy installation.

## Auxiliary Contact Reliability

- ➢ Bifurcated, AgNi (silver/nickel) plated contacts for high contact reliability for 15V/2 mA electronic signals.
- ➢ H-shaped self cleaning auxiliary contacts provide a 4-way current path ensure high contact reliability for low energy switching.

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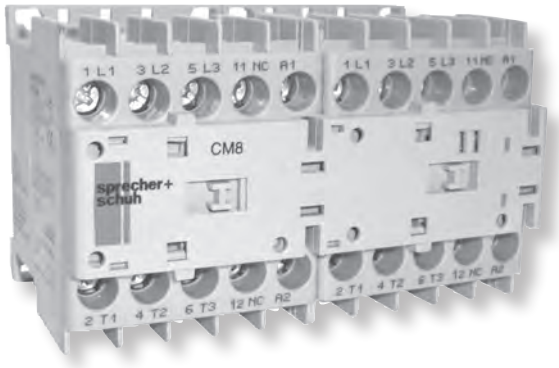
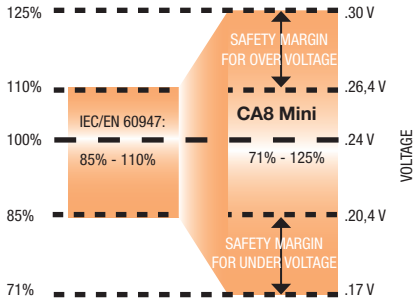
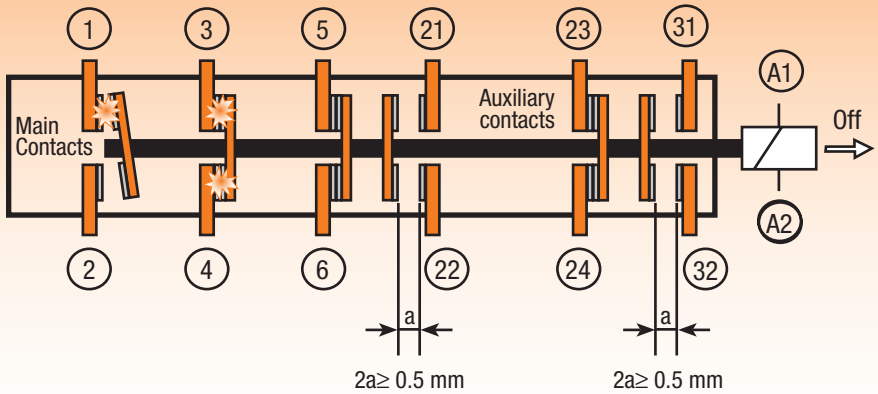



## High Performance AC & DC Coils

- Wide range DC coils can provide reliability in case of over- and under-voltage, a common issue with battery-fed control power supply systems.
- The low coil consumption allows the contactors to be directly controlled via a PLC.
- Optional, integral factory-installed surge suppressor modules for AC and DC for limiting coil switching transients.

**MIRROR AND MECHANICALLY LINKED DESIGN**




## All Around Safety

- CA8: mechanically linked performance between main contacts and internal auxiliary contacts. This feature provides status feedback in the event of a contact weld.
- CA8/Auxiliary contacts: mirror contact between main and auxiliary contacts as per IEC 60947-4-1 prevent any unclear status indications if a N.O. power pole welds.

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## Non-Reversing, Three Pole Contactors With AC Coil, Series CA8 (Open type only) ❶

| $I_e$ [A] 40ºC AC-1 | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3 Ø kW** (50 Hz) | | | | **UL/CSA HP** (60 Hz) | | | | | | | | | |
| | | | | | **1 Ø** | | **3 Ø** | | | | | | | |
| | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | **1/2** | **1-1/2** | **2** | **2** | **5** | **5** | 1 | 0 | **CA8-09-10-✱** | **109** |
| | | | | | | | | | | | 0 | 1 | **CA8-09-01-✱** | **109** |
| 20 | 3 | 5.5 | 5.5 | 5.5 | **3/4** | **2** | **3** | **3** | **7-1/2** | **7-1/2** | 1 | 0 | **CA8-12-10-✱** | **132** |
| | | | | | | | | | | | 0 | 1 | **CA8-12-01-✱** | **132** |

*CA8-09-10 contactor*

## Non-Reversing, Three Pole Contactors With DC Coil, Series CA8 (Open type only) ❶❷

| $I_e$ [A] 40ºC AC-1 | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **3 Ø kW** (50 Hz) | | | | **UL/CSA HP** (60 Hz) | | | | | | | | | |
| | | | | | **1 Ø** | | **3 Ø** | | | | | | | |
| | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | **1/2** | **1-1/2** | **2** | **2** | **5** | **5** | 1 | 0 | **CA8-09C-10-✱** | **134** |
| | | | | | | | | | | | 0 | 1 | **CA8-09C-01-✱** | **134** |
| 20 | 3 | 5.5 | 5.5 | 5.5 | **3/4** | **2** | **3** | **3** | **7-1/2** | **7-1/2** | 1 | 0 | **CA8-12C-10-✱** | **166** |
| | | | | | | | | | | | 0 | 1 | **CA8-12C-01-✱** | **166** |

## AC Coil Codes ❶❸

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **12** | 12V | 12V |
| **24Z** | **24V** | **24V** |
| **48Z** | 48V | 48V |
| **120** | **110V** | **120V** |
| **208** | 200V-220V | 208V-240V |
| **240** | 240V | 240V |
| **380 ❺** | Use Coil Code 400 | |
| **400 ❺** | 400V | 400V |
| **480** | **440V** | **480V** |
| **575 ❻** | Use Coil Code 600 | |
| **600 ❻** | 525V | 600V |

## DC Coil Codes ❶❸

| DC Coil Code | Voltage |
|---|---|
| **12D** | 12V |
| **24D** | **24V ❹** |
| **110D** | 110V |
| **125D** | 125V |
| **220D** | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if special voltages, are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CA8-09C-10-**24D** becomes CA8-09C-10-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

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## Non-Reversing, Four Pole Contactors With AC Coil, Series CA8 (Open type only) ❶❹

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3) | | | | | | | | | | Contact configuration main poles | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 4 | 0 | CA8-09-M40-✱ | 109 |
| | | | | | | | | | | | 3 | 1 | CA8-09-M31-✱ | 122 |
| | | | | | | | | | | | 2 | 2 | CA8-09-M22-✱ | 122 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 4 | 0 | CA8-12-M40-✱ | 134 |
| | | | | | | | | | | | 3 | 1 | CA8-12-M31-✱ | 144 |
| | | | | | | | | | | | 2 | 2 | CA8-12-M22-✱ | 144 |

*CA8-09-M40 contactor*

## Non-Reversing, Four Pole Contactors With DC Coil, Series CA8 (Open type only) ❶❷❹

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3) | | | | | | | | | | Contact configuration main poles | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 4 | 0 | CA8-09C-M40-✱ | 134 |
| | | | | | | | | | | | 3 | 1 | CA8-09C-M31-✱ | 147 |
| | | | | | | | | | | | 2 | 2 | CA8-09C-M22-✱ | 147 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 4 | 0 | CA8-12C-M40-✱ | 167 |
| | | | | | | | | | | | 3 | 1 | CA8-12C-M31-✱ | 179 |
| | | | | | | | | | | | 2 | 2 | CA8-12C-M22-✱ | 179 |

## AC Coil Codes ❶❸

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| 12 | 12V | 12V |
| 24Z | 24V | 24V |
| 48Z | 48V | 48V |
| 120 | 110V | 120V |
| 208 | 200V-220V | 208V-240V |
| 240 | 240V | 240V |
| 380 ❻ | Use Coil Code 400 | |
| 400 ❻ | 400V | 400V |
| 480 | 440V | 480V |
| 575 ❼ | Use Coil Code 600 | |
| 600 ❼ | 525V | 600V |

## DC Coil Codes ❶❸

| DC Coil Code | Voltage |
|---|---|
| 12D | 12V |
| 24D | 24V ❺ |
| 110D | 110V |
| 125D | 125V |
| 220D | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | See Coil Codes on this page |

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages.
❹ No auxiliary contacts provided in the base of a CA8. Add auxiliaries from page A19.
❺ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CA8-09C-10-**24D** becomes CA8-09C-10-**24DD**.
❻ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❼ Use this code for 575V applications.

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## Reversing, Three Pole Contactors With AC Coil, Series CAU8 (Open type only) ❶❷

| $I_e$ [A] 40ºC AC-1 | Ratings for Switching AC Motors (AC2 / AC3 / AC4) 3 Ø kW (50 Hz) 230V | 400V 415V | 500V | 690V | UL/CSA HP (60 Hz) 1 Ø ❼ 115V | 1 Ø ❼ 230V | 3 Ø 200V | 3 Ø 230V | 3 Ø 460V | 3 Ø 575V | Auxiliary Contacts per Contactor NO | NC | Open Type Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 0 | 1 | CAU8-09-02-✱-LW | 253 |
| | | | | | | | | | | | 2 | 1 | CAU8-09-42-✱-PW | 295 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 0 | 1 | CAU8-12-02-✱-LW | 318 |
| | | | | | | | | | | | 2 | 1 | CAU8-12-42-✱-PW | 360 |

***CAU8…LW Includes:***

- Mechanical interlock (CM8)

***CAU8…PW Includes:***

- Mechanical and electrical interlock (CM8) ❷
- Reversing power and control wiring (using Wiring Kit Cat.# CAUT8-PW)
- Top mount auxiliary contact block (Cat.# CA8-P20 on the -42- models)

## Reversing, Three Pole Contactors With DC Coil, Series CAU8 (Open type only) ❶❷

| $I_e$ [A] 40ºC AC-1 | Ratings for Switching AC Motors (AC2 / AC3 / AC4) 3 Ø kW (50 Hz) 230V | 400V 415V | 500V | 690V | UL/CSA HP (60 Hz) 1 Ø ❼ 115V | 1 Ø ❼ 230V | 3 Ø 200V | 3 Ø 230V | 3 Ø 460V | 3 Ø 575V | Auxiliary Contacts per Contactor NO | NC | Open Type Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 0 | 1 | CAU8-09C-02-✱-LW | 337 |
| | | | | | | | | | | | 2 | 1 | CAU8-09C-42-✱-PW | 379 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 0 | 1 | CAU8-12C-02-✱-LW | 419 |
| | | | | | | | | | | | 2 | 1 | CAU8-12C-42-✱-PW | 460 |

## AC Coil Codes ❶❸

| AC Coil Code | Voltage Range 50 Hz | 60 Hz |
|---|---|---|
| 12 | 12V | 12V |
| 24Z | 24V | 24V |
| 48Z | 48V | 48V |
| 120 | 110V | 120V |
| 208 | 200V-220V | 208V-240V |
| 240 | 240V | 240V |
| 380 ❺ | Use Coil Code 400 | |
| 400 ❺ | 400V | 400V |
| 480 | 440V | 480V |
| 575 ❻ | Use Coil Code 600 | |
| 600 ❻ | 525V | 600V |

## DC Coil Codes ❶❸

| DC Coil Code | Voltage |
|---|---|
| 12D | 12V |
| 24D | 24V ❹ |
| 110D | 110V |
| 125D | 125V |
| 220D | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Internal NC contacts on each contactor are used for electrical interlocking.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $84 to list price. Ex: CAU8-09C-02-**24D** becomes CAU8-09C-02-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.
❼ Does not apply to CAU8...-PW.

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## Non-Reversing, Three Pole Starters With AC Coil, Series CAT8 (Open type only) ❶

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 1 | 0 | **CAT8-09-10-✱-◆** | 179 |
| | | | | | | | | | | | 0 | 1 | **CAT8-09-01-✱-◆** | 179 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 1 | 0 | **CAT8-12-10-✱-◆** | 209 |
| | | | | | | | | | | | 0 | 1 | **CAT8-12-01-✱-◆** | 209 |

*Representative model of a CAT8-09… starter with the CT8 bimetallic overload relay*

## Non-Reversing, Three Pole Starters With DC Coil, Series CAT8 (Open type only) ❶❷

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 5 | 1 | 0 | **CAT8-09C-10-✱-◆** | 204 |
| | | | | | | | | | | | 0 | 1 | **CAT8-09C-01-✱-◆** | 204 |
| 20 | 3 | 5.5 | 5.5 | 5.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 7-1/2 | 1 | 0 | **CAT8-12C-10-✱-◆** | 245 |
| | | | | | | | | | | | 0 | 1 | **CAT8-12C-01-✱-◆** | 245 |

***NOTE:*** CAT8 starters are priced to include Sprecher + Schuh's economical CT8 bimetallic overload relay. See page A21 for selection.

## AC Coil Codes ❶❸

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **12** | 12V | 12V |
| **24Z** | **24V** | **24V** |
| **48Z** | 48V | 48V |
| **120** | **110V** | **120V** |
| **208** | 200V-220V | 208V-240V |
| **240** | 240V | 240V |
| **380 ❺** | Use Coil Code 400 | |
| **400 ❺** | 400V | 400V |
| **480** | **440V** | **480V** |
| **575 ❻** | Use Coil Code 600 | |
| **600 ❻** | 525V | 600V |

## DC Coil Codes ❶❸

| DC Coil Code | Voltage |
|---|---|
| **12D** | 12V |
| **24D** | **24V ❹** |
| **110D** | 110V |
| **125D** | 125V |
| **220D** | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code<br>Replace (◆) with O/L Relay Code | **Coil Codes on this page**<br>**O/L Relay Code on A21** |

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ Select Coil Code from DC Coil Code table only.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $42 to list price. Ex: CAT8-09C-10-**24D** becomes CAT8-09C-10-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

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## Reversing, Three Pole Starters With AC Coil, Series CAUT8 (Open type only) ❶❷

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | ~ | ~ | 2 | 2 | 5 | 5 | 0 | 1 | **CAUT8-09-02-✱-◆-LW** | **323** |
| | | | | | | | | | | | 2 | 1 | **CAUT8-09-42-✱-◆-PW** | **365** |
| 20 | 3 | 5.5 | 5.5 | 5.5 | ~ | ~ | 3 | 3 | 7-1/2 | 7-1/2 | 0 | 1 | **CAUT8-12-02-✱-◆-LW** | **395** |
| | | | | | | | | | | | 2 | 1 | **CAUT8-12-42-✱-◆-PW** | **437** |

## Reversing, Three Pole Starters With DC Coil, Series CAUT8 (Open type only) ❶❷

| $I_e$ [A] 40ºC | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3 Ø kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 20 | 3 | 4 | 4 | 4 | ~ | ~ | 2 | 2 | 5 | 5 | 0 | 1 | **CAUT8-09C-02-✱-◆-LW** | **414** |
| | | | | | | | | | | | 2 | 1 | **CAUT8-09C-42-✱-◆-PW** | **456** |
| 20 | 3 | 5.5 | 5.5 | 5.5 | ~ | ~ | 3 | 3 | 7-1/2 | 7-1/2 | 0 | 1 | **CAUT8-12C-02-✱-◆-LW** | **496** |
| | | | | | | | | | | | 2 | 1 | **CAUT8-12C-42-✱-◆-PW** | **538** |

***CAUT8…LW Includes:***

- Mechanical interlock
- Utilizes CT8 bimetallic overload relay. Select code from page A21.

***CAUT8…PW Includes:***

- Mechanical and electrical interlock ❷
- Utilizes CT8 bimetallic overload relay. Select code from page A21.
- Reversing power and control wiring (using Wiring Kit Cat.# CAUT8-PW)
- Top mount auxiliary contact block (Cat.# CA8-P20 on the -42- models)

## AC Coil Codes ❶❸

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **12** | 12V | 12V |
| **24Z** | **24V** | **24V** |
| **48Z** | 48V | 48V |
| **120** | **110V** | **120V** |
| **208** | 200V-220V | 208V-240V |
| **240** | 240V | 240V |
| **380 ❺** | Use Coil Code 400 | |
| **400 ❺** | 400V | 400V |
| **480** | **440V** | **480V** |
| **575 ❻** | Use Coil Code 600 | |
| **600 ❻** | 525V | 600V |

## DC Coil Codes ❶❸

| DC Coil Code | Voltage |
|---|---|
| **12D** | 12V |
| **24D** | **24V ❹** |
| **110D** | 110V |
| **125D** | 125V |
| **220D** | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code<br>Replace (◆) with O/L Relay Code | **Coil Codes on this page**<br>**O/L Relay Code on A21** |

❶ CA8 not available without coil. Coils and contacts not replaceable.
❷ NC contacts on each contactor are used for electrical interlocking.
❸ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages are required.
❹ Integrated diode surge suppressor coils available. Order coil code **24DD** and add $84 to list price. Ex: CAUT8-09C-02-**24D** becomes CAUT8-09C-02-**24DD**.
❺ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
❻ Use this code for 575V applications.

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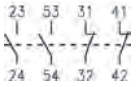
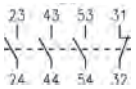
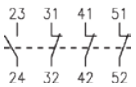
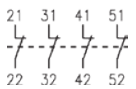
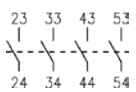
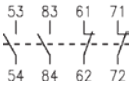
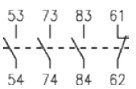
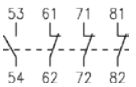
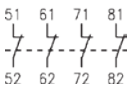
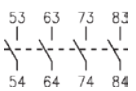
## Auxiliary Contact Blocks (2 & 4 Pole) ❶

| Auxiliary Contact Blocks | NO | NC | Contact Arrangement | Catalog No. | Price |
|---|---|---|---|---|---|
|  *2-Pole* | 1 | 1 |  | **CA8-P11** | |
| | 0 | 2 |  | **CA8-P02** | **27** |
| | 2 | 0 |  | **CA8-P20** | |
| *Typical auxiliary contact block* | 2 | 2 |  | **CA8-P22** | |
| | 3 | 1 |  | **CA8-P31** | |
|  *4-Pole* | 1 | 3 |  | **CA8-P13** | **54** |
| | 0 | 4 |  | **CA8-P04** | |
| | 4 | 0 |  | **CA8-P40** | |

| Auxiliary Contact Blocks | NO | NC | Contact Arrangement | Catalog No. | Price |
|---|---|---|---|---|---|
|  *2-Pole* | 1 | 1 |  | **CS8-P11E** | |
| | 0 | 2 |  | **CS8-P02E** | **27** |
| | 2 | 0 |  | **CS8-P20E** | |
| *Typical auxiliary contact block* | 2 | 2 |  | **CS8-P22Z** | |
| | 3 | 1 |  | **CS8-P31Z** | |
|  *4-Pole* | 1 | 3 |  | **CS8-P13E** | **54** |
| | 0 | 4 |  | **CS8-P04E** | |
| | 4 | 0 |  | **CS8-P40E** | |

❶ Auxiliary contacts mirror contact performance per IEC 60947-4-1. Contacts are bifurcated (H-bridge) with a minimum rating of 2mA @ 15V.

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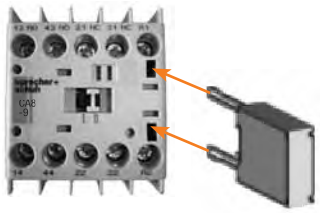
## Miscellaneous Accessories

| Accessory | Description | Catalog Number | Price |
|---|---|---|---|
|  | **Surge Suppressor CR__8 -** for limiting voltage spikes when switching off coil. Coil itself provides sufficient limitation at voltages over 240V.<br>RC Link (Type CRC8…) for AC Control<br>24-48VAC<br>110-280VAC<br>380-480VAC | **CRC8-50**<br>**CRC8-280**<br>**CRC8-480** | 33 |
| | Diode Link (Type CRD8…) for DC Control ❶<br>12-250VDC (diode) | **CRD8-250** | 33 |
| | Varistor Link (Type CRV8…) for AC/DC Control<br>12-55VAC/12-77VDC<br>56-136VAC/78-180VDC<br>137-277VAC/181-250VDC | **CRV8-55**<br>**CRV8-136**<br>**CRV8-277** | 22 |
|  | **Mechanical Interlock Kit -**<br>For interlocking of two adjacent contactor<br>– without additional space requirement in width<br>– attachable from the front (top) of contactor<br>– optional auxiliary contact blocks can be mounted on the top (does not interfere with mounting CR__8) | **CM8** | 12 |
|  | **Wiring Kit -**<br>For connecting line, load and control wiring of a CAU8 reversing contactor.<br>– works with CT8 Overloads | **CAUT8-PW** | 15 |
|  | **Connection Modules -**<br>For KTA7 motor circuit controller with a CA8 contactor. | **KT7-25S-PEK12** | 40 |
|  | **Feeder Terminal for Compact Bus Bars -**<br>Supply of compact bus bars.<br>For use with CA8-09 and CA8-12<br>34 Amps max. | **CA8-WT** | 42 |
|  | **Three-Phase Compact Bus Bars -**<br>For use with CA8-09 and CA8-12 Contactors with 45 mm spacing. (3 connections)<br>34 Amps max. | **CA8-W453** | 50 |
|  | **Three-Phase Compact Bus Bars -**<br>For use with CA8-09 and CA8-12 Contactors with 45 mm spacing. (4 connections)<br>34 Amps max. | **CA8-W454** | 59 |

❶ CA8 contactors with 24 VDC coils can be special ordered with integrated diodes (built-in) rather than applying CRD8 to the coil terminals.

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## CAT8 Starters with CT8 Thermal Overload Relay

| For use with contactor.... | Amp Range | Overload Relay Code (◆) | Catalog Number (of Overload Relay used) | Price Adder |
|---|---|---|---|---|
| **CT8 Thermal Overload Relay, 1 or 3-Phase, Auto/Manual, Class 10** | | | | |
| CA8-09 | 0.10…0.16 | **8A16** | **CT8-A16** | **Standard** |
| | 0.16...0.25 | **8A25** | **CT8-A25** | **Standard** |
| | 0.25...0.4 | **8A40** | **CT8-A40** | **Standard** |
| | 0.35...0.5 | **8A50** | **CT8-A50** | **Standard** |
| | 0.45...0.63 | **8A63** | **CT8-A63** | **Standard** |
| | 0.55...0.8 | **8A80** | **CT8-A80** | **Standard** |
| | 0.75...1.0 | **8B10** | **CT8-B10** | **Standard** |
| | 0.90...1.3 | **8B13** | **CT8-B13** | **Standard** |
| | 1.10...1.6 | **8B16** | **CT8-B16** | **Standard** |
| | 1.4...2.0 | **8B20** | **CT8-B20** | **Standard** |
| | 1.8...2.5 | **8B25** | **CT8-B25** | **Standard** |
| | 2.3...3.2 | **8B32** | **CT8-B32** | **Standard** |
| | 2.9...4.0 | **8B40** | **CT8-B40** | **Standard** |
| | 3.5...4.8 | **8B48** | **CT8-B48** | **Standard** |
| | 4.5...6.3 | **8B63** | **CT8-B63** | **Standard** |
| | 5.5...7.5 | **8B75** | **CT8-B75** | **Standard** |
| CA8-09 or 12 | 7.2...10 | **8C10** | **CT8-C10** | **Standard** |
| CA8-12 | 9.0...12.5 | **8C12** | **CT8-C12** | **Standard** |

## Obsolete Contactors Cross Reference, Series CA4 to Series CA8 (Open Type Only)

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | Auxiliary Contacts per Contactor | | Series CA4 Obsolete | Series CA8 Replacement |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **kW** (50 Hz) | | | **UL/CSA HP** (60 Hz) | | | | | | | | | |
| | | | | | **1 Ø** | | **3 Ø** | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | **Catalog Number** | **Catalog Number** |
| 9 | 20 | 3 | 4 | 4 | **1/2** | **1-1/2** | **2** | **2** | **5** | **5** | 1 | 0 | **CA4-9-10** | |
| | | | | | | | | | | | 0 | 1 | **CA4-9-01** | |
| ~ | 20 | 3 | 4 | 4 | **1/2** | **1-1/2** | **2** | **2** | **5** | **5** | 1 | 0 | | **CA8-09-10** |
| | | | | | | | | | | | 0 | 1 | | **CA8-09-01** |
| 12 | 20 | 3 | 5.5 | 4 | **1/2** | **2** | **3** | **3** | **7-1/2** | **10** | 1 | 0 | **CA4-12-10** | |
| | | | | | | | | | | | 0 | 1 | **CA4-12-01** | |
| ~ | 20 | 3 | 5.5 | 5.5 | **3/4** | **2** | **3** | **3** | **7-1/2** | **7-1/2** | 1 | 0 | | **CA8-12-10** |
| | | | | | | | | | | | 0 | 1 | | **CA8-12-01** |

*CA4-9-10 Contactor*

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## Technical Information

| | | | | CA8-09 | CA8-12 |
|---|---|---|---|---|---|
| **Rated Insulation Voltage $U_i$** | | | | | |
| to IEC947-1 | | | [V] | 690V | |
| UL/CSA | | | [V] | 600V | |
| **Rated Impulse Voltage Withstand $U_{imp}$** | | | [kV] | 6 | |
| **Rated Voltage Ue-Main Contacts** | | | | | |
| AC 50/60Hz | | | [V] | 230, 240, 400, 415, 500, 690 | |
| DC | | | [V] | 24, 48, 110, 220, 440 | |
| **Operating Frequency for AC Loads** | | | [Hz] | 50/60Hz | |
| **Switching Motor Loads** | | | | | |
| **Standard IEC Ratings** | | | | | |
| **AC-2, AC-3, AC-4** | | 230V | [A] | 11.3 | 11.3 |
| DOL & Reversing | | 240V | [A] | 11.3 | 11.3 |
| 50Hz@60˚ C | | 400V | [A] | 8.5 | 11.5 |
| | | 415V | [A] | 8.5 | 11.5 |
| | | 500V | [A] | 6.8 | 9.2 |
| | | 690V | [A] | 4.9 | 6.7 |
| | | 230V | [kW] | 3 | 3 |
| | | 240V | [kW] | 3 | 3 |
| | | 400V | [kW] | 4 | 5.5 |
| | | 415V | [kW] | 4 | 5.5 |
| | | 500V | [kW] | 4 | 5.5 |
| | | 690V | [kW] | 4 | 5.5 |
| **UL/CSA** | | 115V | [A] | 9.8 | 13.8 |
| DOL & Reversing | 1∅ | 230V | [A] | 10 | 12 |
| 60Hz | | 115V | [HP] | 0.5 | 0.75 |
| | | 230V | [HP] | 1.5 | 2 |
| | | 200V | [A] | 7.8 | 11 |
| | | 230V | [A] | 6.8 | 9.6 |
| | | 460 V | [A] | 7.6 | 11 |
| | 3∅ | 575 V | [A] | 6.1 | 9 |
| | | 200 V | [HP] | 2 | 3 |
| | | 230 V | [HP] | 2 | 3 |
| | | 460 V | [HP] | 5 | 7.5 |
| | | 575 V | [HP] | 5 | 7.5 |
| **Maximum Operating Rate** | | AC2 | [ops/hour] | 300 | 300 |
| At 9A for AC3; 20A for AC2/4 | | AC3 | [ops/hour] | 600 | 600 |
| Starting time $t_A$ = 0.25s | | AC4 | [ops/hour] | 300 | 300 |
| **AC4** (200,000 Op. Cycles) | | 230V | [A] | 3.9 | 3.9 |
| 50Hz | | 240V | [A] | 3.9 | 3.9 |
| | | 400V | [A] | 3.6 | 3.6 |
| | | 415V | [A] | 3.6 | 3.6 |
| | | 500V | [A] | 3.2 | 3.2 |
| | | 230V | [kW] | 0.75 | 0.75 |
| | | 240V | [kW] | 0.75 | 0.75 |
| | | 400V | [kW] | 1.5 | 1.5 |
| | | 415V | [kW] | 1.5 | 1.5 |
| | | 500V | [kW] | 1.5 | 1.5 |
| Max. Operating Rate | | | [ops/hour] | 250 | 250 |

| | | | | CA8-09 | CA8-12 |
|---|---|---|---|---|---|
| **Wye-Delta (Star Delta)** | ≤230V | | [A] | 20 | 20 |
| 50 Hz | ≤240V | | [A] | 20 | 20 |
| | 400V | | [A] | 15.5 | 15.5 |
| | 415V | | [A] | 15.5 | 15.5 |
| | 500V | | [A] | 12.4 | 12.4 |
| | 690V | | [A] | 8.9 | 8.9 |
| | 230V | | [kW] | 5.5 | 5.5 |
| | 240V | | [kW] | 5.5 | 5.5 |
| | 400V | | [kW] | 7.5 | 10 |
| | 415V | | [kW] | 7.5 | 11 |
| | 500V | | [kW] | 7.5 | 7.5 |
| | 690V | | [kW] | 7.5 | 7.5 |
| 60 Hz | 200V | | [Hp] | 3 | 5 |
| | 230V | | [Hp] | 3 | 5 |
| | 460V | | [Hp] | 7.5 | 10 |
| | 575V | | [Hp] | 7.5 | 10 |
| **AC-1 Load, 3∅ Switching** | | | | | |
| Ambient Temperature 40˚ C | $I_e$ | | [A] | 20 | 20 |
| | 230V | | [kW] | 8 | 8 |
| | 240V | | [kW] | 8.3 | 8.3 |
| | 400V | | [kW] | 14 | 14 |
| | 415V | | [kW] | 14 | 14 |
| | 500V | | [kW] | 17 | 17 |
| | 690V | | [kW] | 24 | 24 |
| Ambient Temperature 60˚ C | $I_e$ | | [A] | 16 | 16 |
| | 230V | | [kW] | 6.4 | 6.4 |
| | 240V | | [kW] | 6.7 | 6.7 |
| | 400V | | [kW] | 11 | 11 |
| | 415V | | [kW] | 12 | 12 |
| | 500V | | [kW] | 14 | 14 |
| | 690V | | [kW] | 19 | 19 |
| **Continuous Current (UL/CSA)** | | | | | |
| General Purpose Rating (40˚ C) | Open | | [A] | 12 | 12 |
| | Enclosed | | [A] | 15 | 18 |
| **Lighting Loads** | | | | | |
| Gas Dischrg.Lamps-AC-5a, 220…240VAC (40ºC) | Enclosed | | [A] | 18 | 18 |
| | Open | | [A] | 15 | 15 |
| Single compensated Max. capacitance at prospective short circuit current available at the contactor | 10kA | | [µF] | 750 | 750 |
| | 20kA | | [µF] | 400 | 400 |
| | 50kA | | [µF] | ~ | ~ |
| Incandescent Lamps - AC-5b Electrical endurance~100,000 operations 230/240V | | | [A] | 9.0 | 9.0 |

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## Electrical Data

| | | | CA8-09 | CA8-12 |
|---|---|---|---|---|
| **Switching power transformers AC-6a (50Hz)** | | | | |
| Inrush / Rated transformer current = η | | | | |
| η = 30 | ≤230V | [A] | 5.4 | 5.4 |
| | ≤240V | [A] | 5.4 | 5.4 |
| | ≤400V | [A] | 4.1 | 5.4 |
| | ≤415V | [A] | 4.1 | 5.4 |
| | ≤500V | [A] | 3.2 | 3.2 |
| | 230VAC | [kVA] | 2 | 2 |
| | 240VAC | [kVA] | 2 | 2 |
| | 400VAC | [kVA] | 2.8 | 3.4 |
| | 415VAC | [kVA] | 2.8 | 3.4 |
| | 500VAC | [kVA] | 2.8 | 3.4 |
| | 690VAC | [kVA] | 4 | 5 |
| **DC Ratings** | | | | |
| **DC-1 Rating at 60°C** | | | | |
| 1 Pole | 24VDC | [A] | 9 | 9 |
| | 48/60VDC | [A] | 6/1.5 | 6/1.5 |
| | 110VDC | [A] | 1 | 1 |
| | 220VDC | [A] | 0.3 | 0.3 |
| | 440VDC | [A] | 0.1 | 0.1 |
| 2 Pole in Series | 24VDC | [A] | 9 | 9 |
| | 48/60VDC | [A] | 8 | 8 |
| | 110VDC | [A] | 6 | 6 |
| | 220VDC | [A] | 1.2 | 1.2 |
| | 440VDC | [A] | 0.3 | 0.3 |
| 3 Pole in Series | 24VDC | [A] | 9 | 9 |
| | 48VDC | [A] | 9 | 9 |
| | 110VDC | [A] | 9 | 9 |
| | 220VDC | [A] | 4 | 4 |
| | 440VDC | [A] | 0.6 | 0.6 |
| **Shunt-wound Motors** | | | | |
| Starting, reverse current braking, reversing stepping DC-3, 60°C | | | | |
| | 24V | [A] | 9 | 9 |
| 3 Poles in series | 48/60V | [A] | 6 | 6 |
| | 110V | [A] | 3 | 3 |
| | 220V | [A] | 1.2 | 1.2 |
| | 440V | [A] | 0.2 | 0.2 |
| **Series-wound Motors** | | | | |
| Starting, reverse current braking, reversing stepping DC-5, 60°C | | | | |
| | 24V | [A] | 9 | 9 |
| 3 poles in series | 48/60V | [A] | 3 | 3 |
| | 110V | [A] | 1 | 1 |
| | 220V | [A] | 0.1 | 0.1 |
| | 440V | [A] | ~ | ~ |
| **Short Time Withstand-$I_{CW}$, 60°C** | | | | |
| | 10s | [A] | 96 | 96 |

| **Short Circuit Coordination (Max. Fuse or Circuit Breaker Rating)** | | | CA8-09 | CA8-12 |
|---|---|---|---|---|
| 50 kA Max. DIN fuse gG per IEC 60947-4-1 (Contactor and Fuse only) | | | | |
| Available Fault Current | | | | |
| Type 1 Coordination (690V) | max. | [A] | 35 | 35 |
| Type 2 Coordination (690V) | max. | [A] | 20 | 20 |
| Class K5 and RK5 fuses ❶ | max. | [A] | 40 | 40 |

| **Resistance and Watt Loss $I_e$ AC3** | | | | |
|---|---|---|---|---|
| Resistance per power pole | | [mΩ] | 2.2 | 2.2 |
| Watt Loss - 3 power poles @400V | | [W] | 0.9 | 0.9 |
| Coil and 3 power poles | AC @400V, warm | [W] | 2.7 | 2.7 |
| | DC, warm | [W] | 3.5 | 3.5 |

## Coil Data

| | | | CA8-09 | CA8-12 |
|---|---|---|---|---|
| **Voltage Range** | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [x $U_S$] | 0.85...1.1 | |
| | Dropout | [x $U_S$] | 0.2…0.75 | |
| DC | Pickup | [x $U_S$] | 0.85...1.1 | |
| | | | 9, 12, 24, 110V DC: 0.7…1.25 | |
| | Dropout | [x $U_S$] | 0.1...0.75 | |
| **Coil Consumption** | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [VA/W] | 35/32 | |
| | Hold-in | [VA/W] | 5/1.8 | |
| DC | Pickup | [W] | cold 3.0, warm 2.6 | |
| | Hold-in | [W] | cold 3.0, warm 2.6 | |
| **Operating Times** | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [ms] | 15...40 | |
| | Dropout | [ms] | 15...33 | |
| with RC Suppressor | Dropout | [ms] | 15...28 | |
| DC | Pickup | [ms] | 18...40 | |
| | Dropout | [ms] | 6...12 | |
| with Integ. Suppression | Dropout | [ms] | 8...12 | |
| with external diode Suppression | Dropout | [ms] | 35...50 | |
| Minimal changeover time for reversing | | [ms] | >50 | |

❶ UL listed combination.

## Mechanical Data

| | | | CA8-09 | CA8-12 |
|---|---|---|---|---|
| **Service Life** | | | | |
| Mechanical | AC/DC | [Mil.Op.] | 15 | |
| Electrical | AC-3(400V) | [Mil.Op.] | 0.7 | |
| Reversing combination, mechanical, electrical | | [Mil.Op.] | 0.7 | |
| **Shipping Weights** | | | | |
| AC-CA8 | | [kg] | 0.16 | |
| | | [Lbs] | 0.35 | |
| AC-CAU8 | | [kg] | 0.35 | |
| | | [Lbs] | 0.77 | |
| DC-CA8 | | [kg] | 0.20 | |
| | | [Lbs] | 0.44 | |
| DC-CAU8 | | [kg] | 0.43 | |
| | | [Lbs] | 0.91 | |

**Terminations - Screw Type Terminals**
Main contacts and Auxiliary contacts

| Terminal Type | | | Combination Screw Head: Cross, Slotted, Pozidrive |
|---|---|---|---|
|  Fine stranded w/ ferrule | 1 wire | [mm²] | 0.75...2.5 |
| | 2 wires | [mm²] | 0.75...2.5 |
|  Solid or coarse stranded | 1 wire | [mm²] | 1…4 |
| | 2 wires | [mm²] | 1...2.5 + 1…4 |
| | | [AWG] | 18…12 |
| Torque Requirement | | [Nm] | 1.2 |
| | | [Lb-in] | 10.6 |

## Environmental and General Specifications

| | |
|---|---|
| **Ambient Temperature** | |
| Storage | -55...+80˚ C (-67...176˚ F) |
| Operation | -25...+60˚ C (-13...140˚ F) |
| Conditioned 15% current reduction after AC-1 at >60˚ C | -25...+70˚ C (-13...158˚ F) |
| **Altitude at installed site** | 2000 meters above sea level per IEC 60947-4-1 |
| **Resistance to Corrosion / Humidity** | |
| | Damp-alternating climate: cyclic to IEC 68-2, 56 cycles. |
| | Dry Heat: IEC 68-2, +100°C (212°F), relative humidity <50%, 7 days. |
| | Damp tropical: IEC 68-2, +40°C (104°F), relative humidity <92%, 56 days. |
| **Shock Resistance** | IEC 68-2/EN 60068 |
| **Vibration Resistance** | IEC 68-2/EN 60068 |
| **Operating Position** | Refer to Dimension Pages |
| **Standards** | IEC/EN 60947-1, -4-1, -5-1, -5-4; UL 508; CSA 22.2. No. 14 |
| **Approvals** | CE c UL us |

## High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

| Overload Cat. No. | | Contactor Cat. No. | Max. starter FLC (A) | Fuse Ratings | | | UL Listed Circuit Breaker Ratings ❶ | | | Group Installation ❶ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Max. available fault current (kA) | Max. voltage (V) | UL Class J, CC, CSA HRCI-J fuse max. (A) | Short Circuit Rating (kA) | Max. voltage (V) | Max. CB Rating (A) | Max. CB rating (A) |
| CT8 | A16…A40 | CA8-09 | 10 | 50 | 600 | 1 | 5 | 600 | 15 | 30 |
| | A50…A63 | | | | | 2 | | | | |
| | A80…B10 | | | | | 3 | | | | |
| | B13 | | | | | 4 | | | | |
| | B16 | | | | | 5 | | | | |
| | B20 | | | | | 8 | | | | |
| | B25 | | | | | 10 | | | | |
| | B32 | | | | | 12 | | | | |
| | B40…B48 | | | | | 15 | | | | |
| | B63 | | | | | 20 | | | | |
| | B75 | | | | | 25 | | | | |
| | C10 | CA8-09…12 | | | | 35 | | | | |
| | C12 | CA8-12 | 13.8 | | | 50 | | | | |

❶ Group installation ratings can be applied when used with CA8 Compact Bus Bars (see page A20) in a minimum 1,152 cu. in. enclosure with two latches.

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## Auxiliary Contacts

| | | | Built-in Auxiliary Contacts | | | | | | | | | Add-on Auxiliary Contacts | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Current Switching** | | | | | | | | | | | | | | | | | | | | |
| AC-12 $I_{th}$ | at 40°C | [A] | 10 | | | | | | | | | 10 | | | | | | | | |
| | at 60°C | [A] | 6 | | | | | | | | | 6 | | | | | | | | |
| AC-15, switching electromagnetic loads at: | | [V] | 24 | 120 | 240 | 400 | 480 | 500 | 600 | 690 | | 24 | 120 | 240 | 400 | 480 | 500 | 600 | 690 | |
| | | [A] | 6 | 6 | 3 | 1.8 | 1.5 | 1.4 | 1.2 | 1 | | 3 | 3 | 2 | 1.2 | 1 | 1 | 0.6 | 0.6 | |
| DC-13, switching DC electromagnets at: | | [V] | 24 | 48 | 110 | 125 | 220 | 250 | 400 | 440 | 600 | 24 | 48 | 110 | 125 | 220 | 250 | 400 | 440 | 600 |
| | | [A] | 2.8 | 1.2 | 0.55 | 0.55 | 0.27 | 0.27 | 0.15 | 0.15 | 0.10 | 2.3 | 1 | 0.55 | 0.55 | 0.27 | 0.27 | 0.15 | 0.15 | 0.10 |
| DC-12, L/R< 1 ms resistive loads at: | | [V] | 24 | 48 | 110 | 125 | 220 | 250 | 400 | 440 | | | | | | | | | | |
| | | [A] | 6 | 4 | 0.6 | 0.6 | 0.2 | 0.2 | 0.08 | 0.08 | | | | | | | | | | |
| DC-14, L/R< 15 ms inductive loads | | [V] | 24 | 48 | 110 | 125 | 220 | 250 | 400 | 440 | | | | | | | | | | |
| with economy resistor in series at: | | [A] | 4 | 2.5 | 0.4 | 0.4 | 0.12 | 0.12 | 0.05 | 0.05 | | | | | | | | | | |
| **Low Level Signal Switching** | | | | | | | | | | | | | | | | | | | | |
| Contact design | | | X-stamped | | | | | | | | | H-bridge, bi-furcated | | | | | | | | |
| Minimum switching recommendation | | [V] | 17V | | | | | | | | | 15V | | | | | | | | |
| | | [mA] | 10mA | | | | | | | | | 2mA | | | | | | | | |
| **Short-Circuit Protection - gG Fuse** | | | | | | | | | | | | | | | | | | | | |
| Type 2 Coordination | | [A] | 10 | | | | | | | | | 10 | | | | | | | | |
| **Load carrying capacity per UL/CSA** | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage | AC | [V] | 600 max. | | | | | | | | | 600 max. | | | | | | | | |
| Continuous Rating | 40°C | [A] | 10 general purpose | | | | | | | | | 10 general purpose | | | | | | | | |
| Switching Capacity | AC | | Heavy pilot duty (A600) | | | | | | | | | Heavy pilot duty (B600) | | | | | | | | |
| Rated Voltage | DC | [V] | 600 max. | | | | | | | | | 600 max. | | | | | | | | |
| Switching Capacity | DC | | Standard pilot duty (Q600) | | | | | | | | | Standard pilot duty (Q600) | | | | | | | | |
| Mechanically Linked Contacts IEC 60947-5-1, Annex L | | | Yes | | | | | | | | | No | | | | | | | | |
| Mirror Contacts IEC 60947-4, Annex F | | | Yes | | | | | | | | | Yes | | | | | | | | |

## Contact Ratings *(Per NEMA/UL A600, B600 & Q600)*

| Standard | Circuit Voltage | Make (Amps/VA) | Break (Amps/VA) | Continuous Amps |
|---|---|---|---|---|
| A600 | 120AC<br>240AC<br>480AC<br>600AC | 60A/7200VA<br>30A/7200VA<br>15A/7200VA<br>12A/7200VA | 60A/720VA<br>30A/720VA<br>15A/720VA<br>12A/720VA | 10 |
| B600 | 120AC<br>240AC<br>480AC<br>600AC | 30A/3600VA<br>15A/3600VA<br>7.5A/3600VA<br>6A/3600VA | 3.0A/360VA<br>1.5A/360VA<br>0.75A/360VA<br>0.60A/360VA | 10 |
| Q600 | 125DC<br>250DC<br>301-600DC | 0.55/69VA<br>0.27/69VA<br>0.1A/69VA | 0.55/69VA<br>0.27/69VA<br>0.1A/69VA | 2.5 |

## Life-Load Curves

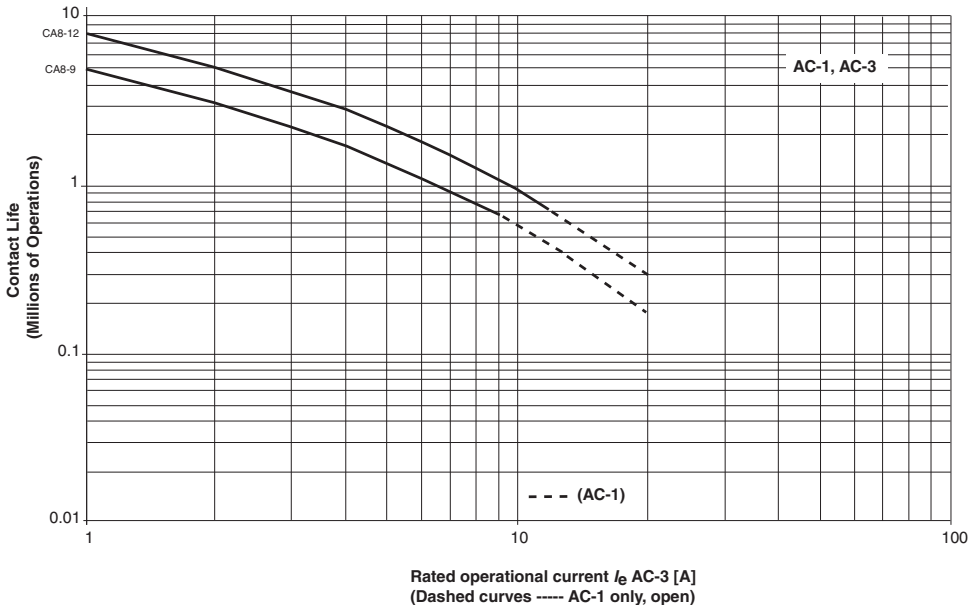
- Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

***INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7***

### AC-1, AC3

(400...460V AC)

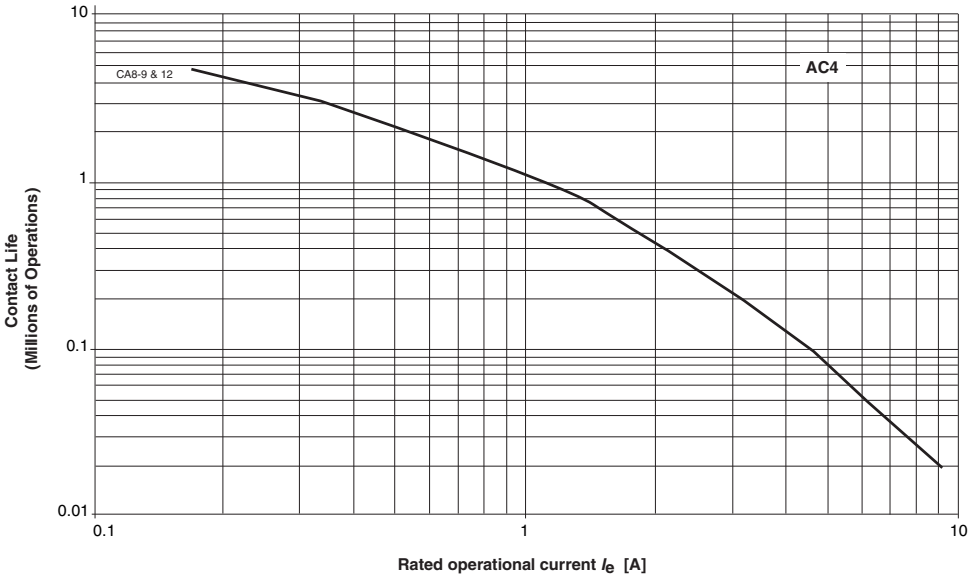
**AC-1 Non- or slightly inductive loads, resistance furnaces; AC-3 Switching of squirrel-cage motors while starting**
**$U_e$ = 400...415 VAC**




### AC-4

(400...460V AC)

**AC-4 Stepping of squirrel-cage motors**
**$U_e$ = 400...415 VAC**




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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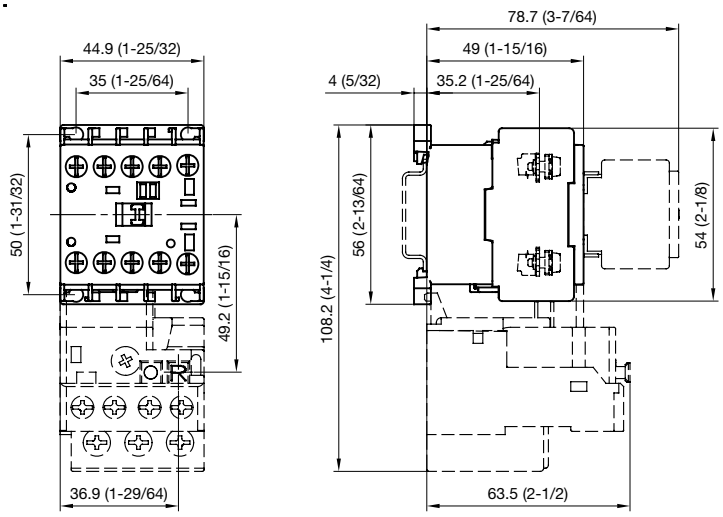
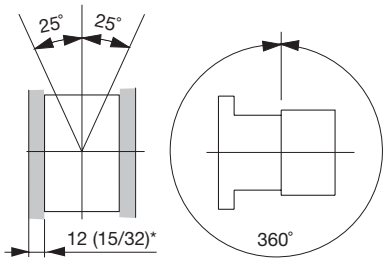
## Series CA8 & Series CAU8 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

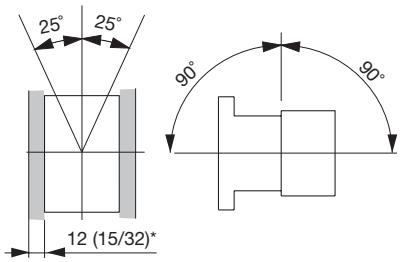



### Mounting Position without Accessories




* Minimum distance to grounded parts or walls

### Mounting Position with Accessories




* Minimum distance to grounded parts or walls

**Reversing Contactors & Accessories**

| Contactor with... | | Dim. [mm] | Dim. [inches] |
|---|---|---|---|
| reversing with mechanical interlock | | 89.8 | 3.53 |
| with aux. contact block | | 78.7 | 3.1 |
| with timer | on contactor | 81.7 | 3.25 |
| | at side of contactor | 66.9 | 2.63 |
| with neutral terminal | at side of contactor | 64.9 | 2.56 |
| with protection element | | | |
| with nameplate | | 51 | 2 |

SSNA9000

# *Series CA7 Contactors*

## Rugged, space saving and modular… Sprecher + Schuh's newest contactor for applications up to 75HP @ 460V

Over 100 years of design experience has produced Sprecher + Schuh's seventh generation contactor line. The CA7 represents the most modern and flexible power contactor available today, meeting the highest industrial application requirements.

## Big performance in a small package

A wide selection of ten contactors in four frame sizes covers the entire CA7 horsepower range (up to 75HP @ 460/575V). Six of the contactors are only 45mm wide, an extremely small footprint for such rugged performance. A number of design features account for this efficiency, including high contact pressure and "bounce-free" contacts, allowing the devices to handle the high starting currents typical of modern motors.

## Type 1 and Type 2 Coordination

Whether you're designing motor circuits for use in North America, Europe or any other part of the world, all CA7 contactors have been designed and tested with respect to Type 1 and Type 2 short circuit coordination. Find out more in the CA7 Technical Information section in this chapter.

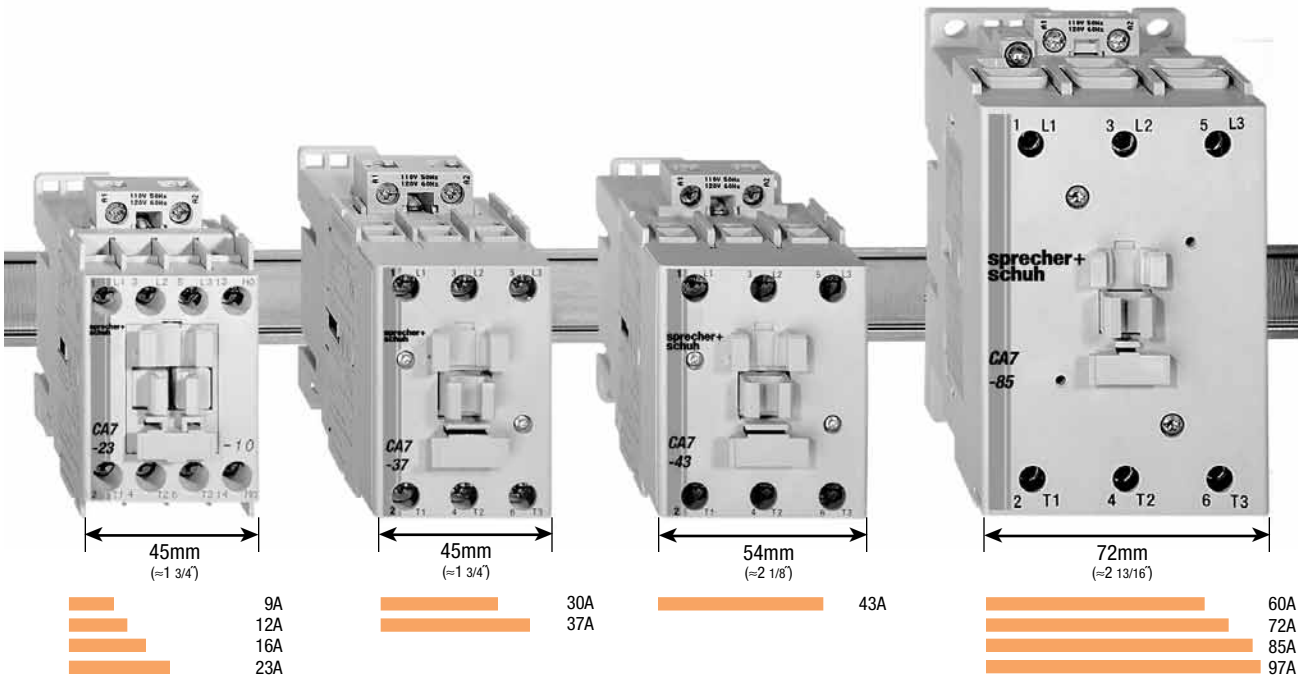
## Advanced safety and reliability features

The entire CA7 line features mechanically linked contacts, sometimes referred to as "positively guided contacts" or "force guided contacts". If a main power pole welds, adequate clearances exist (≥0.3mm) to ensure that the auxiliary contacts do not change state when coil power is removed and the device tries to open. This is a requirement in safety circuits per IEC 60947-5-1.

Reliability is further assured by "cross-stamped" auxiliary contacts, which provide multi-point reliability in low current, low voltage applications.

## Three types of DC coils available

CA7-9C through 43C contactors are available with true DC or Electronic 24V DC coils that dramatically decrease wattage consumption during pull-in. This allows the use of smaller power supplies. Select CA7 contactors are also available with a two winding DC coil that reduces the size of the contactor, as well as the hold-in values. Two winding coils include built-in coil suppression and an internal contact that bypasses the pull-in coil to the hold-in coil.




SSNA9000

## Modular accessories are common to all devices

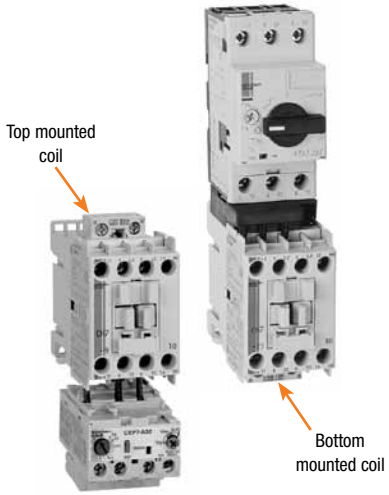
All accessories are interchangeable among all CA7 contactors and CS7 control relays. This minimizes inventory requirements and maximizes flexibility. Top and side mount auxiliary contacts are available depending on your application. A mechanical interlock with two built-in NC auxiliaries also provides electrical interlocking if desired. Pneumatic and electronic timers, surge suppressors and electronic interface modules provide solutions for even the most complex applications.


## Reversible coil provides total flexibility

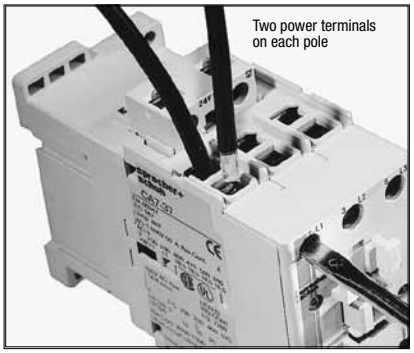
When shipped, both coil connections are normally located at the top of the contactor in preparation for mounting an overload relay at the bottom. For multi-starter panels, however, the coil can be reversed, which provides space to close-couple a KT7 Motor Circuit Controller on the top of the contactor. CA7 contactors can either be ordered with the coil reversed or may be easily reversed in the field.

## Dual power terminals speed wiring

CA7-30 through 85 contactors are designed with two power terminals for all three poles. This simplifies power wiring of interconnected contactors in reversing, reduced voltage and two-speed applications. Preformed power wiring connectors are also available for virtually instantaneous wiring in these labor intensive applications. Simplified wiring means less labor and less cost.




*Reversible coils are standard on all CA7 contactors*



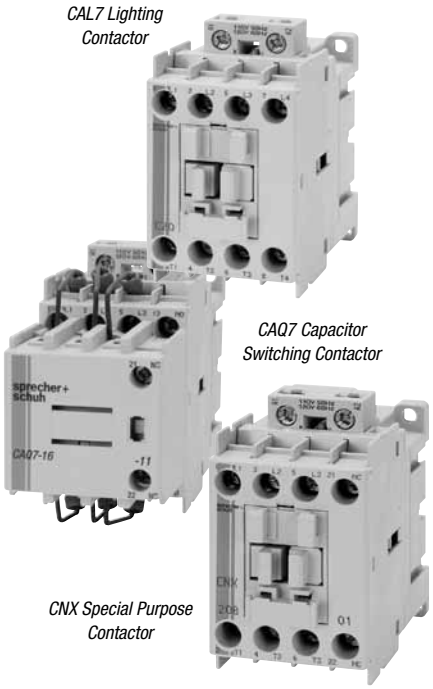

*Dual power terminals assure hassle-free wiring in complex control schemes*

## Special use contactors for specialized applications

The CA7 line has been expanded to include a number of contactors designed and labeled for specific industrial applications. In all cases, these devices are UL and CSA approved for these specialized uses.

## Lighting contactors

The CAL7 contactor can be used to control a wide variety of lighting loads. These contactors are well suited to handle the high inrush currents typical of this application as well as other non-motor (resistive) loads. Both mechanically held and electrically held models are available for lighting load applications up to 20A, 30 A and 60 A.




*Sprecher + Schuh's expanded CA7 line includes contactors designed and labeled for specific industrial applications*

## Capacitor contactors

CAQ7 contactors manage the peak inrush common with capacitor switching by incorporating a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. Selection is based on applied KVAR.

## NEMA Labeled Contactors

CAN7 contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are NEMA compliant and are labeled accordingly.

## Special purpose contactors

CNX contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating ventilation and air conditioning (HVAC) applications.

## Non-Reversing, Three Pole Contactors With AC Coil, Series CA7 (Open type only) ❶

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V / 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1<br>0 | 0<br>1 | CA7-9-10-✱<br>CA7-9-01-✱ | 120 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1<br>0 | 0<br>1 | CA7-12-10-✱<br>CA7-12-01-✱ | 155 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1<br>0 | 0<br>1 | CA7-16-10-✱<br>CA7-16-01-✱ | 174 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1<br>0 | 0<br>1 | CA7-23-10-✱<br>CA7-23-01-✱ | 193 |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-30-00-✱<br>CA7-30-10-✱<br>CA7-30-01-✱ | 222<br>244<br>244 |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-37-00-✱<br>CA7-37-10-✱<br>CA7-37-01-✱ | 266<br>288<br>288 |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-43-00-✱<br>CA7-43-10-✱<br>CA7-43-01-✱ | 286<br>308<br>308 |
| 60 | 100 | 18.5 | 32 | 37 | 32 | 5 | 10 | 15 | 20 | 40 | 50 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-60-00-✱<br>CA7-60-10-✱<br>CA7-60-01-✱ | 350<br>372<br>372 |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-72-00-✱<br>CA7-72-10-✱<br>CA7-72-01-✱ | 403<br>425<br>425 |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-85-00-✱<br>CA7-85-10-✱<br>CA7-85-01-✱ | 460<br>482<br>482 |
| 97 | 130 | 30 | 55 | 55 | 55 | 10 | 15 | 30 | 30 | 75 | 75 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-97-00-✱<br>CA7-97-10-✱<br>CA7-97-01-✱ | 577<br>599<br>599 |

*CA7-9-10-120 contactor*

*CA7-43-00-120 contactor*

*CA7-85-00-120 contactor*

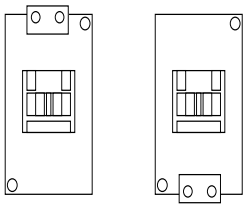
NEW

## Coil Codes ❷

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | **24V** | **24V** |
| **120** | **110V** | **120V** |
| **208** | ~ | 208V |
| **220W** | **~** | **208V-240V** |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 440V |
| **480** | **440V** | **480V** |
| **600** | 550v | 600V |

## Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



*All CA7 contactors come with reversible coils.*

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.

❷ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

## Non-Reversing, Four Pole Contactors With AC Coil, Series CA7 (Open type only)

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Contact Configuration, Main Pole | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | **1/2** | **1 1/2** | **2** | **2** | **5** | **7-1/2** | 4<br>3<br>2 | 0<br>1<br>2 | **CA7-9-M40-∗**<br>**CA7-9-M31-∗**<br>**CA7-9-M22-∗** | **120**<br>**132**<br>**132** |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | **1/2** | **2** | **3** | **3** | **7-1/2** | **10** | 4<br>3<br>2 | 0<br>1<br>2 | **CA7-12-M40-∗**<br>**CA7-12-M31-∗**<br>**CA7-12-M22-∗** | **157**<br>**167**<br>**167** |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | **1** | **3** | **5** | **5** | **10** | **15** | 4<br>3<br>2 | 0<br>1<br>2 | **CA7-16-M40-∗**<br>**CA7-16-M31-∗**<br>**CA7-16-M22-∗** | **176**<br>**186**<br>**186** |
| 23 | 32 | 7.5 | 11 | 13 | 10 | **2** | **3** | **5** | **7-1/2** | **15** | **15** | 4<br>3<br>2 | 0<br>1<br>2 | **CA7-23-M40-∗**<br>**CA7-23-M31-∗**<br>**CA7-23-M22-∗** | **194**<br>**206**<br>**206** |
| 37 | 75 | 11 | 18.5 | 20 | 18.5 | **3** | **5** | **10** | **10** | **25** | **30** | 4 | 0 | **CA7-40-M40-∗** | **385** |
| 37 | 75 | 11 | 18.5/20 | 18.5 | 7.5 | **3** | **5** | **10** | **10** | **25** | **15** | 2 | 2 | **CA7-40-M22-∗** | **385** |
| 85 | 130 | 25 | 45 | 55 | 45 | **7-1/2** | **15** | **25** | **30** | **60** | **50** | 4 | 0 | **CA7-90-M40-∗** | **657** |
| 85 | 130 | 25 | 45 | 55 | 18.5 | **7-1/2** | **15** | **25** | **30** | **50** | **20** | 2 | 2 | **CA7-90-M22-∗** | **657** |

*CA7-23-M22-120 contactor*

## Coil Codes ❶

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | **24V** | **24V** |
| **120** | **110V** | **120V** |
| **208** | ~ | 208V |
| **220W** | **~** | **208V-240V** |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 440V |
| **480** | **440V** | **480V** |
| **600** | 550V | 600V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (∗) with Coil Code | **See Coil Codes on this page.** |

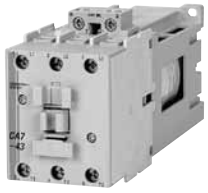
❶ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

## Non-Reversing, Three Pole Contactors With True DC Coil, Series CA7 (Open type only) ❶❹

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V/ 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1<br>0 | 0<br>1 | CA7-9C-10-✱<br>CA7-9C-01-✱ | 155 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1<br>0 | 0<br>1 | CA7-12C-10-✱<br>CA7-12C-01-✱ | 200 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1<br>0 | 0<br>1 | CA7-16C-10-✱<br>CA7-16C-01-✱ | 225 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1<br>0 | 0<br>1 | CA7-23C-10-✱<br>CA7-23C-01-✱ | 250 |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-30C-00-✱<br>CA7-30C-10-✱<br>CA7-30C-01-✱ | 290<br>312<br>312 |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-37C-00-✱<br>CA7-37C-10-✱<br>CA7-37C-01-✱ | 350<br>372<br>372 |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-43C-00-✱<br>CA7-43C-10-✱<br>CA7-43C-01-✱ | 410<br>432<br>432 |

*CA7-9C contactor (typical)*



*CA7-43C-00-120 contactor*

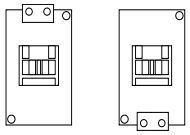
***Description:***
True DC coils have low inrush which allows the use of smaller power supplies. See page A62 for more information. DC and AC coils are not interchangeable. CA7-9C…43C contactors have increased dimensions to accommodate true DC coils.

## Coil Codes ❷

| DC Coil Codes | Voltage |
|---|---|
| 12D | 12V |
| 24D ❸ | 24V |
| 48D | 48V |
| 110D | 110V |
| 220D | 220V |

## Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



*All CA7 contactors come with reversible coils.*

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.
❷ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $42 to list price. To order, change "C" in catalog number to "D".
Ex: CA7-9**C**-10-24DD becomes CA7-9**D**-10-24DD. Check with customer service representative to determine stock availability.
❹ See pages A52-53 for limitations on adding auxiliaries to true DC contacts.

SSNA9000

## Non-Reversing, Four Pole Contactors With True DC Coil, Series CA7 (Open type only)

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Contact Configuration, Main Pole | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 4 | 0 | CA7-9C-M40-✱ | 156 |
| | | | | | | | | | | | | 3 | 1 | CA7-9C-M31-✱ | 168 |
| | | | | | | | | | | | | 2 | 2 | CA7-9C-M22-✱ | 168 |
| 12 | 32 | 1 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 4 | 0 | CA7-12C-M40-✱ | 198 |
| | | | | | | | | | | | | 3 | 1 | CA7-12C-M31-✱ | 210 |
| | | | | | | | | | | | | 2 | 2 | CA7-12C-M22-✱ | 210 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 4 | 0 | CA7-16C-M40-✱ | 222 |
| | | | | | | | | | | | | 3 | 1 | CA7-16C-M31-✱ | 235 |
| | | | | | | | | | | | | 2 | 2 | CA7-16C-M22-✱ | 235 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 4 | 0 | CA7-23C-M40-✱ | 248 |
| | | | | | | | | | | | | 3 | 1 | CA7-23C-M31-✱ | 260 |
| | | | | | | | | | | | | 2 | 2 | CA7-23C-M22-✱ | 260 |
| 37 | 75 | 11 | 18.5 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 4 | 0 | CA7-40C-M40-✱ | 475 |
| 37 | 75 | 11 | 18.5/20 | 18.5 | 7.5 | 3 | 5 | 10 | 10 | 25 | 15 | 2 | 2 | CA7-40C-M22-✱ | 485 |

*CA7-9C contactor (typical)*

***Description:***
True DC coils have low inrush which allows the use of smaller power supplies. See page A62 for more information. DC and AC coils are not interchangeable. CA7-9C…40C contactors have increased dimensions to accommodate true DC coils.

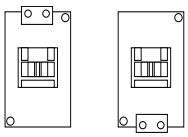


## Coil Codes ❶

| DC Coil Codes | Voltage |
|---|---|
| 12D | 12V |
| 24D ❷ | 24V |
| 48D | 48V |
| 110D | 110V |
| 220D | 220V |

## Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



*All CA7 contactors come with reversible coils.*

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❷ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $42 to list price. To order, change "C" in catalog number to "D". Ex: CA7-9**C**-M40-24DD becomes CA7-9**D**-M40-24DD.

SSNA9000

## Non-Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ❶❷❸

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V/ 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1<br>0 | 0<br>1 | CA7-9E-10-24E<br>CA7-9E-01-24E | 197 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1<br>0 | 0<br>1 | CA7-12E-10-24E<br>CA7-12E-01-24E | 242 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1<br>0 | 0<br>1 | CA7-16E-10-24E<br>CA7-16E-01-24E | 267 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1<br>0 | 0<br>1 | CA7-23E-10-24E<br>CA7-23E-01-24E | 292 |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-30E-00-24E<br>CA7-30E-10-24E<br>CA7-30E-01-24E | 332<br>354<br>354 |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-37E-00-24E<br>CA7-37E-10-24E<br>CA7-37E-01-24E | 392<br>414<br>414 |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0<br>1<br>0 | 0<br>0<br>1 | CA7-43E-00-24E<br>CA7-43E-10-24E<br>CA7-43E-01-24E | 455<br>475<br>475 |

*CA7-23E-10-24E contactor*

*CA7-37E-00-24E contactor*

***Description***

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.
This new design results in:

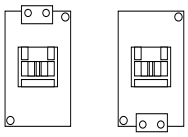
- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

***Applications***

Direct control from PLC:
The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

## Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



*All CA7 contactors come with reversible coils.*

❶ AC1 Resistive Ratings and UL/CSA Continuous Current Ratings may be increased by the use of Lug Kits or Paralleling Links. See CA7 Accessories section for applicable information.
❷ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.
❸ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

SSNA9000

## Non-Reversing, Four Pole Contactors With Electronic 24VDC Coil, Series CA7 (Open type only) ❶❷

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Contact Configuration, Main Pole | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 4<br>3<br>2 | 0<br>1<br>2 | CA7-9E-M40-24E<br>CA7-9E-M31-24E<br>CA7-9E-M22-24E | 198<br>210<br>210 |
| 12 | 32 | 1 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 4<br>3<br>2 | 0<br>1<br>2 | CA7-12E-M40-24E<br>CA7-12E-M31-24E<br>CA7-12E-M22-24E | 240<br>252<br>252 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 4<br>3<br>2 | 0<br>1<br>2 | CA7-16E-M40-24E<br>CA7-16E-M31-24E<br>CA7-16E-M22-24E | 264<br>277<br>277 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 4<br>3<br>2 | 0<br>1<br>2 | CA7-23E-M40-24E<br>CA7-23E-M31-24E<br>CA7-23E-M22-24E | 290<br>302<br>302 |
| 37 | 75 | 11 | 18.5 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 4 | 0 | CA7-40E-M40-24E | 520 |
| 37 | 75 | 11 | 18.5/20 | 18.5 | 7.5 | 3 | 5 | 10 | 10 | 25 | 15 | 2 | 2 | CA7-40E-M22-24E | 535 |

*CA7-23E-M22-24E contactor*

***Description***

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.
This new design results in:

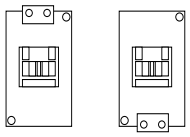
- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

***Applications***

Direct control from PLC:
The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

## Coil Terminal Position

All CA7 contactors are stocked and delivered with the coil terminals located on the line side (top) of the contactor. This is the typical configuration when using the contactor with an overload relay. When the contactor is used with the KT7 Motor Circuit Controller, the coil must be reversed, so that the coil terminals are located at the load side (bottom) of the contactor. CA7 coils can easily be reversed in the field, however, they are also available for order with the coils reversed from the factory. Contact your Sprecher+Schuh representative for more information about ordering CA7 contactors with reversed coils.



*All CA7 contactors come with reversible coils.*

❶ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.
❷ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

## Non-Reversing, Three Pole Contactors With Two Winding DC Coil, Series CA7 (Open type only) ❶

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor ❶ | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V/ 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1 | 1 | CA7-9Y-D11-✱ | |
| | | | | | | | | | | | | 0 | 2 | CA7-9Y-D02-✱ | 211 |
| | | | | | | | | | | | | 2 | 0 | CA7-9Y-D20-✱ | |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1 | 1 | CA7-12Y-D11-✱ | |
| | | | | | | | | | | | | 0 | 2 | CA7-12Y-D02-✱ | 254 |
| | | | | | | | | | | | | 2 | 0 | CA7-12Y-D20-✱ | |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1 | 1 | CA7-16Y-D11-✱ | |
| | | | | | | | | | | | | 0 | 2 | CA7-16Y-D02-✱ | 278 |
| | | | | | | | | | | | | 2 | 0 | CA7-16Y-D20-✱ | |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1 | 1 | CA7-23Y-D11-✱ | |
| | | | | | | | | | | | | 0 | 2 | CA7-23Y-D02-✱ | 305 |
| | | | | | | | | | | | | 2 | 0 | CA7-23Y-D20-✱ | |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 1 | 0 | CA7-30Y-E10-✱ | 345 |
| | | | | | | | | | | | | 0 | 1 | CA7-30Y-E01-✱ | |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | 1 | 0 | CA7-37Y-E10-✱ | 404 |
| | | | | | | | | | | | | 0 | 1 | CA7-37Y-E01-✱ | |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 1 | 0 | CA7-43Y-E10-✱ | 461 |
| | | | | | | | | | | | | 0 | 1 | CA7-43Y-E01-✱ | |
| 60 | 100 | 18.5 | 32 | 37 | 32 | 5 | 10 | 15 | 20 | 40 | 50 | 0 | 0 | CA7-60D-00-✱ | 475 |
| | | | | | | | | | | | | 1 | 0 | CA7-60D-10-✱ | 497 |
| | | | | | | | | | | | | 0 | 1 | CA7-60D-01-✱ | 497 |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | 0 | 0 | CA7-72D-00-✱ | 530 |
| | | | | | | | | | | | | 1 | 0 | CA7-72D-10-✱ | 552 |
| | | | | | | | | | | | | 0 | 1 | CA7-72D-01-✱ | 552 |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | 0 | 0 | CA7-85D-00-✱ | 590 |
| | | | | | | | | | | | | 1 | 0 | CA7-85D-10-✱ | 612 |
| | | | | | | | | | | | | 0 | 1 | CA7-85D-01-✱ | 612 |
| 97 | 130 | 30 | 55 | 55 | 55 | 10 | 15 | 30 | 30 | 75 | 75 | 0 | 0 | CA7-97D-00-✱ | 757 |
| | | | | | | | | | | | | 1 | 0 | CA7-97D-10-✱ | 779 |
| | | | | | | | | | | | | 0 | 1 | CA7-97D-01-✱ | 779 |



NEW

*CA7-16Y contactor (typical)*

***Description:***
Contactors with two winding DC coils have very low hold-in values and share the same dimensions with AC contactors. See page A62 for more information. See page A89 for dimensional information.

## Coil Codes ❷❸❹

| DC Coil Code | Voltage |
|---|---|
| 24DD | 24V |
| 110DD | 110V |

## *Ordering Instruct ions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ CA7-60D…CA7-97D have an internal auxiliary contact to transition from the start winding to the run winding.
❷ Coils include an integrated diode surge suppressor.
❸ Other coil voltages are available, see page A62. Contact your Sprecher + Schuh Sales Representative to determine which coil voltages may be stocked. *Non-standard coil voltages (non-stock) must be ordered and installed separately as renewal parts.*
❹ The coil codes shown are the most commonly stocked items. Contact your Sprecher + Schuh representative to determine if other voltages, i.e.., 12DD, 48DD, 220DD are on-hand or can be specially ordered in quantities.

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## Non-Reversing, Four Pole Contactors With Two Winding DC Coil, Series CA7 (Open type only) ❶

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Contact Configuration Main Pole | | Auxiliary Contacts Per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | | | |
| AC-3 | AC-1 | 230V | 415V 400V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | NO | NC | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1-1/2 | 2 | 2 | 5 | 7-1/2 | 4 | 0 | 1 | 0 | CA7-9Y-M40-D10-✱ | 211 |
| | | | | | | | | | | | | 4 | 0 | 0 | 1 | CA7-9Y-M40-D01-✱ | 211 |
| | | | | | | | | | | | | 3 | 1 | 1 | 0 | CA7-9Y-M31-D10-✱ | 224 |
| | | | | | | | | | | | | 3 | 1 | 0 | 1 | CA7-9Y-M31-D01-✱ | 224 |
| | | | | | | | | | | | | 2 | 2 | 1 | 0 | CA7-9Y-M22-D10-✱ | 224 |
| | | | | | | | | | | | | 2 | 2 | 0 | 1 | CA7-9Y-M22-D01-✱ | 224 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 4 | 0 | 1 | 0 | CA7-12Y-M40-D10-✱ | 255 |
| | | | | | | | | | | | | 4 | 0 | 0 | 1 | CA7-12Y-M40-D01-✱ | 255 |
| | | | | | | | | | | | | 3 | 1 | 1 | 0 | CA7-12Y-M31-D10-✱ | 268 |
| | | | | | | | | | | | | 3 | 1 | 0 | 1 | CA7-12Y-M31-D01-✱ | 268 |
| | | | | | | | | | | | | 2 | 2 | 1 | 0 | CA7-12Y-M22-D10-✱ | 268 |
| | | | | | | | | | | | | 2 | 2 | 0 | 1 | CA7-12Y-M22-D01-✱ | 268 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 4 | 0 | 1 | 0 | CA7-16Y-M40-D10-✱ | 278 |
| | | | | | | | | | | | | 4 | 0 | 0 | 1 | CA7-16Y-M40-D01-✱ | 278 |
| | | | | | | | | | | | | 3 | 1 | 1 | 0 | CA7-16Y-M31-D10-✱ | 291 |
| | | | | | | | | | | | | 3 | 1 | 0 | 1 | CA7-16Y-M31-D01-✱ | 291 |
| | | | | | | | | | | | | 2 | 2 | 1 | 0 | CA7-16Y-M22-D10-✱ | 291 |
| | | | | | | | | | | | | 2 | 2 | 0 | 1 | CA7-16Y-M22-D01-✱ | 291 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 4 | 0 | 1 | 0 | CA7-23Y-M40-D10-✱ | 305 |
| | | | | | | | | | | | | 4 | 0 | 0 | 1 | CA7-23Y-M40-D01-✱ | 305 |
| | | | | | | | | | | | | 3 | 1 | 1 | 0 | CA7-23Y-M31-D10-✱ | 317 |
| | | | | | | | | | | | | 3 | 1 | 0 | 1 | CA7-23Y-M31-D01-✱ | 317 |
| | | | | | | | | | | | | 2 | 2 | 1 | 0 | CA7-23Y-M22-D10-✱ | 317 |
| | | | | | | | | | | | | 2 | 2 | 0 | 1 | CA7-23Y-M22-D01-✱ | 317 |
| 85 | 130 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 50 | 4 | 0 | 0 | 0 | CA7-90D-M40-✱ | 781 |
| 85 | 130 | 25 | 45 | 55 | 18.5 | 7-1/2 | 15 | 25 | 30 | 60 | 20 | 2 | 2 | 0 | 0 | CA7-90D-M22-✱ | 781 |

Obsolete
See CA7-9E...43E

***Description:*** See opposite page.

### Coil Codes ❷❸

| DC Coil Code | Voltage |
|---|---|
| 24DD | 24V |
| 110DD | 110V |

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ CA7-90D...contactors have an internal auxiliary contact to transition from the start winding to the run winding.
❷ Coils include an integrated diode surge suppressor.
❸ Other coil voltages are available, see page A62. Contact your Sprecher + Schuh Sales Representative to determine which voltage may be stocked. *Non-standard coil voltages (non-stocked) must be ordered and installed separately as renewal parts.*

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## Reversing, Three Pole Contactors With AC Coil, Series CAU7 (Open type only)

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC ❸ | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1 | 1 | CAU7-9-22-✱ | 338 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1 | 1 | CAU7-12-22-✱ | 409 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1 | 1 | CAU7-16-22-✱ | 451 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1 | 1 | CAU7-23-22-✱ | 491 |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0 | 1 | CAU7-30-02-✱ | 553 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-30-22-✱ | 597 |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 8.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0 | 1 | CAU7-37-02-✱ | 640 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-37-22-✱ | 684 |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0 | 1 | CAU7-43-02-✱ | 710 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-43-22-✱ | 754 |
| 60 | 100 | 18.5 | 32 | 37 | 32 | 5 | 10 | 15 | 20 | 40 | 50 | 0 | 1 | CAU7-60-02-✱ | 895 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-60-22-✱ | 939 |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | 0 | 1 | CAU7-72-02-✱ | 1010 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-72-22-✱ | 1054 |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | 0 | 1 | CAU7-85-02-✱ | 1125 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-85-22-✱ | 1169 |
| 97 | 130 | 30 | 55 | 55 | 55 | 10 | 15 | 30 | 30 | 75 | 75 | 0 | 1 | CAU7-97-02-✱ | 1410 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-97-22-✱ | 1454 |

*CAU7-9-22-120 reversing contactor*

*CAU7-43-22-120 reversing contactor*

***Includes:***

- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷

## Coil Codes ❺

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | **24V** | **24V** |
| **120** | **110V** | **120V** |
| **208** | ~ | 208V |
| **220W** | **~** | **208V - 240V** |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 440V |
| **480** | **440V** | **480V** |
| **600** | 550V | 600V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:

CAU7-9…23 deduct $10
CAU7-30…37 deduct $12
CAU7-43 deduct $22

CAU7-60…97 without power wiring not available
Ex: CAU7-9-22-✱ becomes CAU7-9-22-✱**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9-22-✱ becomes CAU7-9-22-✱**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ Other voltages available, see page A61. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

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## Reversing, Three Pole Contactors With DC Coil, Series CAU7 (Open type only)

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC ❸ | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1 | 1 | CAU7-9C-22-✱ | 400 |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1 | 1 | CAU7-12C-22-✱ | 495 |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1 | 1 | CAU7-16C-22-✱ | 545 |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1 | 1 | CAU7-23C-22-✱ | 595 |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0 | 1 | CAU7-30C-02-✱ | 692 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-30C-22-✱ | 736 |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 8.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0 | 1 | CAU7-37C-02-✱ | 890 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-37C-22-✱ | 934 |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0 | 1 | CAU7-43C-02-✱ | 938 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-43C-22-✱ | 982 |
| 60 | 100 | 18.5 | 32 | 37 | 32 | 5 | 10 | 15 | 20 | 40 | 50 | 0 | 1 | CAU7-60D-02-✱ | 1115 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-60D-22-✱ | 1159 |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | 0 | 1 | CAU7-72D-02-✱ | 1240 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-72D-22-✱ | 1284 |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | 0 | 1 | CAU7-85D-02-✱ | 1360 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-85D-22-✱ | 1410 |
| 97 | 130 | 30 | 55 | 55 | 55 | 10 | 15 | 30 | 30 | 75 | 75 | 0 | 1 | CAU7-97D-02-✱ | 1745 |
| | | | | | | | | | | | | 1 ❹ | 1 | CAU7-97D-22-✱ | 1789 |

*CAU7-9C-22 reversing contactor*

*CAU7-43C-02 reversing contactor*

***Includes:***

- DC operating mechanism
- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷

***NOTE:*** DC and AC coils are not interchangeable. CA7-9C…43C contactors have increased dimensions to accommodate true DC coils. CA7-60D…97D contactors have a two winding, 3-lead coil with built-in late break auxiliary contact and coil suppression. Refer to page A87-89 for dimensions.

## Coil Codes ❺❻

| CAU7-9C...43C | CAU7-60D...85D | |
|---|---|---|
| DC Coil Code | DC Coil Code | Voltage |
| 12D | 12DD | 12V |
| 24D ❼ | 24DD | 24V |
| 48D | 48DD | 48V |
| 110D | 110DD | 110V |
| 220D | 220DD | 220V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:
CAU7-9C…23C deduct $10
CAU7-30C…37C deduct $12
CAU7-43C deduct $22
CAU7-60D…97D without power wiring not available
Ex: CAU7-9-22-✱ becomes CAU7-9-22-✱**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9-22-✱ becomes CAU7-9-22-✱**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ Coils for CAU7-60D…97D reversing contactors include an integrated diode surge suppressor.

❼ Surge suppressor coil with integrated diode available. Order coil code **24DD** and add $84 to list price ($42 x two contactors). To order, change "C" in catalog number to "D". Ex: CAU7-9**C**-22-24D becomes CAU7-9**D**-22-24DD.

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## Reversing, Three Pole Contactors With Electronic 24VDC Coil, Series CAU7 (Open type only) ❺❻

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC ❸ | Catalog Number | Price |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | 1 | 1 | **CAU7-9E-22-24E** | **484** |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 1 | 1 | **CAU7-12E-22-24E** | **597** |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | 1 | 1 | **CAU7-16E-22-24E** | **629** |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | 1 | 1 | **CAU7-23E-22-24E** | **679** |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | 0 | 1 | **CAU7-30E-02-24E** | **780** |
| | | | | | | | | | | | | 1 ❹ | 1 | **CAU7-30E-22-24E** | **820** |
| 37 | 65 | 11 | 18.5/ 20 | 20 | 8.5 | 3 | 5 | 10 | 10 | 25 | 30 | 0 | 1 | **CAU7-37E-02-24E** | **971** |
| | | | | | | | | | | | | 1 ❹ | 1 | **CAU7-37E-22-24E** | **1018** |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0 | 1 | **CAU7-43E-02-24E** | **1050** |
| | | | | | | | | | | | | 1 ❹ | 1 | **CAU7-43E-22-24E** | **1090** |

*CAU7-9E-22-24E reversing contactor*

*CAU7-37E-02-24E reversing contactor*

***Description***

Low Consumption Electronic DC coils have extremely low inrush which allows the use of smaller power supplies. CA7-9E…43E has internal surge suppression. See page A78 for more information.

This new design results in:

- Lighter, lower depth
- More energy efficient contactors
- Easier wiring
- Uniform panel appearance.

***Applications***

Direct control from PLC:

The low power consumption contactor designed to control motors and other loads is especially aligned to the specific requirement of electronic control circuits. The low power consumption of 1.5 W/60 mA allows direct control through PLC's without the need for interposing relays. Power dissipation is greatly reduced limiting the heat effect in control panels.

***Includes:***

- Line side coil terminations
- Mechanical and electrical Interlock ❸
- Reversing power wiring ❶ (using Power Wiring Kit Cat.# CAUT7-PW…)
- Control wiring available; see footnote ❷
- CAU7-9E…43E has internal surge suppression.

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct the following amount:

CAU7-9E…23E deduct $10

CAU7-30E…37E deduct $12

Ex: CAU7-9E-22-24E becomes CAU7-9E-22-24E**-LW.**

❷ For control wiring, add suffix **-CW** to catalog number and add $20.
Example: CAU7-9E-22-24E becomes CAU7-9E-22-24E**-CW.**

❸ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❹ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❺ DC and AC coils are not interchangeable. CA7-9E…43E are only available in 24VDC.

❻ See pages A52-53 for limitations on adding auxiliaries to Electronic DC Coil contacts.

SSNA9000

# Series CA7 Special Use Contactors

## Contactors designed and labeled for specific industrial applications

### Special Use Contactors

*Capacitor switching contactors*

*HVAC rated contactors*

*NEMA size labeled contactors*

*Lighting contactors*

*Hydraulic elevator duty contactors*

The CA7 line includes a number of contactors designed and labeled for specific industrial applications. In most cases, these devices are UL and CSA approved for these specialized uses. Where appropriate, contactors also carry approval by specific industry associations such as ARI (Air Conditioning and Refrigeration Institute).

## CAQ7 Capacitor Switching Contactors

Capacitor Switching Contactors are often used in power factor correction. Single capacitor switching and capacitor bank switching results in peak inrush currents greater than the six times FLA experienced in motor starting applications. Managing the peak inrush of capacitor switching can involve the use of coils of wire to reduce the harmful inrush currents. CAQ7 contactors offer a simple alternative solution by combining a built-in set of resistors and early-make contacts, factory wired in parallel with the power contacts in the body of a CA7 contactor. CAQ7 contactors are cUL rated and labeled for capacitor switching applications.

## CNX Special Purpose Contactors

CNX Special Purpose Contactors are rated by FLA & LRA as well as resistive current rated - primarily to meet the demands of the HVAC and compressor markets. CNX contactors have all the flexibility of a CA7 contactor like easy coil change out, DIN rail mounting and field installable auxiliaries as well as mechanical interlocks not normally associated with true definite purpose contactors. CNX contactors may also be combined with CEP7 or CT7N overload relays to make a special purpose starter. CNX starters are cUL rated and labeled as well as ARI (Air Conditioning and Refrigeration Institute) approved.


## Hydraulic Elevator Wye-Delta Contactors

Most industrial wye-deltas consist of three contactors with interlocks but Hydraulic Elevators are a special application. Hydraulic Elevator wye-deltas consist of a pair of mechanically linked contactors with sufficient auxiliaries for electrical interlocks. The wye-delta is similar to a reversing contactor but the power wiring is different. We offer Hydraulic Elevator contactors with a choice power wiring inter-connections for ease of installation, or without power wiring inter-connections, allowing the elevator serviceman to make use of the existing power cables. This convenient selection of a complete assembly saves time and effort in the field.

## CAN7 and CAN6 NEMA size labeled contactors

CAN7 and CAN6 contactors are UL Listed in accordance with NEMA standards publication ICS-2. CAN7 and CAN6 contactors are UL labeled for application under IEC KW, as well as NEMA Size, for specified horsepower at various voltages. CAN7/CAN6 contactors have been purposely selected larger to increase the life of the device. Only the devices listed here are available with the NEMA size on the UL label. CAN7/CAN6 NEMA sized contactors may be combined with all Sprecher + Schuh overload relays to make a NEMA sized starters.

## Three Pole Capacitor Switching Contactors With AC Coil, Series CAQ7 (Open type only)

For Applications per UL / CSA

| UL/CSA Ratings for Switching Capacitor Banks | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|
| 1-phase 60 Hz (kVar) | | 3-phase 60 Hz (kVar) | | | | | | | |
| 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 2.2 | 4.5 | 6.5 | 7.5 | 15 | 18.5 | 1 | 1 | **CAQ7-16-11-✱** | **225** |
| | | | | | | 2 | 0 | **CAQ7-16-20-✱** | **225** |
| 3.6 | 7.5 | 11 | 12.5 | 20 | 25 | 1 | 1 | **CAQ7-37-11-✱** | **327** |
| | | | | | | 2 | 0 | **CAQ7-37-20-✱** | **327** |

*CAQ7-16-11-120*
*Capacitor Switching contactor*

For Applications per IEC 60947-4 (AC-6b)

| IEC Ratings for Switching Capacitor Bank | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-phase 50 Hz - (kVar) | | | | | 3-phase 50 Hz - (kVar) | | | | | | | | |
| 230V 240V | 400V | 415V | 500V | 690V | 230V 240V | 400V | 415V | 500V | 690V | NO | NC | Catalog Number | Price |
| **Switching Capacitor Banks at 40°C** | | | | | | | | | | | | | |
| 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 | 1 | 1 | **CAQ7-16-11-✱** | **225** |
| | | | | | | | | | | 2 | 0 | **CAQ7-16-20-✱** | **225** |
| 8/8.5 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 | 1 | 1 | **CAQ7-37-11-✱** | **327** |
| | | | | | | | | | | 2 | 0 | **CAQ7-37-20-✱** | **327** |
| **Switching Capacitor Banks at 60°C** | | | | | | | | | | | | | |
| 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 | 1 | 1 | **CAQ7-16-11-✱** | **225** |
| | | | | | | | | | | 2 | 0 | **CAQ7-16-20-✱** | **255** |
| 8/8.5 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 | 1 | 1 | **CAQ7-37-11-✱** | **327** |
| | | | | | | | | | | 2 | 0 | **CAQ7-37-20-✱** | **327** |

***NOTE:*** DC and AC coils are not interchangeable. CAQ7-16C…37C contactors have increased dimensions to accommodate DC coils. See page A87-89 for dimensions.

### Description

CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck.

### Coil Codes ❶

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | **24V** | **24V** |
| **120** | **110V** | **120V** |
| **208** | ~ | 208V |
| **220W** | **~** | **208V-240V** |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 440V |
| **480** | **440V** | **480V** |
| **600** | 550V | 600V |

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

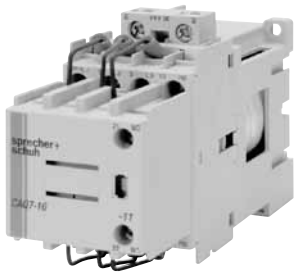
❶ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

SSNA9000

## Three Pole Capacitor Switching Contactors With DC Coil, Series CAQ7 (Open type only)

For Applications per UL / CSA

| UL/CSA Ratings for Switching Capacitor Banks | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|
| 1-phase 60 Hz (kVar) | | 3-phase 60 Hz (kVar) | | | | | | | |
| 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number | Price |
| 2.2 | 4.5 | 6.5 | 7.5 | 15 | 18.5 | 1 | 1 | **CAQ7-16C-11-✱** | **264** |
| | | | | | | 2 | 0 | **CAQ7-16C-20-✱** | **264** |
| 3.6 | 7.5 | 11 | 12.5 | 20 | 25 | 1 | 1 | **CAQ7-37C-11-✱** | **400** |
| | | | | | | 2 | 0 | **CAQ7-37C-20-✱** | **400** |



*CAQ7-16C-11-24D*
*Capacitor Switching contactor*

For Applications per IEC 60947-4 (AC-6b)

| IEC Ratings for Switching Capacitor Bank | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-phase 50 Hz - (kVar) | | | | | 3-phase 50 Hz - (kVar) | | | | | | | | |
| 230V 240V | 400V | 415V | 500V | 690V | 230V 240V | 400V | 415V | 500V | 690V | NO | NC | Catalog Number | Price |
| **Switching Capacitor Banks at 40°C** | | | | | | | | | | | | | |
| 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 | 1 | 1 | **CAQ7-16C-11-✱** | **264** |
| | | | | | | | | | | 2 | 0 | **CAQ7-16C-20-✱** | **264** |
| 8/8.5 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 | 1 | 1 | **CAQ7-37C-11-✱** | **400** |
| | | | | | | | | | | 2 | 0 | **CAQ7-37C-20-✱** | **400** |
| **Switching Capacitor Banks at 60°C** | | | | | | | | | | | | | |
| 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 | 1 | 1 | **CAQ7-16C-11-✱** | **264** |
| | | | | | | | | | | 2 | 0 | **CAQ7-16C-20-✱** | **264** |
| 8/8.5 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 | 1 | 1 | **CAQ7-37C-11-✱** | **400** |
| | | | | | | | | | | 2 | 0 | **CAQ7-37C-20-✱** | **400** |

### *Description*

CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck.

***NOTE:*** DC and AC coils are not interchangeable. CAQ7-16C…37C contactors have increased dimensions to accommodate DC coils. See page A87-89 for dimensions.

### Coil Codes ❶

| DC Coil Code | Voltage |
|---|---|
| **12D** | 12V |
| **24D ❷** | **24V** |
| **48D** | 48V |
| **110D** | 110V |
| **220D** | 220V |

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Other voltages available, see page A62. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❷ Surge suppressor coil with integrated available. Order coil code **24DD** and add $42 to list price.

SSNA9000

## Theory of Operation

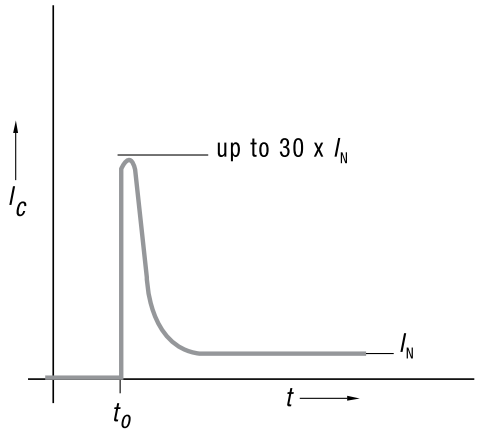
**Single capacitor switching** is often used in power factor correction on individual loads. Inrush current at the point of becoming energized can peak to 30 times normal current (see Figure 1) depending on impedance of cables and transformers.

**Capacitor bank switching** is often used in power factor correction on multiple loads. Inrush current at the point of becoming energized can peak to 200 times normal current (see Figure 2) because each capacitor in the bank acts as an additional power source and therefore feeds additional current to the circuit.

**Complications of capacitor switching** with standard contactors can include nuisance tripping of the short circuit protective device, welding of main contacts, and stress on components resulting in reduced life of capacitors.

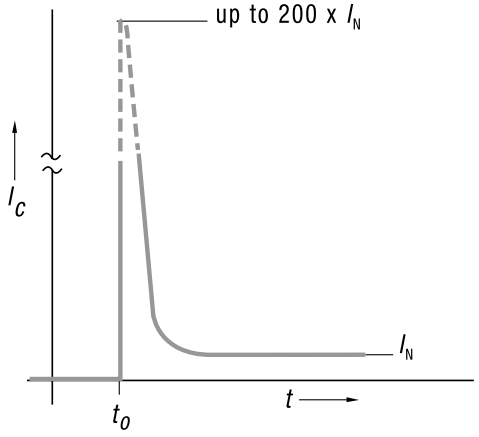
**Managing the peak inrush common with capacitor switching** can involve complicated dimensioning in the form of over sizing standard contactors combined with adding coils of wire. CAQ7 contactors offer a simple alternative solution by combining a built-in set of resistors and early-make contacts, wired in parallel with the power contacts, to pre-charge the capacitors. The increased impedance of the CAQ7 resistors is only present in the circuit during inrush. This circuitry is housed in a front mount add-on deck similar to a four pole auxiliary block, which results in a compact design and ease of selection based on applied KVAR.

CAQ7 is available with AC or DC coils and with 1 NO & 1 NC (see Figure 3) or 2 NO auxiliary contacts (see Figure 4). CAQ7 contactors only show UL/CSA Approved capacitor ratings on the nameplate and should not be used for switching motors.



Single Capacitor Inrush

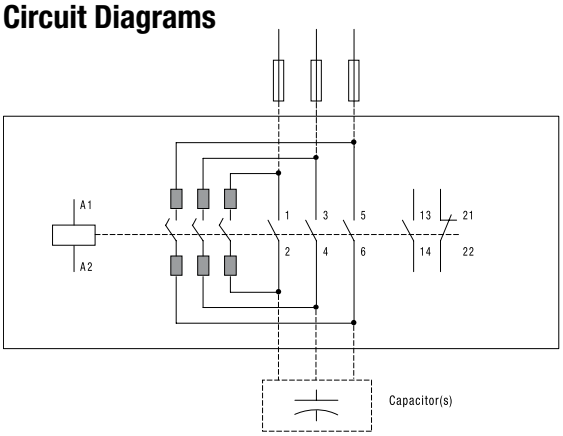
*Figure 1*



Capacitor Bank Inrush

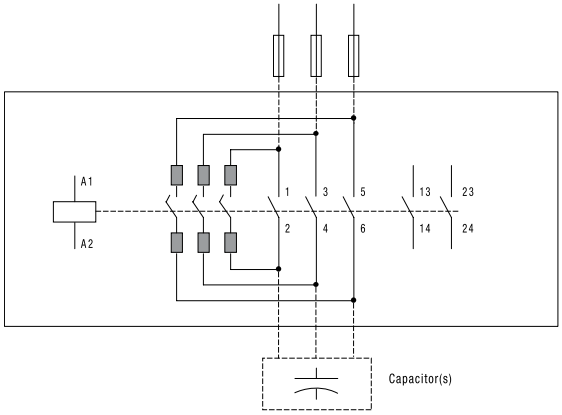
*Figure 2*

## Circuit Diagrams




*CAQ7-16-✱-11 and CAQ7-37-✱-11*
*(1 NO and 1 NC auxiliary contact)*

*Figure 3*




*CAQ7-16-✱-20 and CAQ7-37-✱-20*
*(2 NO auxiliary contacts)*

*Figure 4*

SSNA9000

## Non-Reversing, Three Pole Special Purpose Contactors With AC Coil (Open type only) ❶❷

| Full Load Amps | Locked Rotor Amps - 3Ø | | | Resistive Amps ❹ | Maximum Horsepower | | | | | | Auxiliary Contacts per Contactor | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| | 200V 230V | 460V | 575V | | 115V | 230V | 200V/ 208V | 230V | 460V | 575V | NO | NC | | |
| 15 | 91 | 91 | 66 | 25 | 1-1/2 | 3 | 4 | 5 | 10 | 10 | 1 | 0 | CNX-205-✱ | 174 |
| | | | | | | | | | | | 0 | 1 | CNX-206-✱ | 174 |
| 30 | 180 | 150 | 120 | 40 | 2 | 5 | 7-1/2 | 10 | 20 | 20 | 1 | 0 | CNX-207-✱ | 240 |
| | | | | | | | | | | | 0 | 1 | CNX-208-✱ | 240 |
| 40 | 240 | 200 | 160 | 50 | 3 | 5 | 10 | 10 | 25 | 25 | 0 | 0 | CNX-209-00-✱ | 261 |
| | | | | | | | | | | | 1 | 0 | CNX-209-10-✱ | 281 |
| | | | | | | | | | | | 0 | 1 | CNX-209-01-✱ | 281 |
| 50 | 300 | 250 | 200 | 65 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0 | 0 | CNX-212-00-✱ | 281 |
| | | | | | | | | | | | 1 | 0 | CNX-212-10-✱ | 302 |
| | | | | | | | | | | | 0 | 1 | CNX-212-01-✱ | 302 |
| 90 | 540 | 450 | 360 | 120 | ~ | ~ | 25 | 30 | 60 | 60 | 0 | 0 | CNX-218-00-✱ | 452 |
| | | | | | | | | | | | 1 | 0 | CNX-218-10-✱ | 472 |
| | | | | | | | | | | | 0 | 1 | CNX-218-01-✱ | 472 |

*CNX-208-120*
*Special Purpose contactor*

### *Description*

Series CNX Special Purpose Contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating, ventilation and air conditioning (HVAC) applications. ❷

## Coil Codes ❸

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | **24V** | **24V** |
| **120** | **110V** | **120V** |
| **208** | ~ | 208V |
| **220W** | **~** | **208V-240V** |
| **240** | 220V | 277V |
| **277** | 240V | 440V |
| **380** | 380V-400V | 480V |
| **480** | **440V** | **480V** |
| **600** | 550V | 600V |

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Special order contactors. Contact your Sprecher + Schuh representative for availability.
❷ All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.
❸ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❹ Reference page A81 for Operation Life Data.

SSNA9000

## Non-Reversing, Three Pole Special Purpose Contactors With DC Coil (Open type only) ❶❷

| Full Load Amps | Locked Rotor Amps - 3Ø | | | Resistive Amps ❹ | Maximum Horsepower | | | | | | Auxiliary Contacts per Contactor | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1 Ø | | 3 Ø | | | | | | | |
| | 200V 230V | 460V | 575V | | 115V | 230V | 200V/ 208V | 230V | 460V | 575V | NO | NC | | |
| 15 | 91 | 91 | 66 | 25 | 1-1/2 | 3 | 4 | 5 | 10 | 10 | 1 | 0 | CNX-205C-✱ | 209 |
| | | | | | | | | | | | 0 | 1 | CNX-206C-✱ | 209 |
| 30 | 180 | 150 | 120 | 40 | 2 | 5 | 7-1/2 | 10 | 20 | 20 | 1 | 0 | CNX-207C-✱ | 288 |
| | | | | | | | | | | | 0 | 1 | CNX-208C-✱ | 288 |
| 40 | 240 | 200 | 160 | 50 | 3 | 5 | 10 | 10 | 25 | 25 | 0 | 0 | CNX-209C-00-✱ | 323 |
| | | | | | | | | | | | 1 | 1 | CNX-209C-10-✱ | 343 |
| | | | | | | | | | | | 0 | 1 | CNX-209C-01-✱ | 343 |
| 50 | 300 | 250 | 200 | 65 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | 0 | 0 | CNX-212C-00-✱ | 397 |
| | | | | | | | | | | | 1 | 0 | CNX-212C-10-✱ | 417 |
| | | | | | | | | | | | 0 | 1 | CNX-212C-01-✱ | 417 |
| 90 | 540 | 450 | 360 | 120 | ~ | ~ | 25 | 30 | 60 | 60 | 0 | 0 | CNX-218D-00-✱ | 575 |
| | | | | | | | | | | | 1 | 0 | CNX-218D-10-✱ | 595 |
| | | | | | | | | | | | 0 | 1 | CNX-218D-01-✱ | 595 |

*CNX-208C-24D*
*Special Purpose contactor*

### *Description*

Series CNX Special Purpose Contactors are standard CA7 contactors that have been tested, approved and labeled by UL for heating, ventilation and air conditioning (HVAC) applications. ❷

### Coil Codes ❸

| CNX-205C...212C | CNX-218D | |
|---|---|---|
| DC Coil Code | DC Coil Code | Voltage |
| 24D ❺ | 24DD ❻ | 24V |
| 110D ❺ | 110DD ❻ | 110V |

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Special order contactors. Contact your Sprecher + Schuh representative for availability.
❷ All CNX contactors listed here are ARI (Air Conditioning and Refrigeration Institute) approved.
❸ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❹ Reference page A61 for Operation Life Data.
❺ DC coils for CNX-205C...212C are True DC Coils.
❻ DC coils for CNX-218D contactors are two winding DC Coil Series and include integrated diode surge suppressor.

SSNA9000

## Hydraulic Elevator Wye Delta, with AC Coils (Two Contactor Type ❶)

| Maximum Horsepower Three Phase | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|
| 200V | 230V | 460V | 575V | NO ❹ | NC ❸ | Catalog No. | Price |
| 10 / 10 | 15 / 10 | 30 / 30 | 30 / 30 | 0 | 1 | CA7Y2-30-02-✱-LW | 551 |
| | | | | 1 | 1 | CA7Y2-30-22-✱-LW | 593 |
| 15 / 10 | 20 / 15 | 40 / 30 | 40 / 40 | 0 | 1 | CA7Y2-37-02-✱-LW | 639 |
| | | | | 1 | 1 | CA7Y2-37-22-✱-LW | 679 |
| 20 / 15 | 25 / 15 | 50 / 40 | 50 / 50 | 0 | 1 | CA7Y2-43-02-✱-LW | 691 |
| | | | | 1 | 1 | CA7Y2-43-22-✱-LW | 732 |
| 30 / 15 | 40 / 25 | 75 / 50 | 75 / 60 | 0 | 1 | CA7Y2-60-02-✱-LW | 912 |
| | | | | 1 | 1 | CA7Y2-60-22-✱-LW | 952 |
| 40 / 25 | 50 / 30 | 100 / 60 | 100 / 75 | 0 | 1 | CA7Y2 -72-02-✱-LW | 1033 |
| | | | | 1 | 1 | CA7Y2 -72-22-✱-LW | 1073 |
| 50 / 30 | 60 / 40 | 125 / 75 | 125 / 100 | 0 | 1 | CA7Y2-85-02-✱-LW | 1150 |
| | | | | 1 | 1 | CA7Y2-85-22-✱-LW | 1192 |
| 50 / TBD | 60 / TBD | 125 / TBD | 125 / TBD | 0 | 1 | CA7Y2-97-02-✱-LW | 1390 |
| | | | | 1 | 1 | CA7Y2-97-22-✱-LW | 1432 |

**HP Selection**

Industrial Application ❺ / UL/CSA Elevator Duty ❻

*Larger sizes available, see page A100. Contact your Sprecher + Schuh representative.*

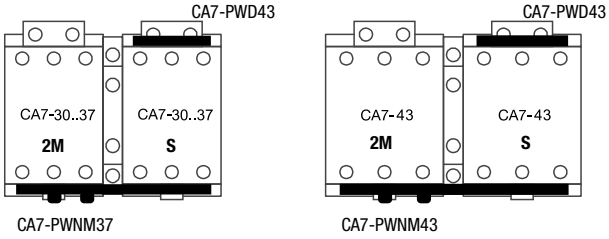
*CA7Y2-30 Wye-Delta contactor*

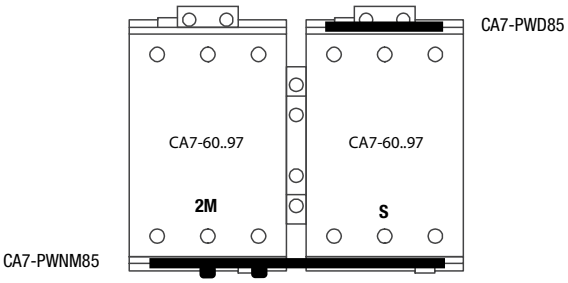
***Includes:***

- Line side coil terminations
- Mechanical and electrical Interlocks ❷
- CA7Y2-60…85 includes back pan

***Optional:***

- Power Wiring available but not included (see page A59) ❶❼
- Elevator controllers often require additional auxiliary contacts. ❸




## Coil Codes ❹

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | 24V | 24V |
| **120** | 110V | 120V |
| **208** | ~ | 208V |
| **220W** | ~ | 208V - 240V |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 440V |
| **480** | 440V | 480V |
| **600** | 550V | 600V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ For Contactors *with* power wiring change catalog number suffix "-LW" to "**-PW**" and add the following amount:
CA7Y2-30…37 add $25
CA7Y2-43 add $32
CA7Y2-60…97 add $45 (without backpan)
Ex: CA7Y2-30-22-✱-**LW** becomes CA7Y2-30-22-✱-**PW.**

❷ The NC auxiliary contacts are supplied as part of the mechanical interlock (Cat.# CM7-02) and are used to electrically interlock the contactors.

❸ The NO auxiliary contacts supplied are side mounted. Top mount NO auxiliary contacts must be special ordered. Contact your Sprecher+Schuh representative.

❹ Other voltages available, see page A61. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❺ HP selection based on UL508 for Industrial Applications.

❻ HP selection based on UL/CSA Elevator Duty Ratings.

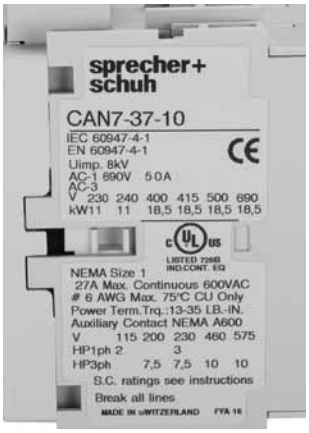
❼ See typical Wye-Delta Wiring Diagram on page C72.

SSNA9000

## Non-Reversing, Three Pole NEMA Labeled Contactors with AC Coil ❶❸

| NEMA Size | Maximum Horsepower | | | | | | Standard Auxiliary Contacts | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1Ø | | 3Ø | | | | | | | |
| | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | | |
| 00 | 1/3 | 1 | 1-1/2 | 1-1/2 | 2 | 2 | 1 | 0 | CAN7-12-10-✱ | 155 |
| 0 | 1 | 2 | 3 | 3 | 5 | 5 | 1 | 0 | CAN7-16-10-✱ | 174 |
| 1 | 2 | 3 | 7-1/2 | 7-1/2 | 10 | 10 | 1 | 0 | CAN7-37-10-✱ | 288 |
| 2 | 3 | 7-1/2 | 10 | 15 | 25 | 25 | 1 | 0 | CAN7-43-10-✱ | 308 |
| 3 | 7-1/2 | 15 | 25 | 30 | 50 | 50 | 1 | 0 | CAN7-85-10-✱ | 482 |
| 4 | ~ | ~ | 40 | 50 | 100 | 100 | 1 | 1 | CAN6-180-11-✱ | 1608 |
| | | | | | | | | | CAN6-180-EI-11-✱ | 1850 |
| 5 | ~ | ~ | 75 | 100 | 200 | 200 | 1 | 1 | CAN6-300-EI-11-✱ | 2375 |

*CAN7 NEMA labeled contactor (AC)*




***Application Notes***

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A61 for CAN7 coils and pages A106-108 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CA[N]7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing. NEMA sized starters with AC Coils are listed on page C26.

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

### CAN7 AC Coil Codes ❷

| CAN7-12...85 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| 24Z | 24V | 24V |
| 120 | 110V | **120V** |
| 208 | ~ | 208V |
| 220W | ~ | **208V-240V** |
| 240 | 220V | 240V |
| 277 | 240V | 277V |
| 380 | 380V-400V | 440V |
| 480 | 440V | **480V** |
| 600 | **550V** | **600V** |

### CAN6 AC Coil Codes Conventional Coils ❷

| CAN6-180 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| 24 | ~ | 24V |
| 120B | **110V** | **120V** |
| 208 | ~ | 208V |
| 240B | 220-230V | 260V |
| 277 | 240V | 277V |
| 380 | 380V-400V | 440V |
| 480 | **415V** | **480V** |
| 575 | 500V | 575V |

### CAN6 AC Coil Codes "EI" Electronic Coils ❷❸

| CAN6-180-EI...300-EI | |
|---|---|
| AC Coil Code | Voltage Range |
| | 50 Hz / 60 Hz |
| 24 ❹ | 24V |
| 120 | **110-130V** |
| 220W | 208-277V |
| 460W | 380-500V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Refer to page A87 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.

❷ Other voltages available, see page A61 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❸ "-EI" designates contactor with Electronic Interface coil.

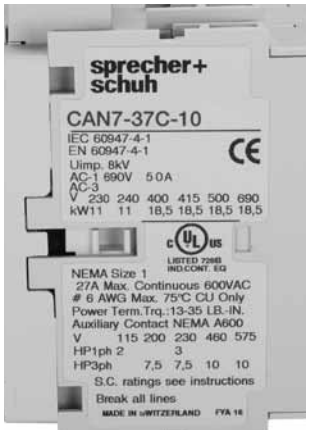
❹ 24 V AC coil not available for CAN6-300-EI.

SSNA9000

## Non-Reversing, Three Pole NEMA Labeled Contactors with DC Coil ❶

| NEMA Size | Maximum Horsepower | | | | | | Standard Auxiliary Contacts | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1Ø | | 3Ø | | | | | | | |
| | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | | |
| 00 | 1/3 | 1 | 1-1/2 | 1-1/2 | 2 | 2 | 1 | 0 | CAN7-12E-10-24E ❺ | 242 |
| | | | | | | | | | CAN7-12C-10-✱ | 200 |
| 0 | 1 | 2 | 3 | 3 | 5 | 5 | 1 | 0 | CAN7-16E-10-24E ❺ | 267 |
| | | | | | | | | | CAN7-16C-10-✱ | 225 |
| 1 | 2 | 3 | 7-1/2 | 7-1/2 | 10 | 10 | 1 | 0 | CAN7-37E-10-24E ❺ | 414 |
| | | | | | | | | | CAN7-37C-10-✱ | 372 |
| 2 | 3 | 7-1/2 | 10 | 15 | 25 | 25 | 1 | 0 | CAN7-43E-10-24E ❺ | 475 |
| | | | | | | | | | CAN7-43C-10-✱ | 432 |
| 3 | 7-1/2 | 15 | 25 | 30 | 50 | 50 | 2 | 1 | CAN7-85D-10-✱ | 612 |
| 4 | ~ | ~ | 40 | 50 | 100 | 100 | 1 | 1 | CAN6-180-EI-11-✱ ❸ | 2290 |
| 5 | ~ | ~ | 75 | 100 | 200 | 200 | 1 | 1 | CAN6-300-EI-11-✱ ❸ | 2950 |

*CAN7 NEMA labeled contactor (AC)*




***Application Notes***

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A62 for CA(N)7 coils and pages A106-107 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CAN7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing.

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

### CAN7 DC Coil Codes ❷

| CAN7-12C...72C | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D | 24V |
| 110D | 110V |

### CAN7 DC Coil Codes with integrated Diode ❷

| CAN7-85D | |
|---|---|
| DC Coil Code | Voltage Range |
| 24DD | 24V |
| 110DD | 110V |

### CAN6 DC Coil Codes "EI" Electronic Coils ❷❹

| CAN6-180-EI...300-EI | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D | 24V |
| 120D | 110 - 130V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Refer to page A88 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A62 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ Refer to page A120 for CA6-EI Application Notes for 24 volt DC Electronic Coils.
❺ CAN7-12E..43E have an electronic 24VDC coil that is not interchangeable.

# Series CAL7 Lighting Contactors

## Compact contactors for North American lighting applications

Sprecher + Schuh CA7 and CA6 contactors can be used to control a wide variety of lighting loads. These contactors are well suited to handle the high inrush currents typical of this application as well as other non-motor (resistive) loads.

Lamps can basically be divided into three categories:

- Tungsten Filament Lamps
  - General purpose incandescent
  - Special purpose incandescent
  - Infrared
  - Sodium Iodine
- Discharge Lamps (with Ballast)
  - Fluorescent lamps
  - Mercury vapor
  - High/low pressure sodium
  - Quartz
  - Halogen metal-vapor
- Mixed Light Lamps

## In application…

The tungsten filaments of incandescent lamps have a very low ohmic resistance when cold. As a result, the closing current is very high but also very short.

The closing current of discharge lamps (lighting with ballast) is highly inductive (due to series-connected transformers or chokes), and its duration depends on the lamp type.

In general, North Americans refer to Lighting Contactor ratings in amperes without distinction between incandescent or ballast type of load. The lighting contactor selection table provided on the following page is for North American use, so ratings are selected for mixed lamp loads which account for the higher incandescent inrush.

Europeans usually separate the values for incandescent from discharge (ballast) lighting. Both values are provided in the technical section of our general catalog and may be more appropriate for those applying by CE standards.

## Electrically held contactors

Electrically held contactors are available for use where the control signal is activated by a timer or other maintained electrical signal. The coil is energized as long as the contactor is closed. This design is well suited for applications where lights are operated frequently or where the control panel is in a remote location.

## Mechanically held contactors

Mechanically held contactors are available for applications where quiet operation or critical lighting is required, i.e., institutions, hospitals and residential/commercial areas. After the contactor closes, the voltage is disconnected from the operating coil and the contactor is held closed by the mechanical latch. Built-in clearing interlocks allow control from either a momentary or maintained pilot device for the separate “pull-in” and “release” functions.

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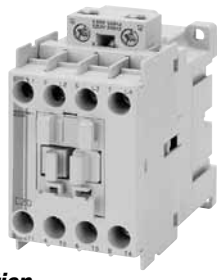
## Lighting Contactors with AC Coil

| Continuous Ampere Rating ❹ | Number of Poles | Standard Auxiliary Contacts | | Electrically Held | | Mechanically Held ❶ | |
|---|---|---|---|---|---|---|---|
| | | NO | NC | Open Type Catalog Number | Price | Open Type Catalog Number | Price |
| 20 | 4 | 0 | 0 | **CAL7-20-M40-✱** | **195** | **CAVL7-20-M40-✱-L10** | **379** |
| 30 | 4 | 0 | 0 | **CAL7-30-M40-✱** | **288** | **CAVL7-30-M40-✱-L10** | **427** |
| 60 | 4 | 0 | 0 | **CAL7-60-M40-✱** | **489** | **CAVL7-60-M40-✱-L10** | **600** |
| 100 | 3 | 1 | 1 | **CA6-110-11-✱** | **750** | ~ | ~ |
| 150 | 3 | 1 | 1 | **CA6-180-11-✱** | **1608** | ~ | ~ |
| 200 | 3 | 1 | 1 | **CA6-210-E1-11-✱** | **1917** | ~ | ~ |

*Larger sizes available. Contact your Sprecher + Schuh representative.*



### *Description*

The CAL7 electrically held contactors and CAVL7 mechanical held contactors are cUL rated and labeled for tungsten and ballast lighting duty applications at 20, 30, and 60 amperes respectively.

The CA6 contactors shown are selections based on available technical data. These CA6 units do not bear a cUL rating for use as a lighting contactor.

### CA(L)7 Coil Codes ❷

| AC Coil Code | Voltage Range | |
|---|---|---|
| | 50 Hz | 60 Hz |
| **24Z** | 24V | 24V |
| **120** | 110V | 120V |
| **208** | ~ | 208V |
| **220W** | ~ | 208V-240V |
| **240** | 220V | 240V |
| **277** | 240V | 277V |
| **380** | 380V-400V | 480V |
| **480** | 440V | 480V |
| **600** | 550V | 600V |

### CA6 Coil Codes ❷

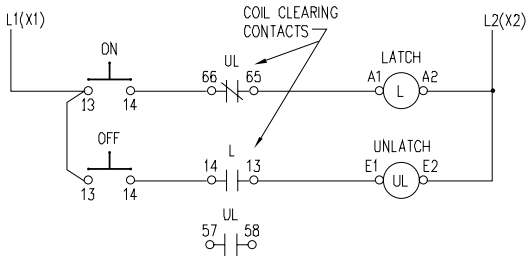
| CA6-110…180 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| **24** | ~ | 24V |
| **120B** | 110V | 120V |
| **208** | ~ | 208V |
| **240B** | 220-230V | 260V |
| **277** | 240V | 277V |
| **380** | 380-400V | 440V |
| **480** | 415V | 480V |
| **575** | 500V | 575V |

### CA6 EI-Coil Codes ❸❷

| CA6-210-EI | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| **120** | 110-130V | 110-130V |
| **220W** | 208-277V | 208-277V |
| **380** | 380-400V | 380-400V |

***Operation of Mechanically Held Contactor with "ON-OFF" Pushbutton***

Catalog number "CAVL7" consists of a CAL7 contactor with CV7-11 mechanical latch. Depressing the "ON" button energizes the "L" coil and the contactor closes. The mechanical latch locks the contactor in the closed position. The "L" coil is then de-energized by the coil, clearing contact "UL" (Terminals 65-66) to remove voltage. Depressing the "OFF" button energizes the "UL" coil, and the mechanical latch releases the contactor. The "UL" coil is immediately de-energized by the coil clearing contact "L" (Terminals 13-14) to remove voltage. The contactor is now open.




## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ The N.O. auxiliary on the mechanical latch is used by the control circuit and is not available to the customer for other uses.

❷ Other voltages available, see page A61. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❸ "-EI" designates contactor with Electronic Interface coil.

❹ Engineering practice permits 2.5 x $I_e$ to be applied to a contactor when 3 poles are connected in parallel for single phase discharge lamp (ballast lighting) applications. Example: A CAL7-20-M40-✱ Lighting Contactor plus a CA7-P-B23 Paralleling Link can be used on a 50A ballast load. Applying parallel conductors to incandescent lamp loads does NOT result in a greater permissible load. Paralleling Links can be found in the Accessories section.

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## Top (Front) Mount Auxiliary Contact Blocks ❶

*Top mount auxiliary contact blocks snap-on to the top (front) of any CA7 contactor*

*4-pole auxiliary*

*2-pole auxiliary contact block (typical)*

**Auxiliary Contact Blocks for Top Mounting -**

- 2 and 4 pole
- Snap on design - mounts without tools
- Electronic compatible contacts
- Mutual positive guidance to the main contactor poles (excluding L types)
- Several terminal numbering choices even for models wit equal function
- Late break /early make (L) available

**Bifurcated Contacts**

Bifurcated auxiliary contacts provides a higher degree of reliability than the standard cross-stamped auxiliary contacts because it H-bridge divides each movable contact into two sections at the tip of the spanner. Typical application is low-voltage low-current applications (i.e.: PLC). Cross-stamped contacts are good for a minimum of 5mA at 17v while bifurcated contacts are good for a minimum of 3mA at 5v.

| Contact Block | Description | NO | NC | Contact Arrangement | For use with... | Standard Contacts Catalog Number | Price | Bifurcated Contacts Catalog Number ❷ | Price |
|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 2 | 51 61 / 52 62 | CA7 all | **CS7-PV-02** | **27** | **CS7-PVB-02** | **42** |
| | | | | 11 21 / 12 22 | CA7-30...85-✱-00 | **CA7-PV-02** | **27** | **CA7-PVB-02** | **42** |
| | | 1 | 1 | 53 61 / 54 62 | CA7 all | **CS7-PV-11** | **27** | **CS7-PVB-11** | **42** |
| | | | | 13 21 / 14 22 | CA7-30...85-✱-00 | **CA7-PV-11** | **27** | **CA7-PVB-11** | **42** |
| | | | | 23 31 / 24 32 | CA7-9...23-✱-10<br>CA7-9...23-✱-01 | **CA7-PV-S11** | **27** | **CA7-PVB-S11** | **42** |
| | | 2 | 0 | 53 63 / 54 64 | CA7 all | **CS7-PV-20** | **27** | **CS7-PVB-20** | **42** |
| | | | | 13 23 / 14 24 | CA7-30...85-✱-00 | **CA7-PV-20** | **27** | **CA7-PVB-20** | **42** |
| | | 1EM | 1LB | 17 25 / 18 26 | CA7-30...85-✱-00 | **CA7-PV-L11** | **37** | **NOT AVAILABLE** | **~** |
| | | 1 | 3 | 53 61 71 81 / 54 62 72 82 | CA7-30...85-✱-00 | **NOT AVAILABLE** | **~** | **CA7-PVB-13** | **79** |
| | | 2 | 2 | 53 61 71 83 / 54 62 72 84 | CA7 all | **CS7-PV-22** | **53** | **CS7-PVB-22** | **79** |
| | | | | 13 21 31 43 / 14 22 32 44 | CA7-30...85-✱-00 | **CA7-PV-22** | **53** | **CA7-PVB-22** | **79** |
| | | | | 21 31 43 53 / 22 32 44 54 | CA7-9...23-✱-10<br>CA7-9...23-✱-01 | **CA7-PV-S22** | **53** | **CA7-PVB-S22** | **79** |
| | | 3 | 1 | 53 61 73 83 / 54 62 74 84 | CA7 all | **CS7-PV-31** | **53** | **CS7-PVB-31** | **79** |
| | | | | 21 33 43 53 / 22 34 44 54 | CA7-9...23-✱-01 | **CA7-PV-S31** | **53** | **CA7-PVB-S31** | **79** |
| | | 1 | 3 | 53 61 71 81 / 54 62 72 82 | CA7 all | **CS7-PV-13** | **53** | **CS7-PVB-13** | **79** |
| | | 4 | 0 | 53 63 73 83 / 54 64 74 84 | CA7 all | **CS7-PV-40** | **53** | **CS7-PVB-40** | **79** |
| | | 0 | 4 | 51 61 71 81 / 52 62 72 82 | CA7 all | **CS7-PV-04** | **53** | **CS7-PVB-04** | **79** |
| | | 1+1EM | 1+1LB | 53 61 75 87 / 54 62 76 88 | CA7 all | **CS7-PV-L22** | **74** | **NOT AVAILABLE** | **~** |

❶ Max. number of auxiliary contacts that may be mounted:
- AC Coil contactors - max. 4 N.O. contacts on the front of the contactor, 2-N.O. contacts on the side, 4-N.C. front or side: 6 total.
- DC Coil contactors - max. 4 N.O. contacts on the front of the contactor, or max. 2-N.O. contacts on side, 4-N.C. front or side: (4) total.

❷ Detailed ratings can be found on page A79.

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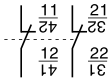
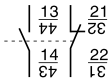
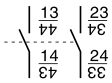
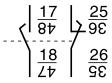
## Side Mount Auxiliary Contact Blocks (1 & 2 Pole) ❶

| Contact Block | Description | NO | NC | Contact Arrangement | For use with... | Catalog Number ❸ | Price |
|---|---|---|---|---|---|---|---|
|  *1-pole (typical)*  *2-pole (typical)* | **Auxiliary Contact Blocks for Side Mounting - ❶**<br>• 1 and 2-pole<br>• Two way numbering for right or left mounting on the contactor<br>• Snap-on design - mounts without tools<br>• Electronic compatible contacts down to 24V, 20mA<br>• Late break / early make (L) available<br>• Mutual positive guidance to the main contactor poles (excluding L-types) | 0 | 1 |  | CA7 all | **CA7-PA-01** | **17** |
| | | 1 | 0 |  | CA7 all ❷ | **CA7-PA-10** | **17** |
| | | 0 | 2 |  | CA7 all | **CA7-PA-02** | **27** |
| | | 1 | 1 |  | CA7 all ❷ | **CA7-PA-11** | **27** |
| | | 2 | 0 |  | CA7 all ❷ | **CA7-PA-20** | **27** |
| | | 1EM | 1LB |  | CA7 all | **CA7-PA-L11** | **37** |

❶ Max. number of auxiliary contacts that may be mounted:
- AC Coil contactors - max. 4 N.O. contacts on the front of the contactor, 2-N.O. contacts on the side, 4-N.C. front or side: 6 total.
- DC Coil contactors - max. 4 N.O. contacts on the front of the contactor, or max. 2-N.O. contacts on side, 4-N.C. front or side: (4) total.

❷ Left mounting only is recommended when using with CA7-9…CA7-23 contactors. These contactors have built-in auxiliaries, which will result in duplicate terminal markings if mounted on the right.

❸ Detailed ratings can be found on page A79.

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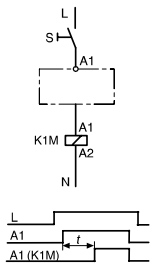
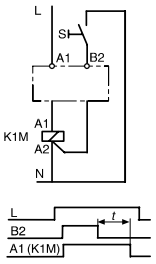
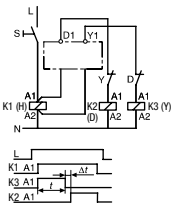
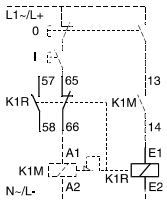
## Control Modules ❶

| Module | Description | For use with. . . | Connection Diagrams | Function | Catalog Number | Price |
|---|---|---|---|---|---|---|
|  | **Pneumatic Timing Module –**<br>The contacts in the Pneumatic Timing Element switch after the delay time. The contacts on the main contactor continue to operate without delay.<br>• Continuous adjustment range | CA7 all |  | **ON-Delay**<br>0.3…30s<br>1.8…180s | **CZE7-30**<br>**CZE7-180** | **160** |
| | | CA7 all |  | **OFF-Delay**<br>0.3…30s<br>1.8…180s | **CZA7-30**<br>**CZA7-180** | **160** |
|  | **Electronic Timing Module –**<br>**ON-Delay**<br>The contactor is energized at the end of the delay time. | CA7 all |  | 110…240V 50/60Hz<br>110…250V DC<br>0.1…3s<br>1…30s<br>10…180s | **CRZE7-3-110/240**<br>**CRZE7-30-110/240**<br>**CRZE7-180-110/240** | **98** |
| | | | | 24…48V DC<br>0.1…3s<br>1…30s<br>10…180s | **CRZE7-3-24/48VDC**<br>**CRZE7-30-24/48VDC**<br>**CRZE7-180-24/48VDC** | **104** |
|  | **Electronic Timing Module –**<br>**OFF-Delay**<br>After interruption of the control signal, the contactor is de-energized at the end of the delay time. | CA7 all |  | 110…240V 50/60Hz<br>0.3…3s<br>1…30s<br>10…180s | **CRZA7-3-110/240**<br>**CRZA7-30-110/240**<br>**CRZA7-180-110/240** | **112** |
| | | CA7-9…<br>CA7-37 | | 24V AC 50/60Hz<br>0.3…3s<br>1…30s<br>10…180s | **CRZA7-3-24VAC**<br>**CRZA7-30-24VAC**<br>**CRZA7-180-24VAC** | **112** |
|  | **Electronic Timing Module –**<br>**Wye-Delta Transition Timer**<br>Contactor K3 (Y) is de-energized and contactor K2 (D) is energized after the end of the set transition time. Switching delay at 50ms.<br>• Continuous adjustment range<br>• High repeat accuracy | CA7 all |  | 110…240V 50/60Hz<br>1…30s | **CRZY7-30-110/240** | **112** |
|  <br>*CM7* *CM7-02* | **Mechanical/Electrical Interlocks –**<br>• Common to all CA7 contactors; interlocks different contactor sizes<br>• Mechanical and electrical interlocking possible in one module by means of integrated auxiliary contacts<br>• Dovetail (CA7-S9) connector included (9mm) | CA7 all ❶ |  | **Mechanical**<br>Without auxiliaries | **CM7** | **34** |
| | | |  | **Mechanical/ Electrical**<br>Two NC aux contacts | **CM7-02** | **40** |

❶ Not for use with CA7-40 or CA7-90 (4-pole) Contactors.

## Control Modules *(continued)*

| Module | Description | For use with… | Connection Diagrams | Catalog Number | Price |
|---|---|---|---|---|---|
|  | **Mechanical Latch –**<br>Following contactor latching, the contactor coil is immediately de-energized by the NC auxiliary contact (65-66).<br>• Electrical or manual release<br>• 1 NO + 1 NC auxiliary switch<br>• Suitable for all CA7 contactors | CA7-9…97<br>(except true DC coils) |  | **CV7-11-✱**<br>*Replace ✱ with coil code below (See Application Note below)* | **94** |

## CV7 Mechanical Latch Coil Codes ❶❷❹

| Coil Code | Application Range | | | Latch & Contactor Coil Rating |
|---|---|---|---|---|
| | 50 Hz | 60 Hz | VDC | |
| **24Z** | **24 VAC** | 24 VAC | 12 VDC | 24V 50/60 Hz |
| **48Z** | 48 VAC | 48 VAC | **24 VDC** | 48V 50/60 Hz |
| **120** | 110 VAC | **120 VAC** | ~ | 110V50/120V60 |
| **220W** | ~ | **208…240 VAC** | ~ | 208…240V60 |
| 230Z | 230 VAC | 230 VAC | 110 VDC | 230V 50/60 Hz |
| **240Z** | **240 VAC** | **240 VAC** | 125 VDC | 240V 50/60 Hz |
| 277 | 240 VAC | 277 VAC | ~ | 240V50/277V60 |
| 380 | 380…400 VAC | 440 VAC | ~ | 380…400V50/440V60 |
| 400Z | 400 VAC | 400 VAC | 220 VDC | 400V 50/60 Hz |
| 415 | 400…415 VAC | ~ | ~ | 400…415 V50 Hz |
| **480** | 440 VAC | **480 VAC** | ~ | 440V50/480V60 |
| 600 ❸ | 550 VAC | 600 VAC | ~ | 550V50/600V60 |

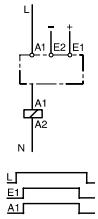
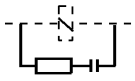
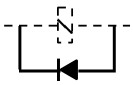
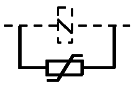
***APPLICATION NOTE:***

The CV7 Mechanical Latch for CA7 may be used for both AC and DC applications; however when using DC control circuit the user must apply the following rules for coil selection of the contactor and latch combination:

- CV7 latch can NOT be used on DC control applications with CA7-9C…43C or CA7-9D…43D True DC coil contactors. When DC control circuits are required use CA7-9…43 contactors with AC coil and latch with AC coil. From column "VDC" in the table on the left, identify the required application DC control voltage and then select its specific Coil Code. Enter this Coil Code to complete the catalog numbers for both the contactor and latch (i.e.: 125V DC control circuit should use a 240Z coil code in both the CA7-9…43 and CV7). This works because both coils are only momentary energized and coil clearing contacts breaks the circuit after closing or opening.
- The above statement does NOT apply to applications CA7-60D…97D two-winding DC coil contactors. When DC control circuits are required use CA7-60D…97D contactors with standard two winding DC coil and the CV7 latch with AC coil selected from the table, top left. (i.e.: 125V DC control circuit should use 125DD coil code in the contactor and 240Z AC coil code in the CV7 latch).
- When 24 VDC control circuit is required, we recommend using the CA7-9E…43E with the CV7 latch. The CA7-9E…43E contactor uses an electronic DC coil and the CV7 latch coil code should be chosen from the table on the left. (i.e.: 24V DC control circuit select CA7-9E…43E with code 24E and CV7 latch uses a 48Z AC coil code).

❶ Other voltages available. Contact your Sprecher + Schuh representative.
❷ CV7 must be wired for momentary operation only.
❸ Use 600V AC when 575 V is required.
❹ Command duration 0.03…10 seconds.

## Control Modules *(continued)*

| Module | Description | For use with… | Connection Diagrams | Function | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|
| | | | | Input | Output | | |
|  | **Electronic Interface –**<br>Interface between the DC control signal from a PLC and the AC operating mechanism of the contactor.<br>• Requires no additional surge suppression for the coils<br>• Switching capacity 200VA<br>• Suitable for all CA7 contactors ❷ | CA7 all (with AC control) |  | **24V DC** ❶<br>12V DC<br>48V DC | 110…<br>240V AC | **CRI7E-24**<br>**CRI7E-12**<br>**CRI7E-48**<br>*Indicates special order* | **72** |
|  | **Surge Suppressors -**<br>Limits coil switching transients.<br>• Plug-in, coil mounted<br>• Suitable for all CA7 contactors | CA7 all |  | **RC Module -**<br>AC Control (50/60Hz)<br>24…48V<br>110…280V<br>380…480V | | **CRC7-48**<br>**CRC7-280**<br>**CRC7-480** | **34** |
| | | |  | **Diode Module -**<br>DC Control<br>12-250VDC | | **CRD7-250** | **34** |
| | | |  | **Varistor Module -**<br>AC/DC Control<br>12…55VAC/ 12…77VDC<br>56…136VAC/ 78…180VDC<br>137…277VAC/ 181…350VDC<br>278…575VAC | | **CRV7-55**<br>**CRV7-136**<br>**CRV7-277**<br>**CRV7-575** | **21** |

❶ Control voltage 18…30V DC (10…15mA)

❷ Minimum actuation current is 5 volts, 2ma. The leakage current is <1MA for the following:
- CRI7E-12 @ 2.5 VDC input
- CRI7E-24 @5 VDC input
- CRI7E-48 @ 10 VDC input.

## AC Voltage Sag Immunity Modules

| Module | Description | Full-Wave Bridge Rectifier | | Catalog Number | Price |
|---|---|---|---|---|---|
| | | Module Input | Module Output | | |
| | | Control circuit voltage range | For use with CA7 contactors with DC coil CS7 control relays with DC coil | | |
|  | **SEMI-F47-Module** | 24-250 VAC | 24-250 VDC ❶ | **CA7-SF47** | **109** |
|  | **Semi-F47-Module with 1...30s on-delay timer** | 110-250 VAC | 110-250 VDC ❶ | **CA7-SF47A30** | **175** |

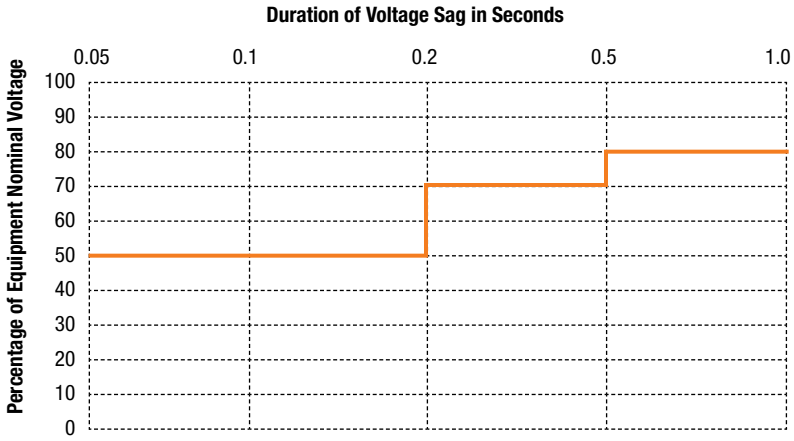
Sprecher + Schuh's CA7-SF47 module meets the Semi-F47 AC voltage sag immunity requirements to 50% voltage sag for 200 ms. Voltage sags can affect the readiness and operation of contactors and starters, resulting in shut downs, lost production, and diminished revenue. It is essential for process equipment to be compatible with its electrical environment. The CA7-SF47 voltage sag immunity module is an essential component to achieve equipment reliability during voltage sag events.

### *Product Features*

- Meets Semi-F47 standard requirements
- For use with CA7 contactors and CS7 control relays with DC coils. A full-wave bridge rectifier internal to the CA7-SF47 module provides AC to DC coil voltage rectification.
- Suitable for contactor range (with screw terminals)
  - CA7-9 ... 85, 3-Pole contactors
  - CA7-9 ... 90, 4-Pole contactors
- Suitable for control relays (with screw terminals)
  - CS7
- Optional 1 to 30 seconds On-Delay timer function.

### *Benefits*

- Direct mounting to the coil terminals of the CA7 contactors and CS7 control relays. Only 24 mm is added to the component height.
- Direct electrical connection to the contactor or control relay. Customer coil power connections are made at the terminals of the CA7-SF47 module
- The CA7-SF47A30 module includes a 1 to 30 seconds adjustable On-Delay timer in addition to the voltage sag immunity functionality. Two independent functions in a single module.




| VOLTAGE SAG DURATION | | | | VOLTAGE SAG |
|---|---|---|---|---|
| *Seconds* | *Milliseconds* | *Cycles at 60 hz* | *Cycles at 50 hz* | *Percent (%) of Equipment Nominal Voltage* |
| < 0.05 s | < 50 ms | < 3 cycles | < 2.5 cycles | Not specified |
| 0.05 to 0.2 s | 50 to 200 ms | 3 to 12 cycles | 2.5 to 10 cycles | 50% |
| 0.2 to 0.5 s | 200 to 500 ms | 12 to 30 cycles | 10 to 25 cycles | 70% |
| 0.5 to 1.0 s | 500 to 1000 ms | 30 to 60 cycles | 25 to 50 cycles | 80% |
| > 1.0 s | > 1000 ms | > 60 cycles | > 50 cycles | Not specified |

❶ Input AC control circuit voltage must be matched when selecting the contactor/relay DC coil voltage.

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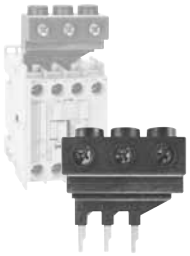
## Terminal Lug Kits ❶

| Component | Description | For use with . . . | Maximum Resistive Current Ratings (A) ❷ IEC (40°C) | IEC (60°C) | UL/CSA (40°C) | Pkg. Qty. | Catalog Number ❶ | Price Each |
|---|---|---|---|---|---|---|---|---|
|  | **3 Pole Lug Kit –** Allows larger wires to be used with the contactor. Ideal for wye-delta, reversing and multispeed contactors and starters. Can increase IEC AC-1 current rating, as well as the UL/CSA continuous current (resistive) rating of the contactor. Three pole kit used for smaller contactors. | CA7-9. . .23 -line side -load side | 45 | 45 | 40 | 1 | **CA7-P-KN23 CA7-P-KL23** | **41** |
| | | CA7-30. . .37 | 60 | 55 | 55 | 1 | **CA7-P-K37** | **56** |
|  | **1 Pole Lug Kit –** Allows larger wires to be used with the contactor. Ideal for wye-delta, reversing and multispeed contactors and starters. Can increase AC-1 current rating of the contactor. One pole kit used for larger contactors. | CA7-43 | 90 | 75 | 75 | 3 ❸ | **CA7-P-K43** | **28 ❸ Each** |
| | | CA7-60 . . .97 | 130 | 130 | 130 | 3 ❸ | **CA7-P-K85** | **33 ❸ Each** |

## Paralleling Links ❶❷

| Component | Description | For use with . . . | Maximum Resistive Current Ratings (A) ❷ IEC (40°C) | IEC (60°C) | UL/CSA (40°C) | Pkg. Qty. | Catalog Number ❶ | Price Each |
|---|---|---|---|---|---|---|---|---|
|  | **3 Pole Paralleling Link –** Allows smaller CA7 contactors to be used on single-phase resistive applications. By paralleling the three power poles, the contacts see only a portion of the actual load. ❹ | CA7-9. . .23 | 100 | 100 | 100 | 2 ❸ | **CA7-P-B23** | **10 ❸ Each** |
| | | CA7-30. . .37 | 150 | 135 | 150 | 2 ❸ | **CA7-P-B37** | **15 ❸ Each** |

## Quick Connectors

| Component | Description | For use with . . . | Pkg. Qty. | Catalog Number | Price Each |
|---|---|---|---|---|---|
|  | **Stab Connectors -** Dual stab (0.250 inch) | CA7-9…97 coil term.<br>CA7-9…23 power term.<br>CA7 accessories | 20<br>100<br>100 | **CA7-SC2**<br>**CA7-SC10**<br>**CA4-SC11** | **1.75** |

❶ cULus Approved (File E33916).

❷ Lighting applications are not considered purely resistive loads. Therefore, the IEC and UL/CSA resistive ratings listed here do not apply to lighting loads. Lighting contactor ratings are provided in the Technical Information section.

❸ Priced per piece. Total cost is package quantity x price. Minimum order, 3 pieces.

❹ Engineering practice permits 2.5 x $I_e$ to be applied to a contactor when 3 poles are connected in parallel for single phase discharge lamp (ballast lighting) applications.

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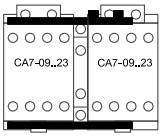
## Reversing Components

| Component | Description | For Use With… | Pkg. Qty. | Catalog Number | Price Each |
|---|---|---|---|---|---|
|  | **Dovetail Connectors –** Connects multiple contactor and starter assemblies together. | CA7 all | 10 | **CA7-S9** | **1.75** |
|  | **Reversing Power Wiring Kit - ❶** Provides a solid "wireless" connection for reversing applications. May be used with both solid state and thermal O/L relays. | CA7-9…12<br>CA7-16…23 | 1 | **CAUT7-PW23** | **17** |
| | | CA7-30…37<br>CA7-43<br>CA7-60…97 | 1<br>1<br>1 | **CAUT7-PW37**<br>**CAUT7-PW43**<br>**CAUT7-PW85** | **20**<br>**37**<br>**94** |

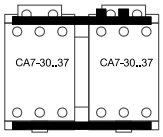
## Reversing Power Wiring Kits

Only the kits are catalog items. Single components are available by special order in bulk packages of 20 pieces.

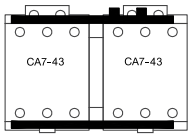
**Reversing Starter Connection Kits ❷**

**Kit=CAUT7-PW23**
CA7-PWNM23


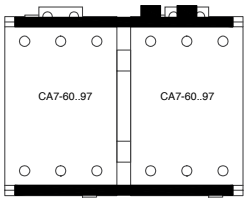
CA7-PWLM23

**Kit =CAUT7-PW37**
CA7-PWNM37


CA7-PWLM37

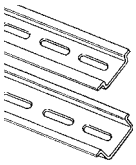
**Kit =CAUT7-PW43**
CA7-PWNM43


CA7-PWLM43

**Kit =CAUT7-PW85**
CA7-PWNM85


CA7-PWLM85

## Assembly Components

| Component | Description | For Use With… | Pkg. Qty. | Catalog Number | Price Each |
|---|---|---|---|---|---|
|  | **Protective Covers -** Protects against unintended manual operation. | CA7-9…97 | 1 | **CA7-SCC** | **3.35** |
|  | **Protective Covers -** For front mounted auxiliary contacts, pneumatic timers and latches. | CS7-PV, CA7-PV, CZE7, CZA7, CV7 | 1 | **CA7-SCF** | **1.75** |
|  | **DIN-rail** - 2 meter lengths ( 6' 6"); price per rail<br>Top Hat, low profile<br>Top Hat, high profile | CA7 all | 20<br>10 | **3F**<br>**3AF** | **29**<br>**44** |

## Marking Systems

| Component | Description | Pkg. Qty. | Catalog Number | Price Each |
|---|---|---|---|---|
|  | **Label Sheet –** 1 sheet with 105 self-adhesive paper labels each, 6 x 17mm | 1 | **CA7-FMS** | **1.75** |
|  | **Marking Tag Sheet -** 1 sheet with 160 perforated paper labels each, 6 x 17mm. To be used with transparent cover. | 1 | **CA7-FMP** | **1.75** |
| | **Transparent Cover -** To be used with Marking Tag Sheets. | 100 ❷ | **CA7-FMC** | **.17** |
|  | **Tag Carrier -** For marking with Clip-on Tags. See Terminals Section N for complete listing of Clip-on Tags. | 100 ❷ | **CA7-FMA2** | **.17** |

❶ cULus Approved (File E33916).

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## Wye-Delta Starter Kits ❶

Wye-Delta power wiring kits were designed to aid in the field assembly of open-transition wye-delta starters that use CA7 contactors. These kits include line, load and start-point (shorting) connections. Assembling a wye-delta starter requires the use of the following components:

- Contactors and overload relay
- Mechanical / Electrical Interlock (Cat.No: CM7-02)
- Electronic Wye-delta Timer (Cat. No: CRZY7-30-110/240)
- Dovetail Connector to couple 1M and 2M contactor (Cat. No: CA7-S9); optional

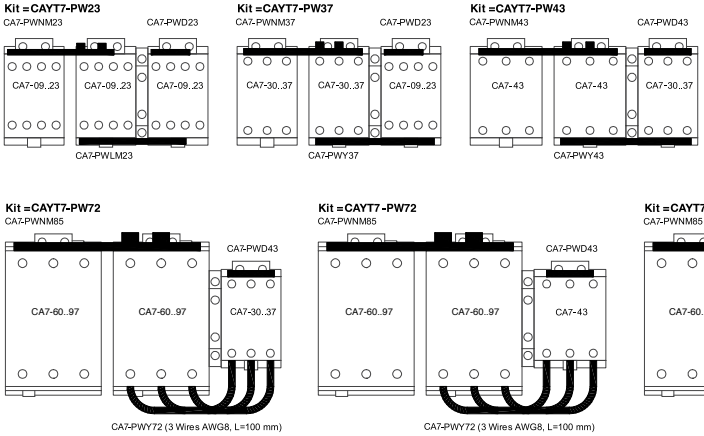
*Power Jumper Connection*

*Shorting Bar*

*Reversing Power Connection*

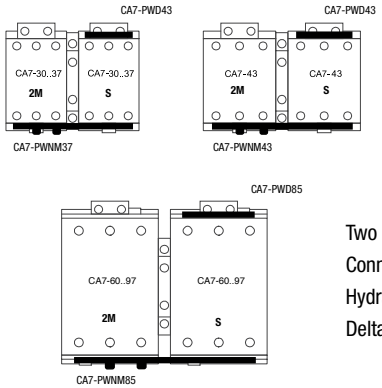
## Three Contactor Assembly Components

| 3-Phase Rating | | | | | | | | | | | For 3 contactor assembly ❷ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| kW (50Hz) | | | | HP (60Hz) | | | | Use with catalog number . . . | | | | |
| | | | | | | | | Delta | | Wye | | |
| 230V | 380V 415V | 500V | 690V | 200V | 230V | 460V | 575V | 1M | 2M | 1S | Catalog Number | Price |
| 5.5 | 8 | 8 | 8 | 5 | 5 | 10 | 10 | CA7-9 | CA7-9 | CA7-9 | CAYT7-PW23 | 22 |
| 7.5 | 11 | 11 | 11 | 5 | 7.5 | 15 | 15 | CA7-12 | CA7-12 | CA7-9 | | |
| 10 | 14 | 15 | 14 | 7.5 | 10 | 20 | 20 | CA7-16 | CA7-16 | CA7-12 | | |
| 14 | 21 | 21 | 19 | 7.5 | 10 | 25 | 25 | CA7-23 | CA7-23 | CA7-12 | | |
| 18 | 28 | 28 | 28 | 10 | 15 | 30 | 30 | CA7-30 | CA7-30 | CA7-16 | CAYT7-PW37 | 27 |
| 19 | 35 | 35 | 32 | 15 | 20 | 40 | 40 | CA7-37 | CA7-37 | CA7-23 | | |
| 23 | 40 | 40 | 41 | 20 | 25 | 50 | 50 | CA7-43 | CA7-43 | CA7-30 | CAYT7-PW43 | 44 |
| 33 | 58 | 60 | 56 | 30 | 40 | 75 | 75 | CA7-60 | CA7-60 | CA7-37 | CAYT7-PW72 | 79 |
| 39 | 69 | 67 | 70 | 40 | 50 | 100 | 100 | CA7-72 | CA7-72 | CA7-43 | | |
| 47 | 82 | 82 | 81 | 50 | 60 | 125 | 125 | CA7-85 | CA7-85 | CA7-60 | CAYT7-PW85 | 106 |
| 50 | 90 | 90 | 90 | 50 | 60 | 125 | 125 | CA7-97 | CA7-97 | CA7-60 | | |




## Two Contactor Assembly Components

| When Connecting... | | Load Side Power Connection | | Shorting Bar | |
|---|---|---|---|---|---|
| Delta | Wye | | | | |
| 2M | 1S | Catalog Number | Price | Catalog Number | Price |
| CA7-30 | CA7-30 | CA7-PWNM37 | 11 | CA7-PWD43 | 14 |
| CA7-37 | CA7-37 | | | | |
| CA7-43 | CA7-43 | CA7-PWNM43 | 18 | CA7-PWD43 | 14 |
| CA7-60 | CA7-60 | CA7-PWNM85 | 46 | CA7-PWD85 | 23 |
| CA7-72 | CA7-72 | | | | |
| CA7-85 | CA7-85 | | | | |
| CA7-97 | CA7-97 | | | | |




Two Contactor Wiring Connections are for Hydraulic Elevator Wye-Delta Contactors CA7Y2

❶ cULus Approved (File E33916).

❷ Individual parts of kits are available for unique applications by special order. Contact your Sprecher + Schuh Representative.

# This page has been replaced

Refer to page C65.1

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## Renewal Coils - A.C. ❶❷❸

| AC Control Voltages | | | AC Coil Codes ❷ | For use with contactor . . . | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | CA7-9...16 | CA7-23...37 | CA7-43 | CA7-60...85 | CA7-97 |
| | | | | CA7-9-M...16-M... | CA7-23-M...37-M... | ~ | ~ | CA7-90-M... |
| | | | | CAQ7-16 | CAQ7-37 | ~ | ~ | ~ |
| | | | | CNX-205...206 | CNX-207...209 | CNX-212 | CNX-218 | ~ |
| | | | | CAN7-12…16 | CAN7-37 | CA7-40-M, CAN7-43 | CAN7-85 | ~ |
| | | | | ~ | CAL(V)7-20-M40 | CAL(V)7-30-M40 | ~ | CAL(V)7-60-M40 |
| 50 Hz | 60 Hz | 50/60 Hz | | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| ~ | 12V | ~ | 12B | **TA006** | **TC006** | **TD006** | **TE006** | **TF006** |
| 12V | ~ | ~ | 12A | **TA404** | **TC404** | **TD404** | **TE404** | **TF404** |
| ~ | 24V | ~ | 24B | **TA013** | **TC013** | **TD013** | **TE013** | **TF013** |
| 24V | ~ | ~ | 24A | **TA407** | **TC407** | **TD407** | **TE407** | **TF407** |
| ~ | ~ | 24V | **24Z** | **TA855** | **TC855** | **TD855** | **TE855** | **TF855** |
| 32V | 36V | ~ | 36 | **TA481** | **TC481** | **TD481** | **TE481** | **TF481** |
| 36V | ~ | ~ | 36A | **TA410** | **TC410** | **TD410** | **TE410** | **TF410** |
| 42V | 48V | ~ | 48 | **TA482** | **TC482** | **TD482** | **TE482** | **TF482** |
| 48V | ~ | | 48A | **TA414** | **TC414** | **TD414** | **TE414** | **TF414** |
| ~ | ~ | 48V | 48Z | **TA860** | **TC860** | **TD860** | **TE860** | **TF860** |
| 100V | 100...110V | 100 | 110 | **TA861** | **TC861** | **TD861** | **TE861** | **TF861** |
| 110V | 120V | ~ | **120** | **TA473** | **TC473** | **TD473** | **TE473** | **TF473** |
| ~ | ~ | 110V | 110Z | **TA856** | **TC856** | **TD856** | **TE856** | **TF856** |
| 120V | ~ | ~ | 120A | **TA425** | **TC425** | **TD425** | **TE425** | **TF425** |
| 127V | ~ | ~ | 127 | **TA428** | **TC428** | **TD428** | **TE428** | **TF428** |
| 200V | 200.. 220V | 200V | 220 | **TA862** | **TC862** | **TD862** | **TE862** | **TF862** |
| ~ | 208V | ~ | **208** | **TA049** | **TC049** | **TD049** | **TE049** | **TF049** |
| 200...220V | 208.. 240V | ~ | **220W** | **TA296** | **TC296** | **TD296** | **TE296** | **TF296** |
| 220V | 240V | ~ | **240** | **TA474** | **TC474** | **TD474** | **TE474** | **TF474** |
| 200V...230V | ~ | ~ | 230A | **TA441** | **TC441** | **TD441** | **TE441** | **TF441** |
| ~ | ~ | 230V | 230Z | **TA851** | **TC851** | **TD851** | **TE851** | **TF851** |
| 230V...240V | ~ | ~ | 240A | **TA440** | **TC440** | **TD440** | **TE440** | **TF440** |
| 240V | 277V | ~ | **277** | **TA480** | **TC480** | **TD480** | **TE480** | **TF480** |
| ~ | ~ | 240V | 240Z | **TA858** | **TC858** | **TD858** | **TE858** | **TF858** |
| ~ | 347V | ~ | 347 | **TA065** | **TC065** | **TD065** | **TE065** | **TF065** |
| ~ | 380V | ~ | 380B | **TA067** | **TC067** | **TD067** | **TE067** | **TF067** |
| 380V...400V | 440V | ~ | **380** | **TA071** | **TC071** | **TD071** | **TE071** | **TF071** |
| ~ | ~ | 400V | 400Z | **TA863** | **TC863** | **TD863** | **TE863** | **TF863** |
| 400V...415V | ~ | ~ | 415 | **TA457** | **TC457** | **TD457** | **TE457** | **TF457** |
| 440V | 480V | ~ | **480** | **TA475** | **TC475** | **TD475** | **TE475** | **TF475** |
| ~ | ~ | 440V | 440Z | **TA859** | **TC859** | **TD859** | **TE859** | **TF859** |
| 500V | ~ | ~ | 500 | **TA479** | **TC479** | **TD479** | **TE479** | **TF479** |
| 550V | 600V | ~ | **600** | **TA476** | **TC476** | **TD476** | **TE476** | **TF476** |
| **Price** | | | | **59** | **84** | **101** | **118** | **118** |

*CA7 AC Coil (typical)*

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ AC Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ AC and DC coils on CNX-xxx contactors are not interchangeable.

## Renewal Coils - D.C. ❶❷❼

| AC Control Voltages | DC Coil Codes ❷ | True DC Replacement Coils ❼ For use with contactor... | | | Two Winding DC Replacement Coils For use with contactor... | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CA7-9C(D)...16C(D) | CA7-23C(D)...37C(D) | CA7-43C | CA-9Y...16Y ❻ | CAY-23Y...37Y ❻ | CA7-43Y ❻ | CA7-60D...85D ❺ | CA7-97D ❺ |
| | | CA7-9C(D)-M...16C (D)-M... | CA7-23C(D)-M... | CA7-43C(D) | ~ | ~ | ~ | ~ | CA7-90D-M... |
| | | CAQ7-16C | CAQ7-37C | CA7-40C-M... | ~ | ~ | ~ | ~ | ~ |
| | | CNX-205...206 | CNX-207...209 | CNX7-212 | ~ | ~ | ~ | CNX7-218 | ~ |
| | | CAN7-12C…16C | CAN7-37C | CAN7-43C | ~ | ~ | ~ | CAN7-85D | ~ |
| | | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. | Cat. No. |
| 9V ❸ | 9D | **TA766** | **TC766** | **TD766** | ~ | ~ | ~ | ~ | ~ |
| 9V Diode ❸ | 9DD | ~ | ~ | ~ | **TA766Y** | **TC766Y** | **TD766Y** | **TE766M** | **TF766M** |
| 12V | **12D** | **TA708** | **TC708** | **TD708** | ~ | ~ | ~ | ~ | ~ |
| 12V Diode ❽ | **12DD** | ~ | ~ | ~ | **TA708Y** | **TC708Y** | **TD708Y** | **TE708M** | **TF708M** |
| 24V ❹ | **24D** | **TA714** | **TC714** | **TD714** | ~ | ~ | ~ | ~ | ~ |
| 24V Diode ❹❽ | **24DD** | **TA714M** | **TC714M** | **TD714M** | **TA714Y** | **TC714Y** | **TD714Y** | **TE714M** | **TF714M** |
| 36V | 36D | **TA719** | **TC719** | **TD719** | ~ | ~ | ~ | ~ | ~ |
| 36V Diode | 36DD | ~ | ~ | ~ | **TA719Y** | **TC719Y** | **TD719Y** | **TE719M** | **TF719M** |
| 48V | **48D** | **TA724** | **TC724** | **TD724** | ~ | ~ | ~ | ~ | ~ |
| 48V Diode | **48DD** | ~ | ~ | ~ | **TA724Y** | **TC724Y** | **TD724Y** | **TE724M** | **TF724M** |
| 60V | 60D | **TA774** | **TC774** | **TD774** | ~ | ~ | ~ | ~ | ~ |
| 60V Diode | 60DD | ~ | ~ | ~ | **TA774Y** | **TC774Y** | **TD774Y** | **TE774M** | **TF774M** |
| 64V | 64D | **TA727** | **TC727** | **TD727** | ~ | ~ | ~ | ~ | ~ |
| 64V Diode | 64DD | ~ | ~ | ~ | **TA727Y** | **TC727Y** | **TD727Y** | **TE727M** | **TF727M** |
| 72V | 72D | **TA728** | **TC728** | **TD728** | ~ | ~ | ~ | ~ | ~ |
| 72V Diode | 72DD | ~ | ~ | ~ | **TA728Y** | **TC728Y** | **TD728Y** | **TE728M** | **TF728M** |
| 80V | 80D | **TA729** | **TC729** | **TD729** | ~ | ~ | ~ | ~ | ~ |
| 80V Diode | 80DD | ~ | ~ | ~ | **TA729Y** | **TC729Y** | **TD729Y** | **TE729M** | **TF729M** |
| 110V | **110D** | **TA733** | **TC733** | **TD733** | ~ | ~ | ~ | ~ | ~ |
| 110V Diode | **110DD** | ~ | ~ | ~ | **TA733Y** | **TC733Y** | **TD733Y** | **TE733M** | **TF733M** |
| 115V | 115D | **TA734** | **TC734** | **TD734** | ~ | ~ | ~ | ~ | ~ |
| 115V Diode | 115DD | ~ | ~ | ~ | **TA734Y** | **TC734Y** | **TD734Y** | **TE734M** | **TF734M** |
| 125V | 125D | **TA737** | **TC737** | **TD737** | ~ | ~ | ~ | ~ | ~ |
| 125V Diode | 125DD | ~ | ~ | ~ | **TA737Y** | **TC737Y** | **TD737Y** | **TE737M** | **TF737M** |
| 220V | **220D** | **TA747** | **TC747** | **TD747** | ~ | ~ | ~ | ~ | ~ |
| 220V Diode | **220DD** | ~ | ~ | ~ | **TA747Y** | **TC747Y** | **TD747Y** | **TE747M** | **TF747M** |
| 230V | 230D | **TA749** | **TC749** | **TD749** | ~ | ~ | ~ | ~ | ~ |
| 230V Suppres. | 230DS | ~ | ~ | ~ | **TA749Y** | **TC749Y** | **TD749Y** | **TE749M** | **TF749M** |
| 250V | 250D | **TA751** | **TC751** | **TD751** | ~ | ~ | ~ | ~ | ~ |
| 250V Suppres. | 250DS | ~ | ~ | ~ | **TA751Y** | **TC751Y** | **TD751Y** | **TE751M** | **TF751M** |
| **Price** (coil without diode) | | **92** | **126** | **160** | ~ | ~ | ~ | ~ | ~ |
| **Price** (coil with diode) | | **134** | **168** | **202** | **134** | **168** | **202** | **235** | **235** |

**Note:** The "DD" coils listed above include an integrated bidirectional diode. Drop out time of this design is significantly improved when compared to an external diode. See ratings on page A73.

*True DC coil (typical)*

*Two Winding DC coil (typical)* ❺

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ DC Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ Voltage operating range: 0.65…1.3 x $U_s$.
❹ Voltage operating range: 0.7…1.25 x $U_s$.
❺ CA7-60D…97D contactors have a two winding coil with built-in late break auxiliary contact and coil suppression.
❻ CA7-9Y…43Y two winding coils are sold for renewal parts only and are not interchangeable with standard CA7-9…43 AC coil contactors or CA7-9C…43C true DC coil contactors. CA7-9Y…43Y contactors should be tested following a coil swap to insure functionality of the timed auxiliary contact.
❼ AC and DC coils on CNX-xxx contactors are not interchangeable.
❽ "DD" coils with integrated surge suppression diode fit CA7-xxD contactors.

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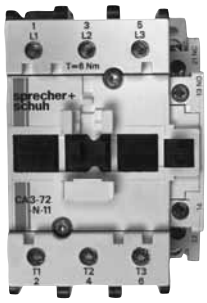
## Replacement Contactors Cross Reference, Series CA1 to Series CA7 (Open Type Only) ❶

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Series CA1U Obsolete | Series CA7 Equivalent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | |
| AC-3 | AC-1 | 230V | 400V / 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | Catalog Number | Catalog Number |
| | | | | | | 1 | 3 | 5 | 5 | 10 | 10 | CA1U-10 | |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | | CA7-16-10 |
| | | | | | | 2 | 3 | 7-1/2 | 7-1/2 | 15 | 20 | CA1U-14 | |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | | CA7-23-10 |
| | | | | | | 2 | 5 | 7-1/2 | 10 | 20 | 25 | CA1U-16 | |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | | CA7-30-10 |
| | | | | | | 3 | 7-1/2 | 10 | 15 | 30 | 40 | CA1U-25 | |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | | CA7-43-10 |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | | CA7-72-10 |
| | | | | | | 5 | 15 | 25 | 25 | 50 | 60 | CA1U-40 | |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | | CA7-85-10 |

*CA1U-10 Contactor*

## Replacement Contactors Cross Reference, Series CA3 to Series CA7 (Open Type Only) ❶

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Series CA3 Obsolete | Series CA7 Equivalent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | |
| AC-3 | AC-1 | 230V | 400V / 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | Catalog Number | Catalog Number |
| | | | | | | | | 2 | 2 | 5 | 7-1/2 | CA3-9-10 | |
| 9 | 32 | 3 | 4 | 4 | 4 | 1/2 | 1 1/2 | 2 | 2 | 5 | 7-1/2 | | CA7-9-10 |
| | | | | | | | | 3 | 3 | 7-1/2 | 10 | CA3-12-10 | |
| 12 | 32 | 4 | 5.5 | 5.5 | 5.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | | CA7-12-10 |
| | | | | | | | | 5 | 5 | 10 | 15 | CA3-16-10 | |
| 16 | 32 | 5.5 | 7.5 | 7.5 | 7.5 | 1 | 3 | 5 | 5 | 10 | 15 | | CA7-16-10 |
| | | | | | | | | 5 | 5 | 10 | 15 | CA3-23A-10 | |
| 23 | 32 | 7.5 | 11 | 13 | 10 | 2 | 3 | 5 | 7-1/2 | 15 | 15 | | CA7-23-10 |
| | | | | | | | | 7-1/2 | 7-1/2 | 15 | 20 | CA3-23-10 | |
| 30 | 65 | 10 | 15 | 15 | 15 | 2 | 5 | 7-1/2 | 10 | 20 | 25 | | CA7-30-10 |
| | | | | | | | | 10 | 10 | 20 | 25 | CA3-30-10 | |
| | | | | | | | | 10 | 10 | 25 | 30 | | CA7-37-10 |
| 37 | 65 | 11 | 18.5/20 | 20 | 18.5 | 3 | 5 | 10 | 10 | 25 | 30 | CA3-37 | |
| 43 | 85 | 13 | 22 | 25 | 22 | 3 | 7-1/2 | 10 | 15 | 30 | 30 | | CA7-43-10 |
| | | | | | | | | 10 | 15 | 30 | 40 | CA3-43 | |
| | | | | | | | | 15 | 20 | 40 | 50 | CA3-60 | |
| 60 | 100 | 18.5 | 37 | 37 | 32 | 5 | 10 | 15 | 20 | 40 | 50 | | CA7-60-10 |
| | | | | | | | | 20 | 20 | 50 | 60 | CA3-72 | |
| 72 | 100 | 22 | 40 | 45 | 40 | 5 | 15 | 20 | 25 | 50 | 60 | | CA7-72-10 |
| 85 | 100 | 25 | 45 | 55 | 45 | 7-1/2 | 15 | 25 | 30 | 60 | 60 | | CA7-85-10 |



*CA3-72 Contactor*

❶ Available auxiliary contacts may vary. See selection pages for more information.

## Electrical Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rated Insulation Voltage $U_i$** | | | | | | | | | | | | | |
| IEC, AS,BS,SEV, VDE 0660 | | [V] | | | | | | 690V | | | | | |
| UL; CSA | | [V] | | | | | | 600V | | | | | |
| **Rated Impulse Voltage $U_{imp}$** | | [kV] | | | | | | 8kV | | | | | |
| **Rated Voltage $U_e$-Main Contacts** | | | | | | | | | | | | | |
| AC 50/60Hz | | [V] | | | | | 115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690V | | | | | | |
| DC | | [V] | | | | | 24, 48, 110, 115, 220, 230, 300, 440V | | | | | | |
| **Operating Frequency for AC Loads** | | [Hz] | | | | | | 50...60Hz | | | | | |
| **Switching Motor Loads** | | | | | | | | | | | | | |
| **Standard IEC Ratings** | | | | | | | | | | | | | |
| **AC-2, AC-3, AC-4** | 230V | [A] | 12 | 15 | 20 | 26.5 | 35 | 38 | 44 | 62 | 72 | 85 | 96 |
| DOL Reversing | 240V | [A] | 12 | 15 | 20 | 26.5 | 35 | 38 | 44 | 62 | 72 | 85 | 95 |
| 50Hz/60˚ C | 400V | [A] | 9 | 12 | 16 | 23 | 30 | 37 | 43 | 60 | 72 | 85 | 97 |
| | 415V | [A] | 9 | 12 | 16 | 23 | 30 | 37 | 43 | 60 | 72 | 85 | 97 |
| | 500V | [A] | 7 | 10 | 14 | 20 | 25 | 30 | 38 | 55 | 67 | 80 | 78 |
| | 690V | [A] | 5 | 7 | 9 | 12 | 18 | 21 | 25 | 34 | 42 | 49 | 57 |
| | 230V | [kW] | 3 | 4 | 5.5 | 7.5 | 10 | 11 | 13 | 18.5 | 22 | 25 | 30 |
| | 240V | [kW] | 3 | 4 | 5.5 | 7.5 | 10 | 11 | 13 | 18.5 | 22 | 25 | 30 |
| | 400V | [kW] | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 32 | 40 | 45 | 55 |
| | 415V | [kW] | 4 | 5.5 | 7.5 | 11 | 15 | 20 | 22 | 32 | 40 | 45 | 55 |
| | 500V | [kW] | 4 | 5.5 | 7.5 | 13 | 15 | 20 | 25 | 37 | 45 | 55 | 55 |
| | 690V | [kW] | 4 | 5.5 | 7.5 | 10 | 15 | 18.5 | 22 | 32 | 40 | 45 | 55 |
| **UL/CSA/IEC** | | | | | | | | | | | | | |
| DOL Reversing | 115V | [A] | 9.8 | 9.8 | 16 | 24 | 24 | 34 | 34 | 56 | 56 | 80 | 100 |
| 60Hz/60˚ C 1Ø ❶ | 230V | [A] | 10 | 12 | 17 | 17 | 28 | 28 | 40 | 50 | 68 | 68 | 88 |
| | 115V | [HP] | 1/2 | 1/2 | 1 | 2 | 2 | 3 | 3 | 5 | 5 | 7-1/2 | 10 |
| | 230V | [HP] | 1 1/2 | 2 | 3 | 3 | 5 | 5 | 7-1/2 | 10 | 15 | 15 | 20 |
| | 200V | [A] | 7.8 | 11 | 17.5 | 17.5 | 25.3 | 32.2 | 32.2 | 48.3 | 62.1 | 78.2 | 92 |
| 3Ø | 230V | [A] | 6.8 | 9.6 | 15.2 | 22 | 28 | 28 | 42 | 54 | 68 | 80 | 80 |
| | 460V | [A] | 7.6 | 11 | 14 | 21 | 27 | 34 | 40 | 52 | 65 | 77 | 96 |
| | 575V | [A] | 9 | 11 | 17 | 17 | 27 | 32 | 32 | 52 | 62 | 62 | 77 |
| | 200V | [HP] | 2 | 3 | 5 | 5 | 7-1/2 | 10 | 10 | 15 | 20 | 25 | 30 |
| | 230V | [HP] | 2 | 3 | 5 | 7-1/2 | 10 | 10 | 15 | 20 | 25 | 30 | 30 |
| | 460V | [HP] | 5 | 7-1/2 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 75 |
| | 575V | [HP] | 7-1/2 | 10 | 15 | 15 | 25 | 30 | 30 | 50 | 60 | 60 | 75 |
| Maximum Operating Rate (at max. amps) ❷ | AC2 | [ops/hr] | 450 | 450 | 450 | 400 | 400 | 400 | 400 | 300 | 250 | 200 | 200 |
| | AC3 | [ops/hr] | 700 | 700 | 700 | 600 | 600 | 600 | 600 | 500 | 500 | 500 | 500 |
| | AC4 | [ops/hr] | 200 | 150 | 120 | 80 | 80 | 70 | 70 | 70 | 60 | 50 | 50 |

❶ Approved by Lloyd's register of shipping.
❷ See page A84 for additional detail.

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## Electrical Data

| | | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Switching Motor Loads** *(continued)* | | | | | | | | | | | | | | |
| **AC-4** | | 230V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| 200,000 Op. Cycles | | 240V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| 50Hz | | 400V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 415V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 500V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 690V | [A] | 4.3 | 6.6 | 9 | 9 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 230V | [kW] | 0.75 | 1.5 | 2.2 | 2.2 | 3 | 3.7 | 4 | 6.3 | 7.5 | 11 | 11 |
| | | 240V | [kW] | 0.75 | 1.5 | 2.2 | 2.2 | 3 | 4 | 4 | 7.5 | 7.5 | 11 | 11 |
| | | 400V | [kW] | 1.8 | 3 | 4 | 4 | 5.5 | 6.3 | 7.5 | 13 | 15 | 20 | 22 |
| | | 415V | [kW] | 1.8 | 3 | 4 | 4 | 5.5 | 6.3 | 7.5 | 13 | 17 | 20 | 22 |
| | | 500V | [kW] | 2.2 | 3.7 | 5.5 | 5.5 | 7.5 | 7.5 | 10 | 15 | 20 | 25 | 30 |
| | | 690V | [kW] | 3 | 5.5 | 7.5 | 7.5 | 10 | 11 | 15 | 22 | 25 | 32 | 37 |
| 60Hz | 1Ø | 115V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 230V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 115V | [HP] | 1/8 | 1/4 | 1/3 | 1/2 | 1/2 | 3/4 | 1 | 2 | 2 | 3 | 3 |
| | | 230V | [HP] | 1/3 | 1/2 | 1 | 1-1/2 | 2 | 2 | 2 | 3 | 5 | 5 | 7-1/2 |
| | | 200V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | 3Ø | 230V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 460V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 575V | [A] | 4.3 | 6.6 | 9 | 10 | 12 | 14 | 16.5 | 25.5 | 31 | 38 | 44 |
| | | 200V | [HP] | 3/4 | 1 | 2 | 2 | 3 | 3 | 3 | 7-1/2 | 7-1/2 | 10 | 10 |
| | | 230V | [HP] | 1 | 1-1/2 | 2 | 3 | 3 | 3 | 5 | 7-1/2 | 10 | 10 | 15 |
| | | 460V | [HP] | 2 | 3 | 5 | 5 | 7-1/2 | 10 | 10 | 15 | 20 | 25 | 30 |
| | | 575V | [HP] | 3 | 5 | 7-1/2 | 7-1/2 | 10 | 10 | 10 | 20 | 25 | 30 | 40 |
| Maximum Operating Rate | | | [ops/ hour] | 250 | 250 | 220 | 200 | 200 | 200 | 200 | 120 | 120 | 120 | 120 |
| **Wye-Delta (Star Delta)** | | 230V | [kW] | 5.5 | 7.5 | 10 | 13 | 17 | 20 | 22 | 32 | 37 | 45 | 50 |
| 50 Hz | | 240V | [kW] | 5.5 | 7.5 | 10 | 13 | 18.5 | 20 | 22 | 32 | 40 | 50 | 50 |
| | | 400V | [kW] | 7.5 | 10 | 13 | 20 | 25 | 32 | 40 | 55 | 63 | 80 | 90 |
| | | 415V | [kW] | 7.5 | 11 | 15 | 22 | 25 | 37 | 40 | 55 | 63 | 80 | 90 |
| | | 500V | [kW] | 7.5 | 11 | 15 | 22 | 25 | 32 | 45 | 63 | 80 | 90 | 90 |
| | | 690V | [kW] | 7.5 | 10 | 13 | 18.5 | 25 | 32 | 40 | 55 | 63 | 80 | 90 |
| | | 200V | [HP] | 5 | 5 | 7-1/2 | 7-1/2 | 10 | 15 | 20 | 30 | 40 | 50 | 50 |
| 60 Hz | | 230V | [HP] | 5 | 7-1/2 | 10 | 10 | 15 | 20 | 25 | 40 | 50 | 60 | 60 |
| | | 460V | [HP] | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 125 | 125 |
| | | 575V | [HP] | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 75 | 100 | 125 | 125 |
| **AC Elevator Control Ratings** | | | | | | | | | | | | | | |
| UL / CSA | | Max FLC | [A] | 8.0 | 11.0 | 16.0 | 21.0 | 27.0 | 31.0 | 37.0 | 43.0 | 54.0 | 62.0 | ❶ |
| 500,000 operations | | 200V | [A] | 7.8 | 11.0 | 11.0 | 17.5 | 25.3 | 25.3 | 32.2 | 32.2 | 48.3 | 62.1 | |
| | | 230V | [A] | 6.8 | 9.6 | 15.2 | 15.2 | 22.0 | 28.0 | 28.0 | 42.0 | 54.0 | 68.0 | |
| | | 460V | [A] | 7.6 | 11.0 | 14.0 | 21.0 | 27.0 | 27.0 | 34.0 | 40.0 | 52.0 | 65.0 | |
| | | 575V | [A] | 6.1 | 9.0 | 11.0 | 17.0 | 22.0 | 27.0 | 32.0 | 41.0 | 52.0 | 62.0 | |
| | | 200V | [HP] | 2 | 3 | 3 | 5 | 7-1/2 | 7-1/2 | 10 | 10 | 15 | 20 | |
| | | 230V | [HP] | 2 | 3 | 5 | 5 | 7-1/2 | 10 | 10 | 15 | 20 | 25 | |
| | | 460V | [HP] | 5 | 7-1/2 | 10 | 15 | 20 | 20 | 25 | 30 | 40 | 50 | |
| | | 575V | [HP] | 5 | 7-1/2 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | |

❶ Testing incomplete at the time of this printing.

## Electrical Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AC-1 Load, 30 Switching** | $I_{th}$ | [A] | 32 | 32 | 32 | 32 | 65 | 65 | 85 | 100 | 100 | 100 | 130 |
| Ambient Temperature 40° C | 230V | [kW] | 13 | 13 | 13 | 13 | 26 | 26 | 34 | 40 | 40 | 40 | 52 |
| | 240V | [kW] | 13 | 13 | 13 | 13 | 27 | 27 | 35 | 42 | 42 | 42 | 54 |
| | 400V | [kW] | 22 | 22 | 22 | 22 | 45 | 45 | 59 | 69 | 69 | 69 | 90 |
| | 415V | [kW] | 23 | 23 | 23 | 23 | 47 | 47 | 61 | 72 | 72 | 72 | 93 |
| | 500V | [kW] | 28 | 28 | 28 | 28 | 56 | 56 | 74 | 87 | 87 | 87 | 113 |
| | 690V | [kW] | 38 | 38 | 38 | 38 | 78 | 78 | 102 | 120 | 120 | 120 | 155 |
| Ambient Temperature 60° C | $I_{th}$ | [A] | 32 | 32 | 32 | 32 | 65 | 65 | 80 | 100 | 100 | 100 | 110 |
| | 230V | [kW] | 13 | 13 | 13 | 13 | 26 | 26 | 25 | 40 | 40 | 40 | 44 |
| | 240V | [kW] | 13 | 13 | 13 | 13 | 27 | 27 | 26 | 42 | 42 | 42 | 46 |
| | 400V | [kW] | 22 | 22 | 22 | 22 | 45 | 45 | 44 | 69 | 69 | 69 | 76 |
| | 415V | [kW] | 23 | 23 | 23 | 23 | 47 | 47 | 45 | 72 | 72 | 72 | 76 |
| | 500V | [kW] | 28 | 28 | 28 | 28 | 56 | 56 | 55 | 87 | 87 | 87 | 95 |
| | 690V | [kW] | 38 | 38 | 38 | 38 | 78 | 78 | 75 | 120 | 120 | 120 | 131 |
| Maximum Operating Rate | | [ops/ hour] | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 300 | 600 | 600 | 600 | 600 |
| **Continuous Current (UL/CSA)** | | | | | | | | | | | | | |
| General Purpose Rating (40°) | Open | [A] | 25 | 25 | 30 | 30 | 55 | 60 | 75 | 90 | 90 | 100 | 120 |
| | Enclosed | [A] | 25 | 25 | 30 | 30 | 55 | 60 | 75 | 90 | 90 | 100 | 120 |
| Maximum Operating Rate | | [ops/ hour] | 1,400 | 1,400 | 1,200 | 1,200 | 1,200 | 1,000 | 1000 | 700 | 700 | 600 | 600 |
| **Lighting Loads** ❶ | | | | | | | | | | | | | |
| Elec.Dischrg.Lamps-AC-5a, | Open | [A] | 22.5 | 25 | 28 | 29 | 40.5 | 45 | 77 | 81 | 85 | 90 | 115 |
| single compensated | Enclosed | [A] | 22.5 | 25 | 28 | 29 | 37 | 41 | 57 | 57 | 81 | 90 | 100 |
| Max. capacitance at prospective | 10kA | [µf] | 1,000 | 1,000 | 1,000 | 1,000 | 2,700 | 2,700 | 3,200 | 4,000 | 4,000 | 4,700 | 4,700 |
| short circuit current available at | 20kA | [µf] | 500 | 500 | 500 | 500 | 1,350 | 1,350 | 1,600 | 2,000 | 2,000 | 2,350 | 2,350 |
| the contactor | 50kA | [µf] | 200 | 200 | 200 | 200 | 540 | 540 | 640 | 800 | 800 | 940 | 940 |
| Incandescent Lamps - AC -5b | | | | | | | | | | | | | |
| Electrical endurance ~ 100,000 operations | | [A] | 12 | 16 | 18 | 22 | 30 | 37 | 43 | 60 | 70 | 76 | 90 |
| **Switching power transformers AC-6a** | | | | | | | | | | | | | |
| **50Hz** | | | | | | | | | | | | | |
| Inrush / Rated transformer current | = n | | | | | | | | | | | | |
| | | [A] | 10.9 | 10.9 | 10.9 | 10.9 | 20 | 20 | 23.5 | 40.8 | 40.8 | 40.8 | 48.5 |
| n=30 | 230 VAC | [kVA] | 4.3 | 4.3 | 4.3 | 4.3 | 8 | 8 | 9.3 | 16 | 16 | 16 | 19.3 |
| | 240 VAC | [kVA] | 4.5 | 4.5 | 4.5 | 4.5 | 8.3 | 8.3 | 9.8 | 17 | 17 | 17 | 20.2 |
| | 380 VAC | [kVA] | 7.2 | 7.2 | 7.2 | 7.2 | 13.2 | 13.2 | 15.4 | 26.9 | 26.9 | 26.9 | 31.9 |
| | 400 VAC | [kVA] | 7.5 | 7.5 | 7.5 | 7.5 | 14 | 14 | 16.3 | 28 | 28 | 28 | 33.6 |
| | 415 VAC | [kVA] | 7.8 | 7.8 | 7.8 | 7.8 | 14 | 14 | 16.9 | 29 | 29 | 29 | 34.9 |
| | 500 VAC | [kVA] | 9.4 | 9.4 | 9.4 | 9.4 | 17 | 17 | 20.3 | 35 | 35 | 35 | 42 |
| | 690 VAC | [kVA] | 13 | 13 | 13 | 13 | 24 | 24 | 28 | 49 | 49 | 49 | 58 |
| | | [A] | 16.3 | 16.3 | 16.3 | 16.3 | 30 | 30 | 35.2 | 61.3 | 61.3 | 61.3 | 72.8 |
| n=20 | 230 VAC | [kVA] | 6.5 | 6.5 | 6.5 | 6.5 | 12 | 12 | 14 | 24.4 | 24.4 | 24.4 | 29.0 |
| | 240 VAC | [kVA] | 6.8 | 6.8 | 6.8 | 6.8 | 12.5 | 12.5 | 14.6 | 25.5 | 25.5 | 25.5 | 30.3 |
| | 380 VAC | [kVA] | 10.7 | 10.7 | 10.7 | 10.7 | 19.7 | 19.7 | 23.2 | 40.3 | 40.3 | 40.3 | 47.9 |
| | 400 VAC | [kVA] | 11.3 | 11.3 | 11.3 | 11.3 | 20.8 | 20.8 | 24.4 | 42.5 | 42.5 | 42.5 | 50.4 |
| | 415 VAC | [kVA] | 11.7 | 11.7 | 11.7 | 11.7 | 21.6 | 21.6 | 25.3 | 44.1 | 44.1 | 44.1 | 52.3 |
| | 500 VAC | [kVA] | 14.1 | 14.1 | 14.1 | 14.1 | 26 | 26 | 30.5 | 53.1 | 53.1 | 53.1 | 63.0 |
| | 690 VAC | [kVA] | 19.5 | 19.5 | 19.5 | 19.5 | 35.9 | 35.9 | 42.1 | 73.3 | 73.3 | 73.3 | 86.9 |
| | | [A] | 21.7 | 21.7 | 21.7 | 21.7 | 40 | 40 | 46.9 | 81.7 | 81.7 | 81.7 | 97.0 |
| n=15 | 230 VAC | [kVA] | 8.7 | 8.7 | 8.7 | 8.7 | 15.9 | 15.9 | 18.7 | 32.5 | 32.5 | 32.5 | 38.6 |
| | 240 VAC | [kVA] | 9 | 9 | 9 | 9 | 16.6 | 16.6 | 19.5 | 33.9 | 33.9 | 33.9 | 40.3 |
| | 380 VAC | [kVA] | 14.3 | 14.3 | 14.3 | 14.3 | 26.3 | 26.3 | 30.9 | 53.8 | 53.8 | 53.8 | 63.8 |
| | 400 VAC | [kVA] | 15.1 | 15.1 | 15.1 | 15.1 | 27.7 | 27.7 | 32.5 | 56.6 | 56.6 | 56.6 | 67.2 |
| | 415 VAC | [kVA] | 15.6 | 15.6 | 15.6 | 15.6 | 28.8 | 28.8 | 33.7 | 58.7 | 58.7 | 58.7 | 69.7 |
| | 500 VAC | [kVA] | 18.8 | 18.8 | 18.8 | 18.8 | 34.6 | 34.6 | 40.6 | 70.7 | 70.7 | 70.7 | 84.0 |
| | 690 VAC | [kVA] | 26 | 26 | 26 | 26 | 47.8 | 47.8 | 56.1 | 97.6 | 97.6 | 97.6 | 115.9 |

❶ CA7 ratings for lighting loads are provided for technical reference. For cUL rated and labeled devices, see CAL7 contactors listed in this section.

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## Electrical Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Switching power transformers AC-6a** | | | | | | | | | | | | | |
| **60Hz** | | | | | | | | | | | | | |
| Inrush / Rated transformer current | = n | | | | | | | | | | | | |
| | | [A] | 10.9 | 10.9 | 10.9 | 10.9 | 20 | 20 | 23 | 40.8 | 40.8 | 40.8 | 48.5 |
| n=30 | 200 VAC | [kVA] | 3.8 | 3.8 | 3.8 | 3.8 | 6.9 | 6.9 | 8.0 | 14.1 | 14.1 | 14.1 | 16.8 |
| | 208 VAC | [kVA] | 3.9 | 3.9 | 3.9 | 3.9 | 7.2 | 7.2 | 8.3 | 14.7 | 14.7 | 14.7 | 17.5 |
| | 240 VAC | [kVA] | 4.5 | 4.5 | 4.5 | 4.5 | 8.3 | 8.3 | 9.6 | 17 | 17 | 17 | 20.2 |
| | 480 VAC | [kVA] | 9.1 | 9.1 | 9.1 | 9.1 | 16.6 | 16.6 | 19.1 | 33.9 | 33.9 | 33.9 | 40.3 |
| | 600 VAC | [kVA] | 11.3 | 11.3 | 11.3 | 11.3 | 20.8 | 20.8 | 23.9 | 42.4 | 42.4 | 42.4 | 50.4 |
| | 660 VAC | [kVA] | 12.5 | 12.5 | 12.5 | 12.5 | 22.9 | 22.9 | 26.3 | 46.6 | 46.6 | 46.6 | 55.4 |
| | | [A] | 16.3 | 16.3 | 16.3 | 16.3 | 30 | 30 | 34.5 | 61.3 | 61.3 | 61.3 | 72.8 |
| n=20 | 200 VAC | [kVA] | 5.6 | 5.6 | 5.6 | 5.6 | 10.4 | 10.4 | 12 | 21.2 | 21.2 | 21.2 | 25.2 |
| | 208 VAC | [kVA] | 5.9 | 5.9 | 5.9 | 5.9 | 10.8 | 10.8 | 12.4 | 22.1 | 22.1 | 22.1 | 26.2 |
| | 240 VAC | [kVA] | 6.8 | 6.8 | 6.8 | 6.8 | 12.5 | 12.5 | 14.3 | 25.5 | 25.5 | 25.5 | 30.3 |
| | 480 VAC | [kVA] | 13.6 | 13.6 | 13.6 | 13.6 | 24.9 | 24.9 | 28.7 | 51 | 51 | 51 | 60.5 |
| | 600 VAC | [kVA] | 16.9 | 16.9 | 16.9 | 16.9 | 31.2 | 31.2 | 35.9 | 63.7 | 63.7 | 63.7 | 75.7 |
| | 660 VAC | [kVA] | 18.6 | 18.6 | 18.6 | 18.6 | 34.3 | 34.3 | 39.4 | 70.1 | 70.1 | 70.1 | 83.2 |
| | | [A] | 22 | 22 | 22 | 22 | 40 | 40 | 46 | 82 | 82 | 82 | 97 |
| n=15 | 200 VAC | [kVA] | 7.5 | 7.5 | 7.5 | 7.5 | 13.9 | 13.9 | 15.9 | 28.4 | 28.4 | 28.4 | 33.6 |
| | 208 VAC | [kVA] | 7.8 | 7.8 | 7.8 | 7.8 | 14.4 | 14.4 | 16.6 | 29.5 | 29.5 | 29.5 | 34.9 |
| | 240 VAC | [kVA] | 9 | 9 | 9 | 9 | 16.6 | 16.6 | 19.1 | 34.1 | 34.1 | 34.1 | 40.3 |
| | 480 VAC | [kVA] | 18.1 | 18.1 | 18.1 | 18.1 | 33.3 | 33.3 | 38.2 | 68.2 | 68.2 | 68.2 | 80.6 |
| | 600 VAC | [kVA] | 22.6 | 22.6 | 22.6 | 22.6 | 41.6 | 41.6 | 47.8 | 85.2 | 85.2 | 85.2 | 100.8 |
| | 660 VAC | [kVA] | 24.9 | 24.9 | 24.9 | 24.9 | 45.7 | 45.7 | 52.6 | 93.7 | 93.7 | 93.7 | 110.9 |
| **DC-1 Switching - 60°C** | | | | | | | | | | | | | |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| | 48VDC | [A] | 20 | 20 | 20 | 20 | 25 | 25 | 30 | 40 | 40 | 40 | 40 |
| 1 Pole | 60VDC | [A] | 20 | 20 | 20 | 20 | 25 | 25 | 30 | 40 | 40 | 40 | 40 |
| | 110VDC | [A] | 6 | 6 | 6 | 6 | 8 | 8 | 9 | 11 | 11 | 11 | 11 |
| | 220VDC | [A] | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2 | 2 | 2 | 2 |
| | 440VDC | [A] | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| 2 Poles in Series | 60VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| | 110VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| | 220VDC | [A] | 8 | 8 | 8 | 8 | 10 | 10 | 10 | 15 | 15 | 15 | 15 |
| | 440VDC | [A] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1.5 | 1.5 | 1.5 | 1.5 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| 3 Poles in Series | 60VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| | 110VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| | 220VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 80 | 80 | 80 |
| | 440VDC | [A] | 3 | 3 | 3 | 3 | 3.5 | 3.5 | 4 | 5 | 5 | 5 | 5 |
| **DC-2, 3, 5 Switching - 60°C** | | | | | | | | | | | | | |
| Starting, reverse current | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| braking, reversing, DC-5, 60ºC | 48VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 70 | 80 | 80 |
| | 60VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 70 | 80 | 80 |
| Shunt Wound | 110VDC | [A] | 20 | 20 | 25 | 25 | 30 | 30 | 35 | 70 | 70 | 80 | 80 |
| 3 Poles in Series | 220VDC | [A] | 6 | 6 | 6 | 10 | 15 | 15 | 20 | 25 | 25 | 30 | 30 |
| | 440VDC | [A] | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 63 | 90 | 90 | 100 | 100 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 70 | 80 | 80 |
| Series-wound Motors | 60VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 50 | 70 | 70 | 80 | 80 |
| 3 Poles in Series | 110VDC | [A] | 20 | 20 | 25 | 25 | 30 | 30 | 35 | 70 | 70 | 80 | 80 |
| | 220VDC | [A] | 6 | 6 | 6 | 10 | 15 | 15 | 20 | 25 | 25 | 30 | 30 |
| | 440VDC | [A] | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |

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## CA7 Ratings ❶

| AC-6b | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capacitor Switching - 50Hz** | | | | | | | | | | | | | |
| Single Capacitor - 40°C | 230 V | [kVar] | 8 | 8 | 8.5 | 9 | 14 | 14 | 24 | 28 | 28 | 28 | 28 |
| | 240 V | [kVar] | 8 | 8 | 8.5 | 9 | 14 | 14 | 25 | 29 | 29 | 29 | 29 |
| | 400 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 24 | 35 | 48 | 48 | 48 | 48 |
| | 415 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 25 | 35 | 50 | 50 | 50 | 50 |
| | 500 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 25 | 35 | 50 | 55 | 60 | 60 |
| | 690 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 25 | 35 | 50 | 55 | 60 | 60 |
| Single Capacitor - 60°C | 230 V | [kVar] | 8 | 8 | 8.5 | 9 | 12.5 | 12.5 | 18 | 28 | 28 | 28 | 28 |
| | 240 V | [kVar] | 8 | 8 | 8.5 | 9 | 12.5 | 12.5 | 18 | 29 | 29 | 29 | 29 |
| | 400 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 21.5 | 30 | 42 | 48 | 48 | 48 |
| | 415 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 22 | 30 | 42 | 50 | 50 | 50 |
| | 500 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 25 | 30 | 42 | 50 | 55 | 55 |
| | 690 V | [kVar] | 8 | 8 | 10 | 12.5 | 20 | 25 | 30 | 42 | 50 | 55 | 55 |
| Capacitor Bank - 40°C ❷ | 230 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 14 | 20 | 28 | 28 | 28 | 28 |
| | 240 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 14 | 20 | 29 | 29 | 29 | 29 |
| | 400 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 48 | 48 | 48 |
| | 415 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 500 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 690 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| Capacitor Bank - 60°C ❷ | 230 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 12.5 | 18 | 28 | 28 | 28 | 28 |
| | 240 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 12.5 | 18 | 29 | 29 | 29 | 29 |
| | 400 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 48 | 48 | 48 |
| | 415 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 500 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 690 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| **Capacitor Switching - 60Hz** | | | | | | | | | | | | | |
| Single Capacitor - 40°C | 200 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 14 | 20 | 28 | 28 | 28 | 28 |
| | 230 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 14 | 20 | 29 | 29 | 29 | 29 |
| | 460 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 600 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 60 | 60 |
| Capacitor Bank - 40°C ❷ | 200 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 12.5 | 18 | 28 | 28 | 28 | 28 |
| | 230 V | [kVar] | 5 | 5 | 8 | 9 | 12.5 | 12.5 | 18 | 29 | 29 | 29 | 29 |
| | 460 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| | 600 V | [kVar] | 5 | 5 | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 50 | 50 |
| **Capacitor Switching - cUL ❸** | | | | | | | | | | | | | |
| | 200 V | [kVar] | ~ | ~ | ❹ | ~ | ~ | ❹ | ~ | 20 | 25 | 30 | ❺ |
| | 480 V | [kVar] | ~ | ~ | ❹ | ~ | ~ | ❹ | ~ | 40 | 50 | 60 | ❺ |
| | 600 V | [kVar] | ~ | ~ | ❹ | ~ | ~ | ❹ | ~ | 40 | 50 | 60 | ❺ |

## CAQ7 Ratings ❹

**IEC Ratings for Switching Capacitor Bank per IEC 60947-4 (AC-6b)**

| | 1-phase 50 Hz (kVar) | | | | | 3-phase 50 Hz (kVar) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Capacitor Banks | 230V 240V | 400V | 415V | 500V | 690V | 230V 240V | 400V | 415V | 500V | 690V |
| - 40°C | | | | | | | | | | |
| CAQ7-16(C) | 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 |
| CAQ7-37(C) | 8 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 |
| - 60°C | | | | | | | | | | |
| CAQ7-16(C) | 5 | 8.5 | 9 | 10.5 | 15 | 8.5 | 15 | 15.5 | 18.5 | 25 |
| CAQ7-37(C) | 8 | 14 | 14.5 | 17.5 | 24 | 14 | 25 | 25 | 30 | 40 |

**3-Pole Capacitor Switching per UL/CSA**

| | 1-phase 60 Hz (kVar) | | 3-phase 60 Hz (kVar) | | | |
|---|---|---|---|---|---|---|
| | 115V | 400V | 200V | 230V | 460V | 575V |
| CAQ7-16(C) | 2.2 | 4.5 | 6.5 | 7.5 | 15 | 18.5 |
| CAQ7-37(C) | 3.6 | 7.5 | 11 | 12.5 | 20 | 25 |

❶ These CA7 capacitor ratings are provided for technical reference. For cUL rated and labeled devices, see CAQ7 contactors listed above.

❷ CA7-9…CA7-30 = L min. 30 µH; CA7-37…CA7-85 = L min. 6 µH

❸ CA7-60(D)…85(D) contactors do not require resistor packs (per footnote 4) or coils of wire (per footnote 2) to add inductance. KVar ratings shown here per UL file E41850-6-4 p.4A. Standard HP rated cUL label is provided on the contactors.

❹ CAQ7 contactors incorporate a built-in set of resistors and early-make contacts, wired in parallel with the power contacts. This manages the peak inrush common with capacitor switching. The circuitry is housed in a front mounted add-on deck. CAQ contacts have capacitor switching (kVar) rated labels.

❺ To be determined - Data not available at time of this printing.

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## Electrical Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Resistance and Watt Loss $I_e$ AC3** | | | | | | | | | | | | | |
| Resistance per power pole | | [mΩ] | 2.7 | 2.7 | 2.7 | 2.0 | 2.0 | 2.0 | 1.5 | 0.9 | 0.9 | 0.9 | 0.9 |
| Watt Loss - 3 power poles | | [W] | 0.66 | 1.2 | 2.1 | 3.2 | 5.4 | 8.2 | 8.3 | 9.7 | 14.0 | 19.5 | 19.5 |
| Coil and 3 power poles | AC | [W] | 3.3 | 3.8 | 4.7 | 6.2 | 8.4 | 11.2 | 11.5 | 11 | 13.8 | 17.5 | 17.5 |
| | DC | [W] | 6.7 | 7.2 | 8.1 | 12.4 | 14.6 | 17.4 | 18.4 | 11 | 13.8 | 17.5 | 17.5 |
| Coil only | AC | [W] | 2.6 | 2.6 | 2.6 | 3.0 | 3.0 | 3.0 | 3.2 | 4.5 | 4.5 | 4.5 | 4.5 |
| | DC | [W] | 6.0 | 6.0 | 6.0 | 9.2 | 9.2 | 9.2 | 10.0 | 4.9 | 4.9 | 4.9 | 4.9 |
| **Short-Circuit Coordination** | | | | | | | | | | | | | |
| **Max. Fuse or circuit breaker ratings** | | | | | | | | | | | | | |
| **DIN Fuses -gG, gL** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA |
| Type "1" (690V) ❸ | | [A] | 50 | 50 | 50 | 80 | 125 | 125 | 160 | 250 | 250 | 250 | 250 |
| Type "2" (690V) ❸ | | [A] | 25 | 35 | 35 | 40 | 80 | 80 | 100 | 160 | 160 | 160 | 200 |
| **BS 88 Fuses** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | 50 KA | ❹ |
| Type "1" (690V) ❸ | | [A] | 25 | 32 | 35 | 50 | 63 | 80 | 100 | 100 | 125 | 160 | ❹ |
| Type "2" (690V) ❸ | | [A] | 25 | 32 | 35 | 50 | 63 | 80 | 100 | 100 | 125 | 160 | ❹ |
| **cUL Short-Circuit Ratings** | | | | | | | | | | | | | |
| **Class K1, RK1, K5, and RK5 Fuses** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 10 KA | 10 KA | 10 KA |
| cUL Max. Rating (600V) ❷ Type 1 | | [A] | 35 | 40 | 70 | 90 | 110 | 125 | 150 | 200 | 250 | 300 | 350 |
| **Class CC & CSA HRCI Fuses** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| cUL Max. Rating (600V) ❷ Type 2 | | [A] | 15 | 20 | 30 | 30 | ~ | ~ | ~ | ~ | ~ | ~ | ~ |
| **Class J CSA & HRCI-J Fuses** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | ❹ |
| cUL Max. Rating (600V) Type 2 | | [A] | 15 | 20 | 30 | 30 | 50 | 50 | 70 | 80 | 100 | 150 | ❹ |
| **Inverse-Time Circuit Breaker ❶** | | | | | | | | | | | | | |
| Available Fault Current | | [A] | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 10 KA | 10 KA | 10 KA |
| cUL Max. Rating 480V ❷ Type 1 | | [A] | 30 | 30 | 50 | 50 | 125 | 125 | 125 | 200 | 250 | 250 | 250 |
| cUL Max. Rating 600V ❷ Type 1 | | [A] | ~ | ~ | ~ | ~ | 125 | 125 | 125 | 200 | 250 | 250 | 250 |
| **Short Time Current Withstand Ratings** | | | | | | | | | | | | | |
| $I_{cw}$ 60° C | 10 s | [A] | 170 | 170 | 170 | 215 | 300 | 304 | 375 | 700 | 700 | 700 | 840 |
| Off Time Between Operations | | [Min.] | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

❶ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

❷ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 abd CSA 22.2 No.14 for contactor and fuses or circuit breaker only.

❸ Per IEC 60947-1 for contactor and fuses only.

❹ To be determined - Test data not available at time of this printing.

## Short Circuit Ratings

### High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14

| CEP7 Second Generation Cat. No. | | Contactor Cat. No. | Max. starter FLC (A) | Fuse Ratings | | | UL Listed Circuit Breaker Ratings ❶ | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Max. available fault current (kA) | Max. voltage (V) | UL Class J, CC, CSA HRCI-J fuse max. (A) | Short Circuit Rating (kA) | Max. voltage (V) | Max. CB Rating (A) |
| CEP7 | ED1AB, EEAB | CA7-09 | 0.5 | 100 | 600 | 3 | 5 ~ | 480 600 | 30 ~ |
| | ED1BB, EEBB | | 1 | | | 6 | | | |
| | ED1CB, ED1DB, ED1EB, EEEB, EECB, EEDB | CA7-09 | 09 | | | 20 | | | |
| | | CA7-12 CAN7-12 | 12 | | | 20 | | | |
| | | CA7-16 CAN7-16 | 16 | 100 | 600 | 30 | 5 ~ | 480 600 | 50 ~ |
| | | CA7-23 | 23 | | | 30 | | | |
| | ED1ED, ED1FD, EEED, EEFD | CA7-30 | 30 | 100 | 600 | 50 | 50 30 | 480 600 | 50 50 |
| | | CA7-37 CAN7-37 | 37 | | | 50 | | | |
| | | CA7-43 CAN7-43 | 43 | | | 70 | | | |
| | EEEE, EEFE EEGE | CA7-60 | 60 | 100 | 600 | 80 | 65 ~ | 480 600 | 100 ~ |
| | | CA7-72 | 72 | | | 100 | | | |
| | | CA7-85 CAN7-85 | 85 | | | 150 | | | |
| | EEVE | CA7-97 | 97 | ❺ | ❺ | ❺ | 10 | 600 | 250 |

### UL508 Tested Combination Assemblies - Motor Circuit Protector (HMCP per UL 489) - Magnetic Only ❷❸

| Motor 3 ph [HP] | Eaton MCP Catalog Number (Max) | Magnetic Setting [A] | Contactor Catalog Number | Overload Relay Catalog Number | Rated Short-Circuit Current | | IEC Coordination Type |
|---|---|---|---|---|---|---|---|
| | | | | | 460 V 60 Hz (480 V line) | 575 V 60 Hz (600 V line) | |
| 1/2 to 3 | HMCPE050K2C | 3 - 10X | CA7-30-10-* | CEP7-EECD | 65kA | 30kA | Type 2 |
| 5 to 20 | HMCPE050K2C | 3 - 10X | CA7-30-10-* | CEP7-EEDB | 65kA | 30kA | Type 2 |
| 25 | HMCPE050K2C | 3 - 10X | CA7-37-10-* | CEP7-EEFD | 65kA | 30kA | Type 2 |
| 30 | HMCPE050K2C | 3 - 10X | CA7-43-10-* | CEP7-EEFD | 65kA | 30kA | Type 2 |
| 40 | HMCPE100R3C | 3 - 10X | CA7-60-10-* | CEP7-EEGE | 65kA | 30kA | Type 2 |
| 50 | HMCPE100R3C | 3 - 10X | CA7-72-10-* | CEP7-EEGE | 65kA | 30kA | Type 2 |
| 60 | HMCPE100R3C | 3 - 10X | CA7-85-10-* | CEP7-EEGE | 65kA | 30kA | Type 2 |
| ❺ | ❺ | ❺ | CA7-97-10-* | CEP7-EEVE | ❺ | ❺ | ❺ |

### UL508 Tested Combination Assemblies - Molded Case Circuit Breakers (MCCB per UL 489) - Thermal-Magnetic ❷❸

| Motor 3 ph [HP] | Eaton MCCB Catalog Number (Max) | Magnetic Setting [A] | Contactor Catalog Number | Overload Relay Catalog Number | Rated Short-Circuit Current | | IEC Coordination Type |
|---|---|---|---|---|---|---|---|
| | | | | | 460 V 60 Hz (480 V line) | 575 V 60 Hz (600 V line) | |
| 1/2 to 2 | EGH3050FFG | 500 | CA7-30-10-* | CEP7-EECD | 65kA | 30kA | Type 1 ❹ |
| 3 to 20 | EGH3050FFG | 500 | CA7-30-10-* | CEP7-EEDB | 65kA | 30kA | Type 1 ❹ |
| 25 | EGH3050FFG | 500 | CA7-37-10-* | CEP7-EEFD | 65kA | 30kA | Type 1 ❹ |
| 30 | EGH3050FFG | 500 | CA7-43-10-* | CEP7-EEFD | 65kA | 30kA | Type 1 ❹ |
| 40 | EGH3110FFG | 1100 | CA7-60-10-* | CEP7-EEGE | 65kA | 30kA | Type 1 |
| 50 | EGH3110FFG | 1100 | CA7-72-10-* | CEP7-EEGE | 65kA | 30kA | Type 1 |
| 60 | EGH3110FFG | 1100 | CA7-85-10-* | CEP7-EEGE | 65kA | 30kA | Type 1 |
| ❺ | ❺ | ❺ | CA7-97-10-* | CEP7-EEVE | ❺ | ❺ | ❺ |

❶ Various Mfg. of UL Listed Circuit Breakers may be used.
❷ UL File pending approval at the time of this catalog printing. Refer to UL website at http://ul.com/controlequipment/shortcircuit.html.
❸ UL508 Tested combinations may not be substituted, ie: Eaton Breakers with Sprecher+Schuh contactors and overloads are specified.
❹ Type 2 Coordination when contactor is upsized to CA6-210.
❺ To be determined - Test data not available at time of this printing.

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## Short Circuit Ratings

**Standard Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14**

| CEP7 Second Generation Cat. No. | | Max. available fault current (kA) | Conditional S.C. current, Iq (kA) | S.C.P.D. |
|---|---|---|---|---|
| CEP7 | ED1AB, EEAB ED1BB, EEBB | 1 | 600V Max. Voltage | Suitable for use with fuses only |
| | ED1CB, ED1DB, ED1EB, ED1ED, ED1FD, EECB, EEDB, EEEB, EEED, EEFD, EEPB, EERB, EESB, EETD | 5 | | Not restricted to fusing only |
| | EEEE, EEFE, EEGE, EEUE | 10 | | |

**IEC Short Circuit Ratings per EN60947-4-1**

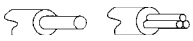
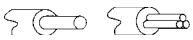
| CEP7 Second Generation Cat. No. | | Prospective S.C. current, Ir (kA) | Conditional S.C. current, Iq (kA) | Max. voltage (V) | S.C.P.D. |
|---|---|---|---|---|---|
| CEP7 | ED1AB, EEAB ED1BB, EEBB | 1 | 100 | 690 | Suitable for use with fuses only |
| | ED1CB, ED1DB, EECB, EEDB, EEPB, EERB | 1 | | | Not restricted to fusing only |
| | ED1EB, EEEB, ED1ED, ED1FD, EEED, EEFD, EEEE, EEFE, EESB, EETD | 3 | | | |
| | EEGE, EEUE | 5 | | | |

**IEC Type 1 and Type II Fuse Coordination with CA7 Series contactors per EN60947-4-1**

| CEP7 Second Generation Cat. No. | | Contactor Cat. No. | Max. starter FLC (A) | Prospective S.C. current, Ir (kA) | Conditional S.C. current, Iq (kA) | Max. voltage (V) | Type I with Class J fuse max. (A) | Type II with Class J fuse max. (A) |
|---|---|---|---|---|---|---|---|---|
| CEP7 | ED1AB, EEAB | CA7-09 | 0.5 | 1 | 100 | 600 | 3 | 3 |
| | ED1BB, EEBB | | 1 | | | | 6 | 6 |
| | ED1CB, ED1DB, EECB, EEDB | CA7-09 | 09 | 1 | | | 20 | 15 |
| | | CA7-12 | 12 | | | | 20 | 20 |
| | | CA7-16 | 16 | | | | 30 | 30 |
| | | CA7-23 | 23 | | | | 30 | 30 |
| | ED1EB, EEEB | CA7-09 | 09 | 3 | | | 20 | 15 |
| | | CA7-12 | 12 | | | | 20 | 20 |
| | | CA7-16 | 16 | | | | 30 | 30 |
| | | CA7-23 | 23 | | | | 30 | 30 |
| | ED1ED, ED1FD, EEED, EEFD | CA7-30 | 30 | 3 | | | 50 | 50 |
| | | CA7-37 | 37 | | | | 50 | 50 |
| | | CA7-43 | 43 | | | | 70 | 70 |
| | EEEE, EEFE | CA7-60 | 60 | 3 | | | 80 | 80 |
| | | CA7-72 | 72 | | | | 100 | 100 |
| | | CA7-85 | 85 | | | | 150 | 150 |
| | EEGE | CA7-60 | 60 | 5 | | | 80 | 80 |
| | | CA7-72 | 72 | | | | 100 | 100 |
| | | CA7-85 | 85 | | | | 150 | 150 |
| | EEVE | CA7-97 | 97 | ❶ | ❶ | ❶ | ❶ | ❶ |

❶ To be determined - Test data not available at time of this printing.

## Electro-Mechanical Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Service Life** | | | | | | | | | | | | | |
| Mechanical | AC | [Mil.] | 13 | 13 | 13 | 13 | 13 | 13 | 12 | 6 | 6 | 6 | 6 |
| | DC | [Mil.] | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 6 | 6 | 6 | 6 |
| Electrical AC-3 (400V) | AC | [Mil.] | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| **Shipping Weights** | | | | | | | | | | | | | |
| AC - CA7 | | [kg] | 0.39 | 0.39 | 0.39 | 0.39 | 0.48 | 0.49 | 0.51 | 1.45 | 1.45 | 1.45 | 1.45 |
| | | [Lbs.] | 0.86 | 0.86 | 0.86 | 0.86 | 1.06 | 1.08 | 1.12 | 3.20 | 3.20 | 3.20 | 3.20 |
| AC -CAU7 | | [kg] | 0.85 | 0.85 | 0.85 | 0.85 | 1.08 | 1.08 | 1.15 | 3.14 | 3.14 | 3.14 | 3.14 |
| | | [Lbs.] | 1.89 | 1.89 | 1.89 | 1.89 | 2.39 | 2.39 | 2.54 | 6.92 | 6.92 | 6.92 | 6.92 |
| DC - CA7 | | [kg] | 0.60 | 0.60 | 0.60 | 0.73 | 0.85 | 0.85 | 1.00 | 1.47 | 1.47 | 1.47 | 1.47 |
| | | [Lbs.] | 1.32 | 1.32 | 1.32 | 1.61 | 1.87 | 1.87 | 2.20 | 3.24 | 3.24 | 3.24 | 3.24 |
| DC - CAU7 | | [kg] | 1.27 | 1.27 | 1.27 | 1.53 | 1.81 | 1.81 | 2.13 | 3.22 | 3.22 | 3.22 | 3.22 |
| | | [Lbs.] | 2.81 | 2.81 | 2.81 | 3.39 | 4.00 | 4.00 | 4.70 | 7.10 | 7.10 | 7.10 | 7.10 |
| **Terminations - Power** | | | | | | | | | | | | | |
| Description | | |  | | | |  | | |  | | | |
| | | | One saddleclamp per pole: cross, slotted or Pozidrive No. 2/blade No. 3 screw | | | | Dual connection; one saddleclamp and one box lug per pole; cross, slotted or Pozidrive No. 2/blade No. 4 screw | | | Dual connection; two box lugs per pole Allen Head: 4mm, 5/32 | | | |
|  | 1 Wire | [mm²] | 1...4 | 1...4 | 1...4 | 1...4 | 2.5...10 | 2.5...10 | 2.5...16 | 2.5...35 | 2.5...35 | 2.5...35 | 2.5...35 |
| | 2 Wires | [mm²] | 1...4 | 1...4 | 1...4 | 1...4 | 2.5...10 | 2.5...10 | 2.5...10 | 2.5...25 | 2.5...25 | 2.5...25 | 2.5...25 |
|  | 1 Wire | [mm²] | 1.5...6 | 1.5...6 | 1.5...6 | 1.5...6 | 2.5...16 | 2.5...16 | 2.5...25 | 2.5...50 | 2.5...50 | 2.5...50 | 2.5...50 |
| | 2 Wires | [mm²] | 1.5...6 | 1.5...6 | 1.5...6 | 1.5...6 | 2.5...16 | 2.5...16 | 2.5...16 | 2.5...35 | 2.5...35 | 2.5...35 | 2.5...35 |
|  | 1 Wire | [AWG] | 16...10 | 16...10 | 16...10 | 16...10 | 14...4 | 14...4 | 14...4 | 14...1 | 14...1 | 14...1 | 14...1 |
| | 2 Wires | [AWG] | 16...10 | 16...10 | 16...10 | 16...10 | 14...4 | 14...4 | 14...4 | 14...1 | 14...1 | 14...1 | 14...1 |
| Torque Requirement | | [Nm] | 1.5...2.5 | 1.5...2.5 | 1.5...2.5 | 1.5...2.5 | 2.5...3.5 | 2.5...3.5 | 2.5...3.5 | 4.5...6 | 4.5...6 | 4.5...6 | 4.5...6 |
| | | [Lb-in] | 9...22 | 9...22 | 9...22 | 9...22 | 22...31 | 22...31 | 22...31 | 40...53 | 40...53 | 40...53 | 40...53 |
| **Terminations - Control** | | | | | | | | | | | | | |
| Description | | |  | | | |  | | |  | | | |
| | | | Combination Screw Head: Cross, Slotted, Pozidrive | | | | | | | | | | |
| Coils | 1 or 2 | [mm²] | 1.5...6 | | | | | | | | | | |
| Wires | | [AWG] | 16...12 | | | | | | | | | | |
| Control Modules | 1or 2 | [mm²] | 1.5...6 | | | | | | | | | | |
| Wires | | [AWG] | 16...12 | | | | | | | | | | |
| Torque Requirement | | [Nm] | 1...2.5 | | | | | | | | | | |
| | | [Lb-in] | 9...13 | | | | | | | | | | |
| **Degree of Protection - contactor** | | | IP 2LX per IEC 529 and DIN 40 050 (with wires installed) | | | | | | | | | | |
| **Protection Against Accidental Contact** | | | Safe from touch by fingers and back-of-hand per VDE 0106; Part 100 | | | | | | | | | | |

## Environmental and General Specifications

| | |
|---|---|
| **Ambient Temperature** | |
| Storage | -55...+80˚ C (-67...176˚ F) - [CRI7E Electronic Interface -50...+80˚ C (-58...176˚ F)] |
| Operation | -25...+60˚ C (-13...140˚ F) |
| Conditioned 15% current reduction after AC-1 at >60˚ C | -25...+70˚ C (-13...158˚ F) |
| **Altitude at installed site** | 2000 meters above sea level per IEC 947-4 |
| **Resistance to Corrosion/Humidity** | Damp-alternating climate: cyclic to IEC 68-2, 56 cycles<br>Dry heat: IEC 68-2, +100˚C (212˚ F), relative humidity <50%, 7 days.<br>Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity <92%, 56 days. |
| **Shock Resistance** | IEC 68-2: Half sinusoidal shock 11ms, 30g (in all three directions) |
| **Vibration Resistance** | IEC 68-2: Static > 2g, in normal position no malfunction <5g |
| **Pollution Degree** | 3 |
| **Operating Position** | Refer to Dimension Pages |
| **Standards** | IEC947-1/4, EN 60947; UL 508; CSA 22.2, No. 14 |
| **Approvals** | CE, UL, CSA |

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## Lug Kit and Paralleling Link Specifications

| | | | CA7-P-KN23 / KL23 | CA7-P-K37 | CA7-P-K43 | CA7-P-K85 | CA7-P-B23 | CA7-P-B37 |
|---|---|---|---|---|---|---|---|---|
| **Approvals** | | | | | UL Listed; CSA Certified; C | | | |
| **Conformity to Standards** | | | | | UL508; CSA 22.2 No. 14; IEC 60947-4 | | | |
| **Protection Against Accidental Contact** | | | | | IP2LX Finger Protection | | | |
| **Terminations** | | |  | | | | | |
| Description | | | Cross, slotted or Pozidrive screw | | Allen Head; 5mm, 3/16 | | Allen Head; 7 mm, 15/32 | |
| Wire Size | | | | | | | | |
|  | 1 Wire | [mm²] | 4...16 | 4..16 | 6...35 | 10...70 | 35...70 | 35...70 |
|  | 1 Wire | [mm²] | 4...25 | 4..25 | 6...50 | 10...95 | 35...95 | 35...95 |
|  | 1 Wire | [AWG] | 10...4 | 10...4 | 8...2 | 8..2/0 | 0...2/0 | 0...2/0 |
| Torque Requirement | | [Nm] | 2...3 | 2...3 | 3..6 | 8...12 | 6...12 | 6....12 |
| | | [Lb-in] | 18...27 | 18...27 | 27...54 | 72...108 | 54...108 | 54...108 |

## Coil Data

| | | | CA7-9 | CA7-12 | CA7-16 | CA7-23 | CA7-30 | CA7-37 | CA7-43 | CA7-60 | CA7-72 | CA7-85 | CA7-97 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Range** | | | | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [x$U_s$] | | | | | 0.85...1.1 | | | | | | |
| | Dropout | [x$U_s$] | | | | | 0.3...0.6 | | | | | | |
| DC, True & Two Winding | Pickup | [x$U_s$] | | | | | 0.8...1.1 (9V coils = 0.65...1.3; 24V coils = 0.7...1.25) | | | | | | |
| | Dropout | [x$U_s$] | | | | | 0.1...0.6 | | | | | | |
| DC, Electronic Coil (9E…43E) | Pickup | [x$U_s$] | | | | | 0.7…1.25 | | | | | | |
| | Dropout | [x$U_s$] | | | | | 0.1...0.5 | | | | | | |
| **Coil Consumption** | | | | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [VA/W] | 70/50 | 70/50 | 70/50 | 70/50 | 80/60 | 80/60 | 130/90 | 200/110 | 200/110 | 200/110 | 400/240 |
| | Hold-in | [VA/W] | 8/2.6 | 8/2.6 | 8/2.6 | 9/3 | 9/3 | 9/3 | 10/3.2 | 16/4.5 | 16/4.5 | 16/4.5 | 24/9 |
| True DC Coils (CA7C) | Pickup | [W] | 6.5 | 6.5 | 6.5 | 9.2 | 9.2 | 9.2 | 10.1 | ~ | ~ | ~ | ~ |
| | Hold-in | [W] | 6.5 | 6.5 | 6.5 | 9.2 | 9.2 | 9.2 | 10.1 | ~ | ~ | ~ | ~ |
| Two Winding DC Coils | Pickup | [W] | 120 | 120 | 120 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 325 |
| CA7Y & CA7D | Hold-in | [W] | 1.1 | 1.1 | 1.1 | 1.2 | 1.2 | 1.2 | 1.3 | 4.5 | 4.5 | 4.5 | 5.5 |
| DC, Electronic Coil (9E…43E)❷ | Pickup Avg | [W] | 10 | 10 | 10 | 10 | 10 | 10 | 12 | ~ | ~ | ~ | ~ |
| | Pickup Peak | [W] | 22 | 22 | 22 | 22 | 22 | 22 | 28 | | | | |
| | Hold-in | [W] | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | ~ | ~ | ~ | ~ |
| **Operating Times** | | | | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [ms] | 15...30 | 15...30 | 15...30 | 15...30 | 15...30 | 15...30 | 15...30 | 20...40 | 20...40 | 20...40 | 20...40 |
| | Dropout | [ms] | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 20...40 |
| with RC Suppressor | Dropout | [ms] | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 20...40 |
| True DC Coils (CA7C) | Pickup | [ms] | 40...70 | 40...70 | 40...70 | 40...70 | 50...80 | 50...80 | 50...80 | ~ | ~ | ~ | ~ |
| without Suppression | Dropout | [ms] | 7...15 | 7...15 | 7...15 | 7...15 | 7...15 | 7...15 | 7...15 | ~ | ~ | ~ | ~ |
| with Integrated Suppression | Dropout | [ms] | 14...20 | 14...20 | 14...20 | 17...23 | 17...23 | 17...23 | 17...23 | ~ | ~ | ~ | ~ |
| with External Suppression | Dropout | [ms] | 70...95 | 70...95 | 70...95 | 80...125 | 80...125 | 80...125 | 80...125 | ~ | ~ | ~ | ~ |
| Two Winding DC Coils (CA7Y/D) | Pickup | [ms] | 17...26 | 17...26 | 15...27 | 15...27 | 15...27 | 15...27 | 15...27 | 20...40 | 20...40 | 20...40 | 15...25 |
| with Internal Suppression | Dropout | [ms] | 9...20 | 9...20 | 14...24 | 14...24 | 14...24 | 14...24 | 14...24 | 20...35 ❶ | 20...35 ❶ | 20...35 ❶ | 15...25 ❶ |
| DC, Electronic Coil (9E…43E) | Pickup | [ms] | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | ~ | ~ | ~ | ~ |
| | Dropout | [ms] | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | ~ | ~ | ~ | ~ |

❶ ≤ 220V.

❷ The hold-in demand of the CA7-9E…43E is very low but the pick-up demand is approximately 1 ampere at 24 VDC. When sizing (dimensioning) a power supply for applications involving parallel switched contactors then multiply the peak demand by the number of contactors to be simultaneously switched and add to the hold-in demand of all other control circuit burdens, including other contactors, pilot devices, solenoids, etc.

## Electrical Data

| | | | CA7-9-M40(31; 22) | CA7-12-M40(31; 22) | CA7-16-M40(31; 22) | CA7-23-M40(31; 22) | CA7-40-M22 | CA7-40-M40 | CA7-90-M22 | CA7-90-M40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Rated Insulation Voltage $U_i$** | | | | | | | | | | |
| IEC, AS, BS, SEV, VDE 0660 | | | | | | | 690V | | | |
| UL; CSA | | | | | | | 600V | | | |
| **Rated Impulse Voltage $U_{imp}$** | | | | | | | 8 kV | | | |
| **Rated Voltage $U_e$ - Main Contacts** | | | | | | | | | | |
| AC 50/60Hz | | | | | | 115, 200, 208, 230, 240, 380, 400, 415, 460, 500, 575, 690V | | | | |
| DC | | | | | | 24, 48, 110, 115, 220, 230, 300, 440V | | | | |
| **Operating Frequency for AC Loads** | | | | | | | 50...60Hz | | | |
| **Switching Motor Loads** | | | | | | | | | | |
| **Standard IEC Ratings** | | | | | | | | | | |
| **AC-2, AC-3, AC-4** | 230V | [A] | 12 | 15 | 20 | 26.5 | 38 | 38 | 85 | 85 |
| DOL & Reversing | 240v | [A] | 12 | 15 | 20 | 26.5 | 38 | 38 | 85 | 85 |
| 50Hz/60ºC | 400V | [A] | 9 | 12 | 16 | 23. | 37 | 37 | 85 | 85 |
| | 415V | [A] | 9 | 12 | 16 | 23 | 37 | 37 | 85 | 85 |
| | 500V | [A] | 7 | 10 | 14 | 20 | 29 | 30 | 80 | 80 |
| | 690V | [A] | 5 | 7 | 9 | 12 | 9 | 21 | 22 | 49 |
| | 230V | [kW] | 3 | 4 | 5.5 | 7.5 | 11 | 11 | 25 | 25 |
| | 240V | [kW] | 3 | 4 | 5.5 | 7.5 | 11 | 11 | 25 | 25 |
| | 400V | [kW] | 4 | 5.5 | 7.5 | 11 | 18.5 | 18.5 | 45 | 45 |
| | 415V | [kW] | 4 | 5.5 | 7.5 | 11 | 18.5 | 18.5 | 45 | 45 |
| | 500V | [kW] | 4 | 5.5 | 7.5 | 13 | 18.5 | 20 | 55 | 55 |
| | 690V | [kW] | 4 | 5.5 | 7.5 | 10 | 7.5 | 18.5 | 18.5 | 45 |
| **UL/CSA/IEC** | | | | | | | | | | |
| DOL & Reversing | 115V | [A] | 7.2 | 9.8 | 16 | 24 | 34 | 34 | 80 | 80 |
| 60Hz/60ºC 1Ø | 230V | [A] | 18 | 12 | 17 | 17 | 28 | 28 | 68 | 68 |
| | 115V | [HP] | 1/2 | 1/2 | 1 | 2 | 3 | 3 | 7-1/2 | 7-1/2 |
| | 230V | [HP] | 1-1/2 | 2 | 3 | 3 | 5 | 5 | 15 | 15 |
| | 200V | [A] | 7.8 | 11 | 17.5 | 17.5 | 32.2 | 32.2 | 78.2 | 78.2 |
| | 230V | [A] | 6.8 | 9.6 | 15.2 | 22 | 28 | 28 | 80 | 80 |
| | 460V | [A] | 7.6 | 11 | 14 | 21 | 34 | 34 | 65 | 77 |
| | 575V | [A] | 9 | 11 | 17 | 17 | 17 | 32 | 22 | 52 |
| | 200V | [HP] | 2 | 3 | 5 | 5 | 10 | 10 | 25 | 25 |
| | 230V | [HP] | 2 | 3 | 5 | 7-1/2 | 10 | 10 | 30 | 30 |
| | 460V | [HP] | 5 | 7-1/2 | 10 | 15 | 25 | 25 | 50 | 60 |
| | 575V | [HP] | 7-1/2 | 10 | 15 | 15 | 15 | 30 | 20 | 50 |
| Maximum Operating Rate | AC2 | [ops/hr] | 450 | 450 | 450 | 400 | 400 | 400 | 200 | 200 |
| (at max. amps) | AC3 | [ops/hr] | 700 | 700 | 700 | 600 | 600 | 600 | 500 | 500 |
| | AC4 | [ops/hr] | 200 | 150 | 120 | 80 | 70 | 70 | 50 | 50 |

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## Electrical Data

| | | | CA7-9-M40(31; 22) | CA7-12-M40(31; 22) | CA7-16-M40(31; 22) | CA7-23-M40(31; 22) | CA7-40-M22 | CA7-40-M40 | CA7-90-M22 | CA7-90-M40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **AC-1 Load, 3Ø Switching** | | [A] | | | | | | | | |
| Ambient Temperature 40ºC | $I_{th}$ | [kW] | 32 | 32 | 32 | 32 | 75 | 75 | 130 | 130 |
| | 230V | [kW] | 13 | 13 | 13 | 13 | 30 | 30 | 52 | 52 |
| | 240V | [kW] | 13 | 13 | 13 | 13 | 31 | 31 | 54 | 54 |
| | 400V | [kW] | 22 | 22 | 22 | 22 | 52 | 52 | 90 | 90 |
| | 415V | [kW] | 23 | 23 | 23 | 23 | 54 | 54 | 93 | 93 |
| | 500V | [kW] | 28 | 28 | 28 | 28 | 65 | 65 | 113 | 113 |
| | 690V | [kW] | 38 | 38 | 38 | 38 | 90 | 90 | 155 | 155 |
| | $I_{th}$ | [kW] | 32 | 32 | 32 | 32 | 60 | 60 | 110 | 110 |
| | 230V | [kW] | 13 | 13 | 13 | 13 | 24 | 24 | 44 | 44 |
| Ambient Temperature 60º | 240V | [kW] | 13 | 13 | 13 | 13 | 25 | 25 | 46 | 46 |
| | 400V | [kW] | 22 | 22 | 22 | 22 | 42 | 42 | 76 | 76 |
| | 415V | [kW] | 23 | 23 | 23 | 23 | 43 | 43 | 79 | 79 |
| | 500V | [kW] | 28 | 28 | 28 | 28 | 52 | 52 | 95 | 95 |
| | 690V | [kW] | 38 | 38 | 38 | 38 | 72 | 72 | 131 | 131 |
| Max Operating Rate | | [ops/hour] | 1,000 | 1,000, | 1,000, | 1,000 | 300 | 300 | 600 | 600 |
| **Continuous Current (UL/CSA)** | | | | | | | | | | |
| General Purpose Rating (40º) | Open | [A] | 25 | 25 | 30 | 30 | 60 | 60 | 125 | 130 |
| | Enclosed | [A] | 25 | 25 | 30 | 30 | 60 | 60 | 125 | 130 |
| Max. Operating Rate | | [ops/hour] | 1,400 | 1,400 | 1,200 | 1,200 | 1,000 | 1,000 | 600 | 600 |
| **Lighting Loads** ❶ | | | | | | | | | | |
| Elec. Dischrg.Lamps-AC-5a, | Open | [A] | 22.5 | 25 | 28 | 29 | 65 | 65 | 115 | 115 |
| single compensated | Enclosed | [A] | 22.5 | 25 | 28 | 29 | 54 | 54 | 95 | 95 |
| Incandescent Lamps AC-5b, Electrical endurance~100,000 operations | | | 12 | 16 | 18 | 22 | 18 | 25 | 60 | 75 |
| **DC-1 Switching - 60ºC** | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 80 | 80 |
| | 48VDC | [A] | 20 | 20 | 20 | 20 | 25 | 25 | 40 | 40 |
| 1 Pole | 60VDC | [A] | 20 | 20 | 20 | 20 | 25 | 30 | 40 | 40 |
| | 110VDC | [A] | 6 | 6 | 6 | 6 | 10 | 10 | 11 | 11 |
| | 220VDC | [A] | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.8 | 1.8 |
| | 440VDC | [A] | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 80 | 80 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 80 | 80 |
| 2 Pole in Series | 60VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 80 | 80 |
| | 110VDC | [A] | 25 | 25 | 32 | 32 | 45 | 45 | 80 | 80 |
| | 220VDC | [A] | 8 | 8 | 8 | 8 | 10 | 10 | 15 | 15 |
| | 440VDC | [A] | 1 | 1 | 1 | 1 | 1 | 1 | 1.5 | 1.5 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | ~ | 48 | ~ | 100 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | ~ | 48 | ~ | 100 |
| 3 Poles in Series | 60VDC | [A] | 25 | 25 | 32 | 32 | ~ | 48 | ~ | 100 |
| | 110VDC | [A] | 25 | 25 | 32 | 32 | ~ | 48 | ~ | 100 |
| | 220VDC | [A] | 25 | 25 | 32 | 32 | ~ | 48 | ~ | 80 |
| | 440VDC | [A] | 3 | 3 | 3 | 3 | ~ | 3.5 | ~ | 5 |
| | 24VDC | [A] | 25 | 25 | 32 | 32 | ~ | 60 | ~ | 110 |
| | 48VDC | [A] | 25 | 25 | 32 | 32 | ~ | 60 | ~ | 110 |
| 4 Poles in Series | 60VDC | [A] | 25 | 25 | 32 | 32 | ~ | 60 | ~ | 110 |
| | 110VDC | [A] | 25 | 25 | 32 | 32 | ~ | 60 | ~ | 110 |
| | 220VDC | [A] | 25 | 25 | 32 | 32 | ~ | 60 | ~ | 100 |
| | 440VDC | [A] | 8 | 8 | 8 | 8 | ~ | 10 | ~ | 15 |

❶ CA7 ratings for lighting loads are provided for technical reference. For cUL rated and labeled devices, see CAL7 contactors listed in this section.

## Electrical Data

| | | | CA7-9-M40 (31; 22) | CA7-12-M40 (31; 22) | CA7-16-M40 (31; 22) | CA7-23-M40 (31;22) | CA7-40-M22 | CA7-40-M40 | CA7-90-M22 | CA7-90-M40 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Resistance and Watt Loss $I_e$ AC3** | | | | | | | | | | |
| Resistance per power pole | | [mΩ] | 2.7 | 2.7 | 2.7 | 2.0 | 2.0 | 1.5 | 0.8 | 0.7 |
| Watt Loss - 4 power poles | | [W] | 2.8 | 2.8 | 2.8 | 2.0 | 11.3 | 8.4 | 13.5 | 11.8 |
| Coil and 4 power poles | AC | [W] | 13.7 | 13.7 | 13.7 | 10.8 | 26.1 | 37.4 | 36.0 | 56.3 |
| | DC (true) | [W] | 17.6 | 17.6 | 17.6 | 17.4 | 32.6 | 43.9 | ~ | ~ |
| | DC (2 winding) | [W] | ~ | ~ | ~ | ~ | ~ | ~ | 32.5 | 52.8 |
| **Short Circuit Coordination** | | | | | | | | | | |
| **DIN Fuses -gG, gL** | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 50 KA | 50 KA | 50 KA | 50 KA |
| Type "1" (690V) ❸ | | [A] | 50 | 50 | 50 | 80 | 160 | 160 | 250 | 250 |
| Type "2" (690V) ❸ | | [A] | 25 | 35 | 35 | 40 | 100 | 100 | 160 | 160 |
| **BS 88 Fuses** | | | | | | | | | | |
| Available Fault Current | | [A] | 80 KA | 80 KA | 80 KA | 80 KA | ~ | ~ | ~ | ~ |
| Type "1" (690V) ❸ | | [A] | 25 | 32 | 35 | 50 | ~ | ~ | ~ | ~ |
| Type "2" (690V) ❸ | | [A] | 25 | 32 | 35 | 50 | ~ | ~ | ~ | ~ |
| **Class K1, RK1 Fuses** | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA |
| Type "2" (600V) ❸ | | [A] | 15 | 20 | 20 | 30 | 70 | 70 | 100 | 100 |
| **cUL Short-Circuit Ratings** | | | | | | | | | | |
| **Class K1, RK1, K5, and RK5 Fuses** | | | | | | | | | | |
| Available Fault Current | | [A] | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 10 KA | 10 KA |
| cUL Max. Rating (600V) ❷ Type 1 | | [A] | 35 | 40 | 70 | 90 | 125 | 125 | 300 | 300 |
| **Class CC & CSA HRCI Fuses** | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | ~ | ~ | ~ | ~ |
| cUL Max. Rating (600V) ❷ Type 2 | | [A] | 15 | 20 | 30 | 30 | ~ | ~ | ~ | ~ |
| **Class J CSA & HRCI-J Fuses** | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA |
| cUL Max. Rating (600V) ❷ Type 2 | | [A] | 15 | 20 | 30 | 30 | 70 ❹ | 70 ❹ | 150 ❹ | 150 ❹ |
| **Inverse-Time Circuit Breaker ❶** | | | | | | | | | | |
| Available Fault Current | | [A] | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 5 KA | 10 KA | 10 KA |
| cUL Max. Rating 480V ❷ Type 1 | | [A] | 30 | 30 | 50 | 50 | 125 | 125 | 250 | 250 |
| cUL Max. Rating 600V ❷ Type 1 | | [A] | ~ | ~ | ~ | ~ | 125 | 125 | 250 | 250 |
| **Short Time Current Withstand Ratings** | | | | | | | | | | |
| $I_{cw}$ 60° C | | [A] | 170 | 170 | 170 | 215 | 304 | 304 | 700 | 700 |
| Off Time Between Operations | | [Min.] | 20 | 20 | 20 | 20 | 5 | 5 | 5 | 5 |

❶ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

❷ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 abd CSA 22.2 No.14 for contactor and fuses or circuit breaker only.

❸ Per IEC 60947-1 for contactor and fuses only.

❹ UL Testing not complete a the time of printing this catalog.

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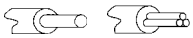
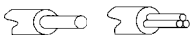
## Mechanical Data

| | | | CA7-9-M40 (31; 22) | CA7-12-M40 (31; 22) | CA7-16-M40 (31; 22) | CA7-23-M40 (31; 22) CAL7-20 | CA7-40-M22 | CA7-40-M40 CAL7-30 | CA7-90-M22 | CA7-90-M40 CAL7-60 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Service Life** | | | | | | | | | | |
| Mechanical | AC | [Mil.] | 13 | 13 | 13 | 13 | 10 | 10 | 10 | 10 |
| | DC | [Mil.] | 13 | 13 | 13 | 13 | 10 | 10 | 10 | 10 |
| **Shipping Weights** | | | | | | | | | | |
| AC - CA7 | | [kg] | 0.39 | 0.39 | 0.39 | 0.39 | 0.51 | 0.51 | 1.45 | 1.45 |
| | | [Lbs.] | 0.86 | 0.86 | 0.86 | 0.86 | 1.12 | 1.12 | 3.20 | 3.20 |
| DC - CA7 | | [kg] | 0.60 | 0.60 | 0.60 | 0.73 | 1.00 | 1.00 | 1.47 | 1.47 |
| | | [Lbs.] | 1.32 | 1.32 | 1.32 | 1.61 | 2.20 | 2.20 | 3.24 | 3.24 |
| **Terminations - Power** | | | | | | | | | | |
| Description | | |  |  |  |  |  |  |  |  |
| | | | One saddleclamp per pole: cross, slotted or Pozidrive No. 2/blade No. 3 screw | | | | Dual connection; one saddleclamp and one box lug per pole; cross, slotted or Pozidrive No. 2/ blade No. 4 screw | | Dual connection; two box lugs per pole Allen Head: 4mm, 5/32 | |
|  | 1 Wire | [mm²] | 1...4 | 1...4 | 1...4 | 1...4 | 2.5...10 | 2.5...10 | 2.5...16 | 2.5...35 |
| | 2 Wires | [mm²] | 1...4 | 1...4 | 1...4 | 1...4 | 2.5...10 | 2.5...10 | 2.5...10 | 2.5...25 |
|  | 1 Wire | [mm²] | 1.5...6 | 1.5...6 | 1.5...6 | 1.5...6 | 2.5...16 | 2.5...16 | 2.5...25 | 2.5...50 |
| | 2 Wires | [mm²] | 1.5...6 | 1.5...6 | 1.5...6 | 1.5...6 | 2.5...16 | 2.5...16 | 2.5...16 | 2.5...35 |
|  | 1 Wire | [AWG] | 16...10 | 16...10 | 16...10 | 16...10 | 14...6 | 14..6 | 14...4 | 14...1 |
| | 2 Wires | [AWG] | 16...10 | 16...10 | 16...10 | 16...10 | 14...6 | 14..6 | 14...4 | 14...1 |
| Torque Requirement | | [Nm] | 1.5...2.5 | 1.5...2.5 | 1.5...2.5 | 1.5...2.5 | 2.5...4 | 2.5...4 | 2.5...4 | 3.5...6 |
| | | [Lb-in] | 9...22 | 9...22 | 9...22 | 9...22 | 22...35 | 22...35 | 22...35 | 31...53 |
| **Terminations - Control** | | | | | | | | | | |
| Description | | |  |  |  |  |  |  |  |  |
| | | | Combination Screw Head: Cross, Slotted, Pozidrive | | | | | | | |
| Coils | 1 or 2 | [mm²] | 1.5...6 | | | | | | | |
| Wires | | [AWG] | 16...12 | | | | | | | |
| Control Modules | 1or 2 | [mm²] | 1.5...6 | | | | | | | |
| Wires | | [AWG] | 16...12 | | | | | | | |
| Torque Requirement | | [Nm] | 1...2.5 | | | | | | | |
| | | [Lb-in] | 9...13 | | | | | | | |
| **Degree of Protection - contactor** | | | IP 2LX per IEC 529 and DIN 40 050 (with wires installed) | | | | | | | |
| **Protection Against Accidental Contact** | | | Safe from touch by fingers and back-of-hand per VDE 0106; Part 100 | | | | | | | |

## Environmental and General Specifications

| | |
|---|---|
| **Ambient Temperature** | |
| Storage | -55...+80˚ C (-67...176˚ F) - [CRI7E Electronic Interface -50...+80˚ C (-58...176˚ F)] |
| Operation | -25...+60˚ C (-13...140˚ F) |
| Conditioned 15% current reduction after AC-1 at >60˚ C | -25...+70˚ C (-13...158˚ F) |
| **Altitude at installed site** | 2000 meters above sea level per IEC 947-4 |
| **Resistance to Corrosion/Humidity** | Damp-alternating climate: cyclic to IEC 68-2, 56 cycles<br>Dry heat: IEC 68-2, +100˚C (212˚ F), relative humidity <50%, 7 days.<br>Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity <92%, 56 days. |
| **Shock Resistance** | IEC 68-2: Half sinusoidal shock 11ms, 30g (in all three directions) |
| **Vibration Resistance** | IEC 68-2: Static > 2g, in normal position no malfunction <5g |
| **Pollution Degree** | 3 |
| **Operating Position** | Refer to Dimension Pages |
| **Standards** | IEC947-1/4, EN 60947; UL 508; CSA 22.2, No. 14 |
| **Approvals** | CE, UL, CSA |

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## Coil Data (CA7 4-Pole)

| | | | CA7-9-M40 (31; 22) | CA7-12-M40 (31; 22) | CA7-16-M40 (31; 22) | CA7-23-M40 (31; 22) CAL7-20 | CA7-40-M22 | CA7-40-M40 CAL7-30 | CA7-90-M22 | CA7-90-M40 CAL7-60 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Voltage Range** | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [x$U_s$] | | | | 0.85...1.1 | | | | |
| | Dropout | [x$U_s$] | | | | 0.3...0.6 | | | | |
| DC, True & Two Winding | Pickup | [x$U_s$] | | | 0.8...1.1 (9V coils = 0.65...1.3; 24V coils = 0.7...1.25) | | | | | |
| | Dropout | [x$U_s$] | | | | 0.1...0.6 | | | | |
| DC, Electronic Coil (9E…40E) | Pickup | [x$U_s$] | | | | 0.7…1.25 | | | | |
| | Dropout | [x$U_s$] | | | | 0.1...0.5 | | | | |
| **Coil Consumption** | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [VA/W] | 70/50 | 70/50 | 70/50 | 70/50 | 130/90 | 130/90 | 400/240 | 400/240 |
| | Hold-in | [VA/W] | 8/2.6 | 8/2.6 | 8/2.6 | 9/3 | 12/3.6 | 12/3.6 | 24/9 | 24/9 |
| True DC Coils (CA7C) | Pickup | [W] | 6.5 | 6.5 | 6.5 | 9.2 | 10.1 | 10.1 | ~ | ~ |
| | Hold-in | [W] | 6.5 | 6.5 | 6.5 | 9.2 | 10.1 | 10.1 | ~ | ~ |
| Two Winding DC Coils | Pickup | [W] | ~ | ~ | ~ | ~ | ~ | ~ | 325 | 325 |
| CA7Y & CA7D | Hold-in | [W] | ~ | ~ | ~ | ~ | ~ | ~ | 5.5 | 5.5 |
| DC, Electronic Coil (9E…40E)❶ | Pickup Avg. | [W] | 10 | 10 | 10 | 10 | 12 | 12 | ~ | ~ |
| | Pickup Peak | [W[ | 22 | 22 | 22 | 22 | 28 | 28 | | |
| | Hold-in | [W] | 1.5 | 1.5 | 1.5 | 1.5 | 2.5 | 2.5 | ~ | ~ |
| **Operating Times** | | | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [ms] | 15...30 | 15...30 | 15...30 | 15...30 | 15...30 | 15...30 | 20...30 | 20...40 |
| | Dropout | [ms] | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 20...40 | 20...40 |
| with RC Suppressor | Dropout | [ms] | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 10...60 | 20...40 | 20...40 |
| True DC Coils (CA7C) | Pickup | [ms] | 40...70 | 40...70 | 40...70 | 40...70 | 50...80 | 50...80 | ~ | ~ |
| without Suppression | Dropout | [ms] | 7...15 | 7...15 | 7...15 | 7...15 | 7...15 | 7...15 | ~ | ~ |
| with Integrated Suppression | Dropout | [ms] | 14...20 | 14...20 | 14...20 | 17...23 | ~ | ~ | ~ | ~ |
| with External Suppression | Dropout | [ms] | 70...95 | 70...95 | 70...95 | 80...125 | ~ | ~ | ~ | ~ |
| Two Winding DC Coils | Pickup | [ms] | ~ | ~ | ~ | ~ | ~ | ~ | 15...20 | 15...25 |
| with Internal Suppression | Dropout | [ms] | ~ | ~ | ~ | ~ | ~ | ~ | 20...25 | 15...25 |
| DC, Electronic Coil (9E…40E) | Pickup | [ms] | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | ~ | ~ |
| | Dropout | [ms] | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | 20...40 | ~ | ~ |

❶ The hold-in demand of the CA7-9E…43E is very low but the pick-up demand is approximately 1 ampere at 24 VDC. When sizing (dimensioning) a power supply for applications involving parallel switched contactors then multiply the peak demand by the number of contactors to be simultaneously switched and add to the hold-in demand of all other control circuit burdens, including other contactors, pilot devices, solenoids, etc.

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## Technical Information – Auxiliary Contact Data

| | | Mounted Standard Auxiliary | Built-in Auxiliary Contacts in Contactor CA7-9... CA7-23 | Front Mounted Auxiliary Contacts CA7-PV, CS7-PV, CZE/A7, CV7 | Front Mounted Bifurcated Auxiliary Contacts | Side Mounted Auxiliary Contacts CA-PA, CM7 |
|---|---|---|---|---|---|---|
| Electrical Contact Ratings - NEMA | | | A600, P600 | A600, Q600 | | A600, Q600 |
| Min. Contact Rating | | | 17V, 10 mA | 17V, 5 mA | 5V, 3 mA | 17V, 10 mA |
| Contact Ratings - IEC AC-15 (solenoids, contactors) rated voltage IEC 60947-5-1 | | 24V | 10 A | 6 A | 3 A | 6 A |
| | | 48V | 10 A | 6 A | 3 A | 6 A |
| | | 120V | 10 A | 6 A | 3 A | 6 A |
| | | 240V | 10 A | 5 A | 3 A | 5 A |
| | | 400V | 6 A | 3 A | 2 A | 3 A |
| | | 480V/500V | 2.5 A | 1.6 A | 1.2 A | 1.6 A |
| | | 600V | 1 A | 1 A | 0.7 A | 1 A |
| | | 690V | 1 A | 1 A | 0.7 A | 1 A |
| AC-12 (Control of resistive loads) IEC 60947-5-1 | **40 °C** | $I_{th}$ | 20 A | 10 A | 10 A | 10 A |
| | | 230V | 8 kW | | | |
| | | 400V | 14 kW | | | |
| | | 690V | 24 kW | | | |
| | **60 °C** | $I_{th}$ | 20 A | 6 A | 6 A | 6 A |
| | | 230V | 8 kW | | | |
| | | 400V | 14 kW | | | |
| | | 690V | 24 kW | | | |
| DC-12 Switching DC Loads $L/R < 1$ ms, Resistive Loads IEC 60947-5-1 | | 24V | 12 A | 12 A | 6 A | 6 A |
| | | 48V | 9 A | 9 A | 3.2 A | 3.2 A |
| | | 110V | 3.5 A | 3.5 A | 0.45 A | 0.45 A |
| | | 220V | 0.55 A | 0.55 A | 0.18 A | 0.18 A |
| | | 440V | 0.2 A | 0.2 A | 0.1 A | 0.1 A |
| DC-13 IEC 60947-5-1, Solenoids and contactors | | 24V | 5 A | 5 A | 2.5 A | 5 A |
| | | 48V | 3 A | 3 A | 1.5 A | 3 A |
| | | 110V | 1.2 A | 1.2 A | 0.6 A | 1.2 A |
| | | 220V | 0.6 A | 0.6 A | 0.3 A | 0.6 A |
| | | 440V | 0.3 A | 0.15 A | 0.15 A | 0.15 A |

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## Auxiliary Contacts

| | | | Built-in Auxiliary Contacts in Contactor CA7-9...CA7-23 | Front Mounted Auxiliary Contacts CA7-PV, CS7-PV, CZE/A7, CV7 | Side Mounted Auxiliary Contacts CA-PA, CM7 |
|---|---|---|---|---|---|
| **Continuous Current Rating per UL/CSA** | | | | | |
| Rated Voltage | AC | [V] | 600 max. | 600 max. | 600 max. |
| Continuous Rating | 40°C | [A] | 10 A general purpose<br>Heavy pilot duty (A600) | 10 A general purpose<br>Heavy pilot duty (A600) | 10 A general purpose<br>Heavy pilot duty (A600) |
| Continuous Rating | DC | [A] | 5A, 600 max.<br>Standard pilot duty (P600) | 2.5A, 600 max.<br>Standard pilot duty (Q600) | 2.5A, 600 max.<br>Standard pilot duty (Q600) |
| **Short-Circuit Protection -gGFuse**<br>Type 2 Coordination | | [A] | 20 | 10 | 10 |
| **Rated Impulse Voltage** $U_{imp}$ | | [kV] | 8 | 8 | 6 |
| Insulation Voltage (between control and load circuit) per DIN< VDE 0103, Part 101 (NAMUR recommendation) | | [V] | 380 | 440 | 440 |
| **Mechanically Linked Contacts** (per IEC60947-5-1 ❶Annex L (SUVA Third-party certified) | | | Mutually unrestricted between all NO and NC contacts | Mutually unrestricted between all NO & NC contacts. CZE & CV7 not mechanically linked with contactor main contacts | Mutually unrestricted between all NO and NC contacts |
| **Terminals** | | | | | |
| Terminal Type | | |  |  |  |
| Maximum Wire Size per IEC 947-1 | | | 2xA4 | 2xA4 | 2xA4 |
|  Flexible with Wire-End Fernule | 1 conductor | [mm²] | 1...4 | 0.5...2.5 | 0.5...2.5 |
| | 2 conductor | [mm²] | 1...4 | 0.75...2.6 | 0.75...2.6 |
|  Solid/Stranded-Conductor | 1 conductor | [mm²] | 1.5...6 | 0.5...2.5 | 0.5...2.5 |
| | 2 conductor | [mm²] | 1.5...6 | 0.75...2.6 | 0.75...2.6 |
| Recommended Tightening Torque | | [Nm] | 1...2.5 | 1...15 | 1...15 |
| Max. Wire Size per UL/CSA | | [AWG] | 16...10 | 18...14 | 18...14 |
| Recommended Tightening Torque | | [lb-in] | 9...22 | 9...13 | 9...13 |

## Accessories

| | | |
|---|---|---|
| **Latch Attachment Release**, CV7-11 | | |
| Coil Consumption | [VA/W]<br>[W] | AC 45/40<br>DC 25W |
| **Contact Signal Duration** | [min/max] | 0.03...15s |
| **Time Attachment** | | |
| Reset Time | | |
| at min. time setting | [ms] | 10 |
| at max. time setting | [ms] | 70 |
| Repeat Accuracy | | ±10% |

**Positively-Guided Contacts ( Mechanically-linked)**
*SUVA Certified*

- Restricted guidance guarantees without restrictions from contactor to auxiliary contact and auxiliary contact to contactor.❶

## Contact Ratings *(Per NEMA/UL A600 & Q600)*

| Standard | Circuit Voltage | Make (Amps/VA) | Break (Amps/VA | Continuous Amps |
|---|---|---|---|---|
| A600 | 120AC<br>240AC<br>480AC<br>600AC | 60A/7200VA<br>30A/7200VA<br>15A/7200VA<br>12A/7200VA | 6A/720VA<br>3A/720VA<br>1.5A/720VA<br>1.2A/720VA | 10 |
| Q600 | 125DC<br>250DC<br>301-600DC | 0.55A/69VA<br>0.27A/69VA<br>0.1A/69VA | 0.55A/69VA<br>0.27A/69VA<br>0.1A/69VA | 25 |

❶ See Section G for additional details.

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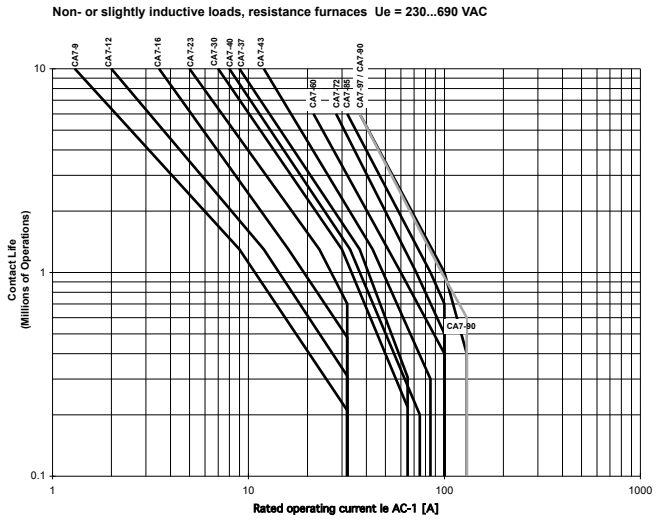
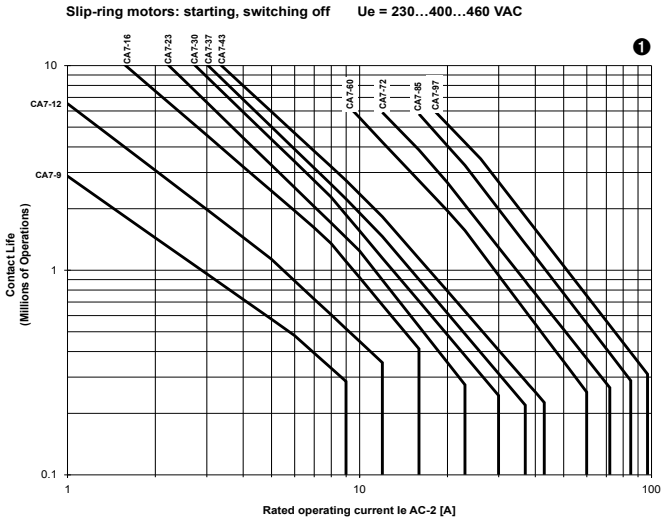
## Life-Load Curves

- Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

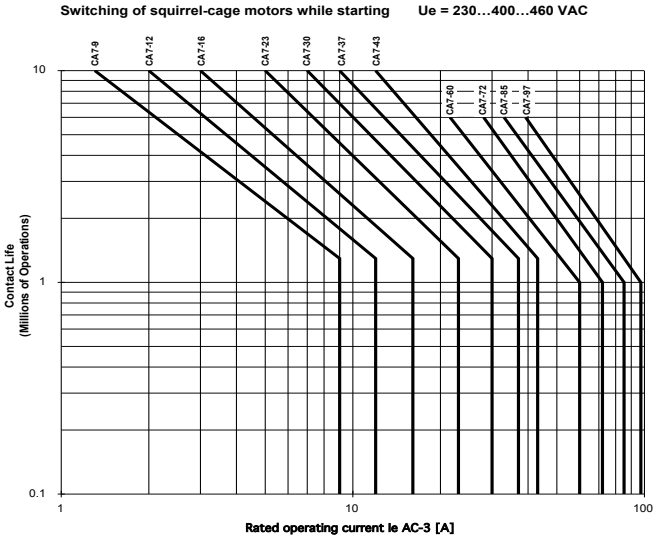
**AC-1**
(to 690V)




**AC-2**
(to 460V)




**AC-3**
(to 460V)




***INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7***

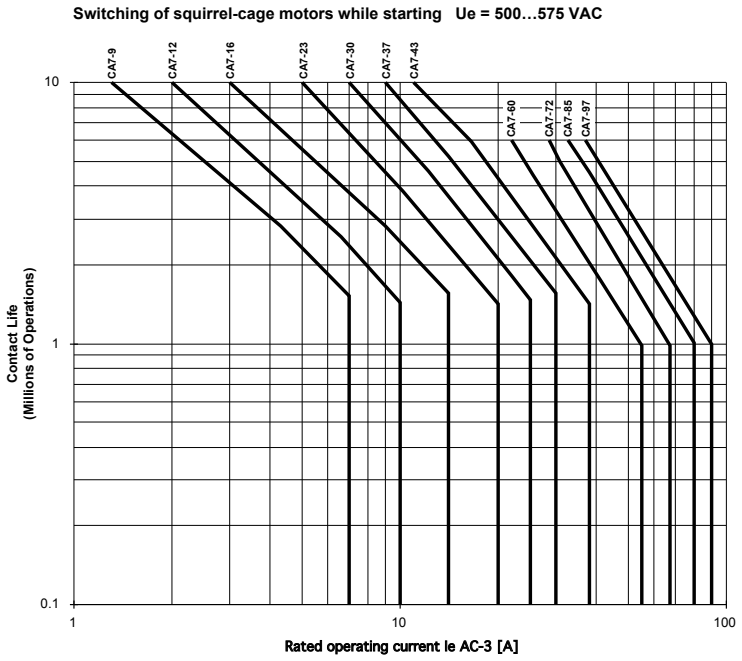
***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 575V applications use 90% of curve value.

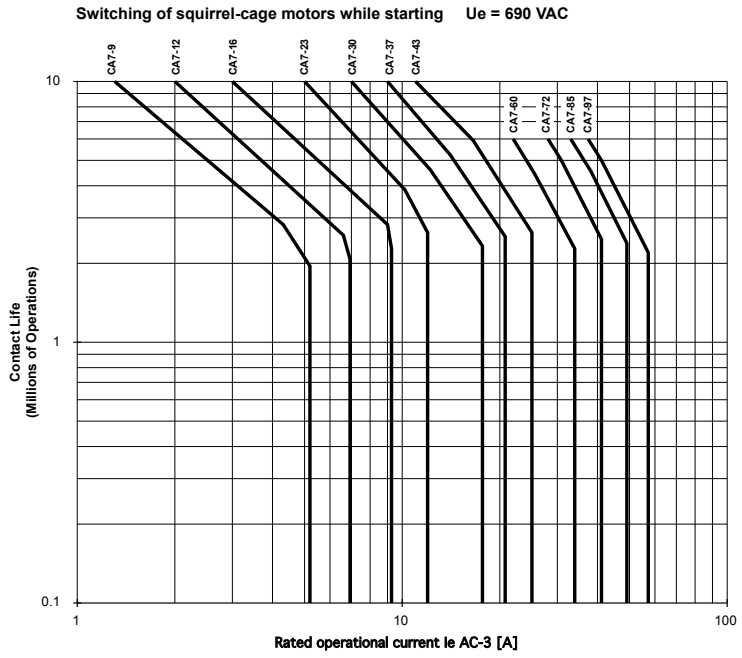
## Life-Load Curves

- Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

**AC-3**
(to 575)




**AC-3**
(to 690V)




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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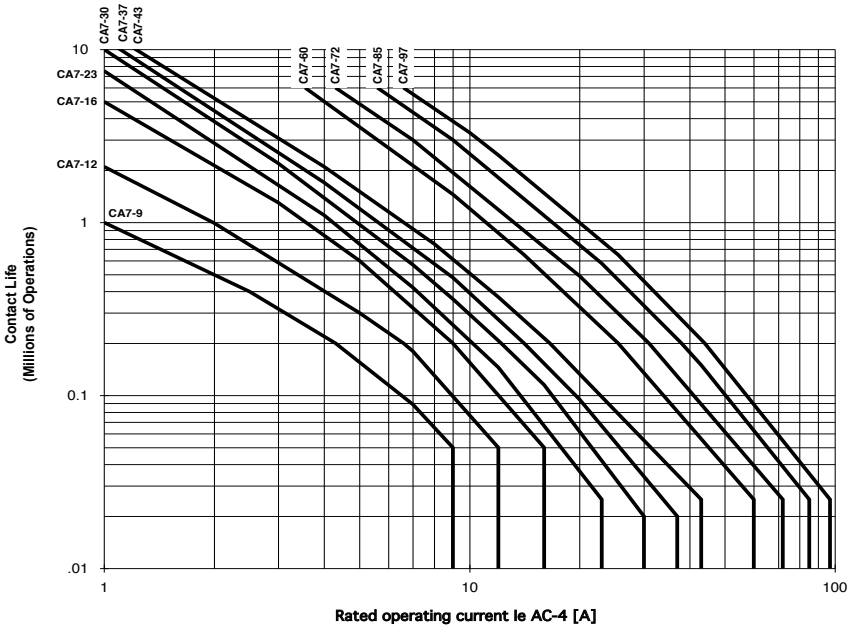
## Life-Load Curves

- Locate the Rated Operational Current ($I_e$) along the bottom of the chart and follow the graph lines up to the intersection of the appropriate contactor's life-load curve.
- Read the estimated contact life along the vertical axis.

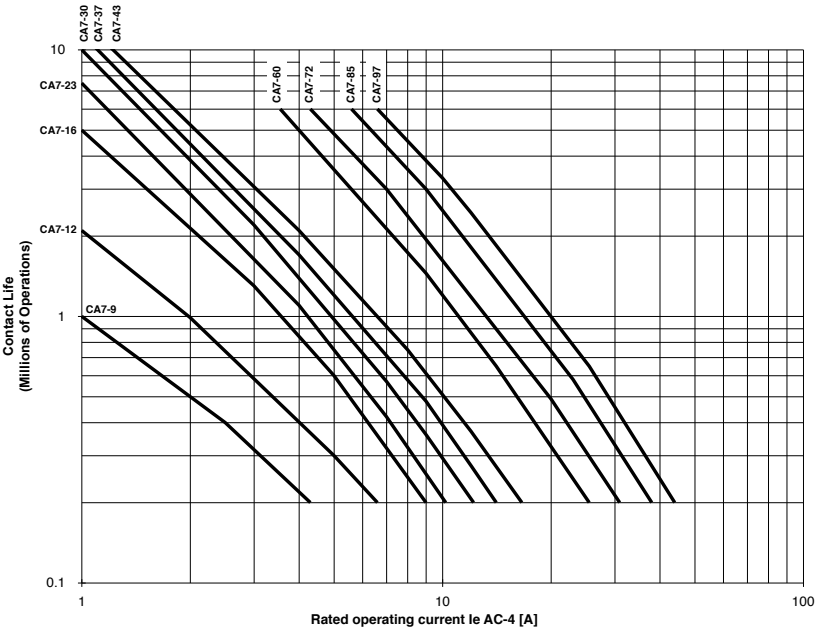
**AC-4**
(230…460\

Squirrel-cage motors: starting, plugging, inching  Ue = 230…460 VAC



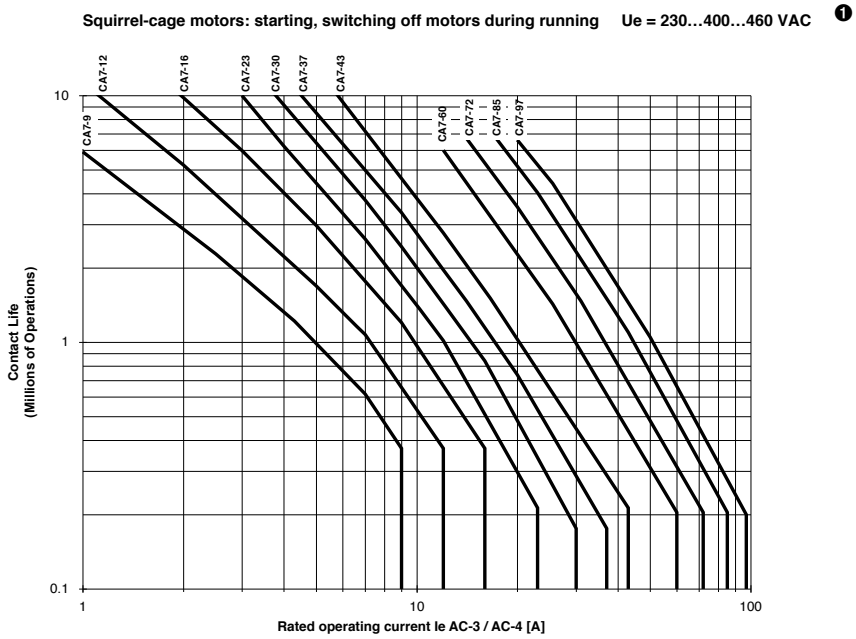

**AC-3**
(to 690V)

Squirrel-cage motors: starting, plugging, inching  UE = 230…690 VAC

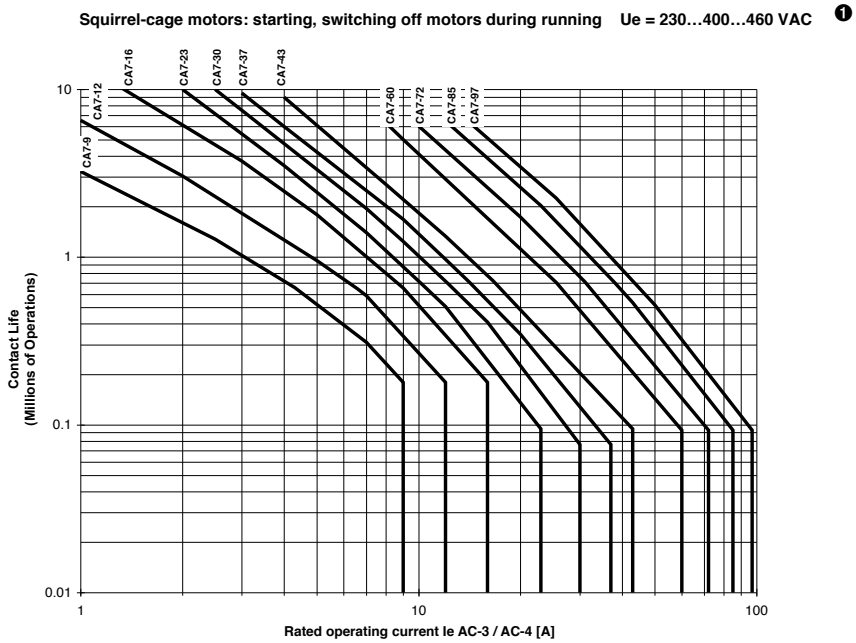


## Life-Load Curves

**AC-3 (90%), AC-4 (10%)**




**AC-3 (75%), AC-4 (25%)**




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 60947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 575V applications use 85% of curve value.

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## Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

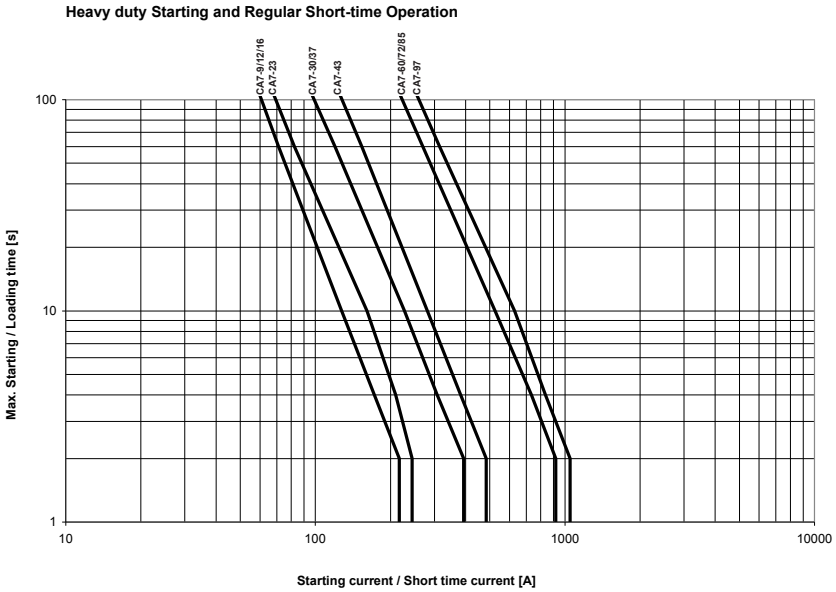
$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

$L_{mixed}$ Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

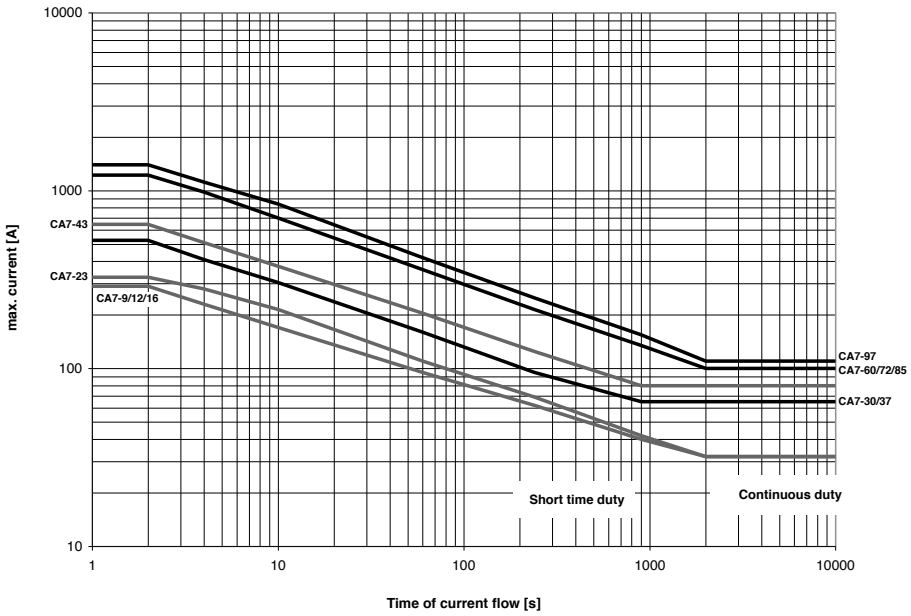
$L_{ac3}$ Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

$L_{ac4}$ Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

$P_{ac4}$ Percentage of AC-4 operations




**Short-time withstand current Icw at 60°**

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## Operating Rates

The estimated contact life shown in the life-load curves is based on the standard operating rates shown in Table B below. For applications requiring a higher operating frequency, the maximum operating power (Pn in kW or HP) for a given contactor must be reduced to maintain the same contact life.

To find a contactor's maximum operating power, for an operating rate greater than shown in Table B, follow these guidelines:

1. Identify the appropriate curve for the contactor and utilization category from Table B.
2. Locate the appropriate Maximum Operating Rate curve on the following pages.
3. Locate the intersection of the curve with the application's operating rate (ops/hr.) found on the vertical axis.
4. Read the percent of maximum operating power (Pn) of the contactor from the horizontal axis.
5. Multiply the % maximum power by the standard power rating.

Example: The contactor selected for an AC-4 utilization category application is a CA7-16 (10HP at 460V), however, the application requires an operating rate of 200 ops/hr., compared to the standard operating rate of 120 ops/hr. as shown in Table B.

1. Locate the AC-4 Maximum Operating Rate curve on the following pages.
2. Locate the intersection of 200 ops/hr on the CA7-16 curve. The data shows that the maximum operating power of the CA7-16 contactor in this application is 60%.
3. Therefore, the maximum horsepower that can be switched by the CA7-16 contactor in this application is 6 HP (0.60 x 10HP).

## Table B – Standard Operating Rates by Contactor and Utilization Category

| Contactor | AC-1 Max. ops/hr. | AC-2 Max. ops/hr. | AC-3 Max. ops/hr. | AC-4 Max. ops/hr. | AC-4 @ $I_e$ for 200K ops. Max. ops/hr. |
|---|---|---|---|---|---|
| | Operating Parameters and Start Time | | | | |
| | | | 40% Duty Cycle 250ms ❶ | 250ms | 250ms |
| **CA7-9** | 1000 | 500 | 700 | 200 | 400 |
| **CA7-12** | 1000 | 500 | 700 | 150 | 300 |
| **CA7-16** | 1000 | 500 | 700 | 120 | 240 |
| **CA7-23** | 1000 | 400 | 600 | 80 | 160 |
| **CA7-30** | 400 | 400 | 600 | 80 | 160 |
| **CA7-37** | 400 | 400 | 600 | 70 | 140 |
| **CA7-43** | 300 | 400 | 600 | 70 | 140 |
| **CA7-60** | 600 | 300 | 500 | 70 | 140 |
| **CA7-72** | 600 | 250 | 500 | 60 | 120 |
| **CA7-85** | 600 | 200 | 500 | 50 | 140 |
| **CA7-97** | 250 | 200 | 500 | 50 | 140 |

❶ *Duty Cycle or Load Factor* – Defined as the "on" time for a given operating cycle per hour including the "start time." A 40% Duty Cycle is calculated in the following manner:

*Contactor switches six (6) times per minute (tpm), 250ms start time; 40% duty cycle.*

To determine the "on" time and "off" time:

- Operations per hour = 360; [60 min x 6 tpm = 360]
- One operating cycle = 10 sec; [60 min ÷ 6 tpm = 10 sec]
- "On" time at 40% duty cycle = 4 sec; [10 sec x 0.4 (40%) = 4 sec]
- 4 sec "on" time includes the start time of 250ms
- "Off" time at 40% duty cycle = 6 sec; [10 sec – 4 sec = 6 sec]

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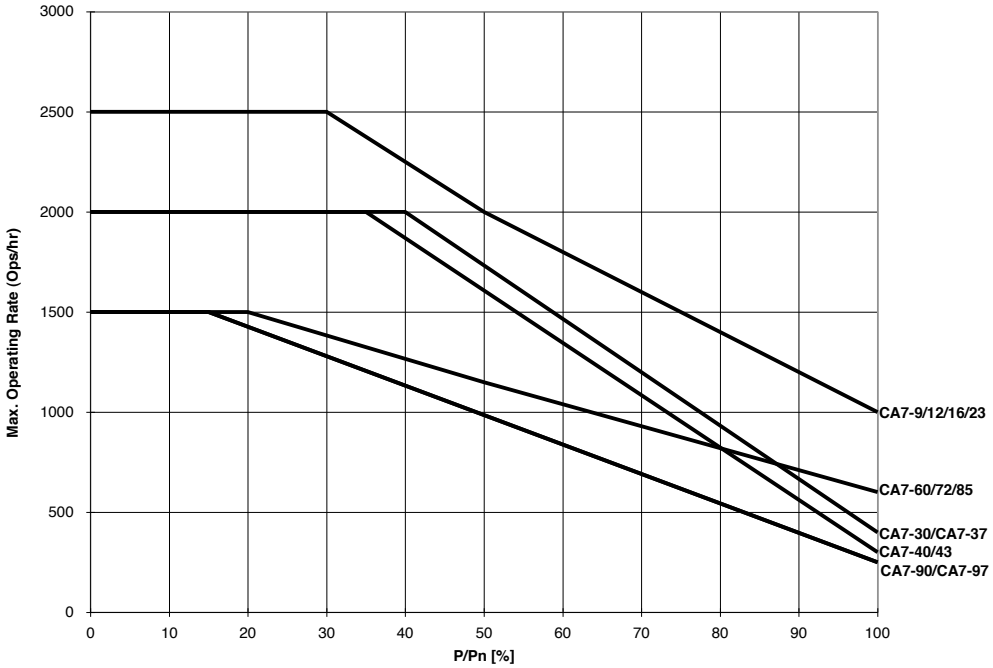
## Operating Rate Curves

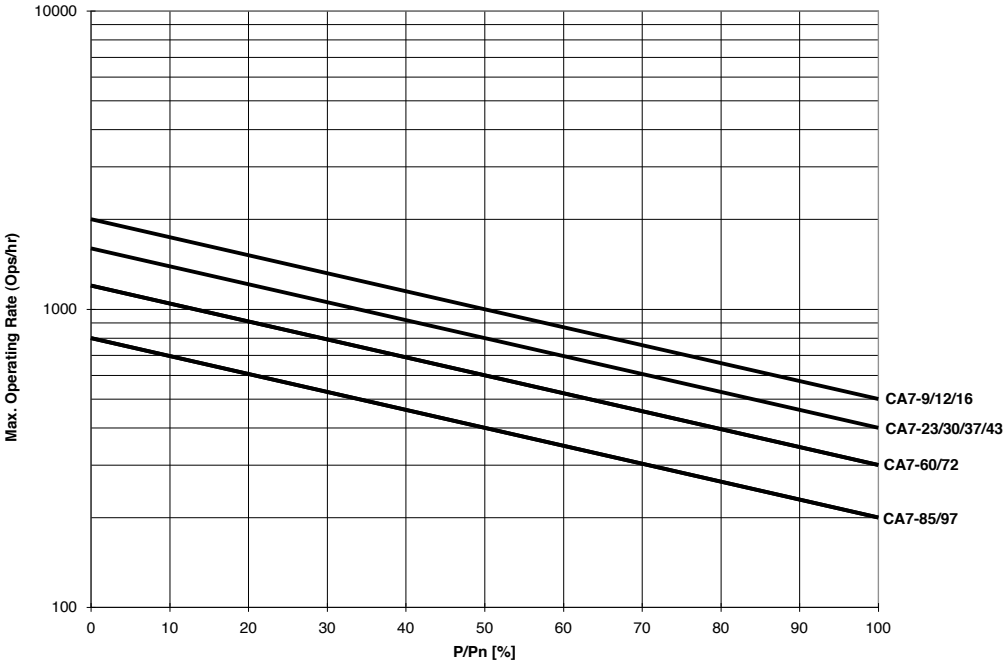
### AC-1

**Non- or slightly inductive loads, resistance furnaces  Ue = 230…690 VAC**




### AC-2

**Slip-ring motors: starting, switching off  Ue = 230…460 VAC**

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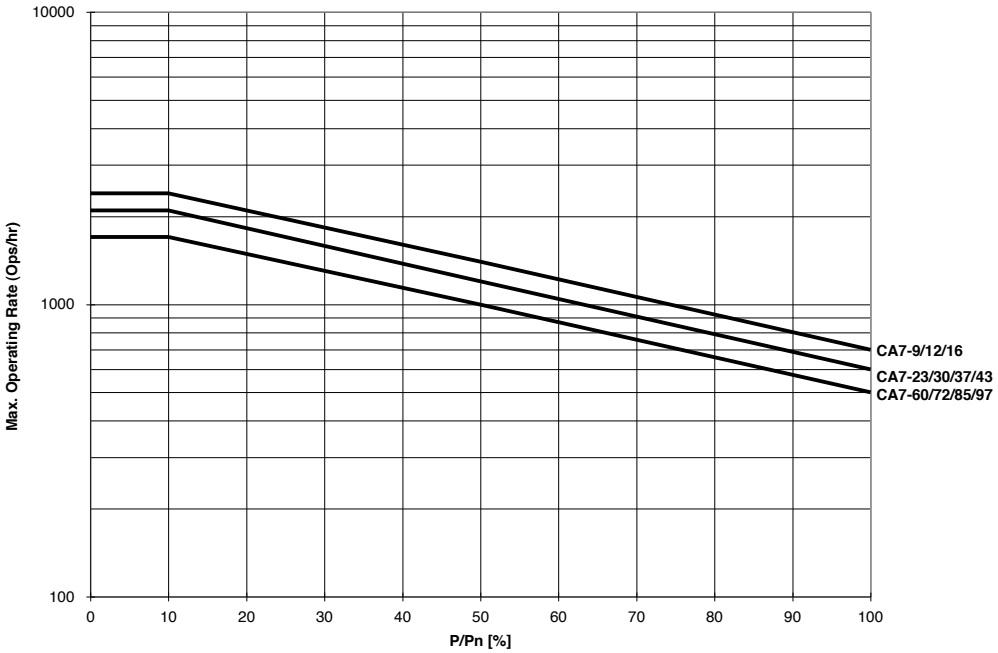
## Operating Rate Curves

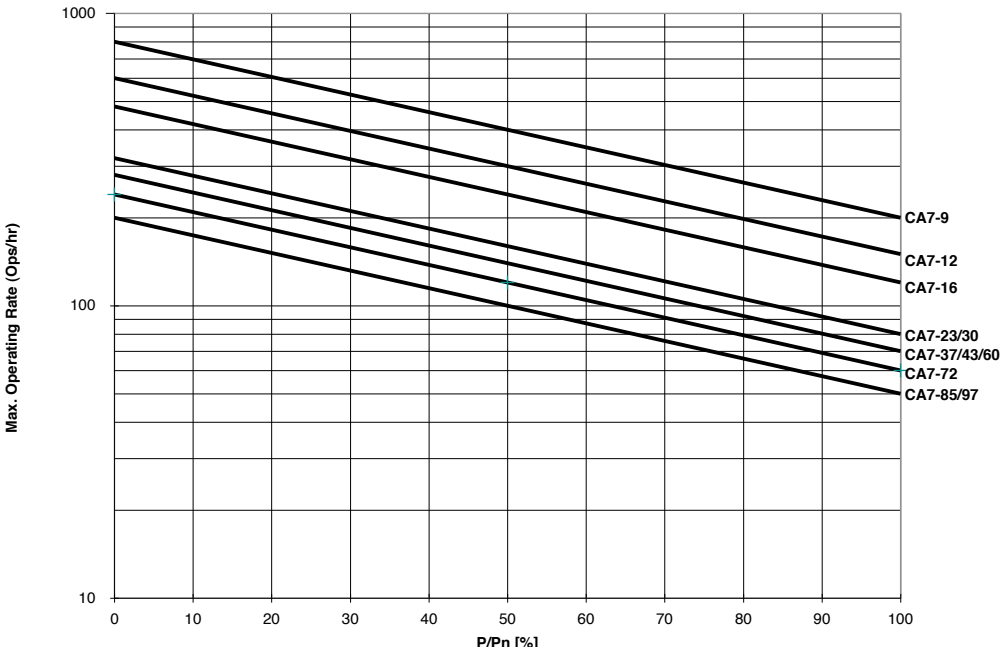
### AC-3

**Squirrel-cage motors: starting, switching off motors during running**
**250ms Start-up, 40% Duty Cycle**
**Ue = 230...460VAC**




### AC-4

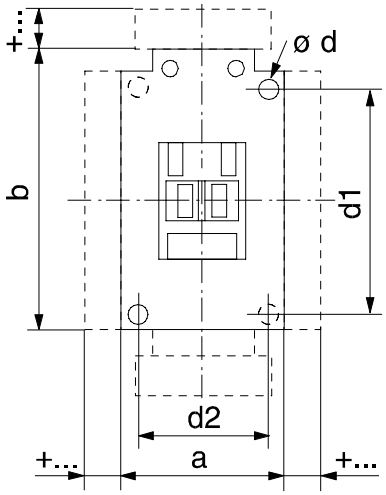
**Squirrel-cage motors: starting, plugging, inching**
**250ms Start-up**
**Ue=230...460VAC**

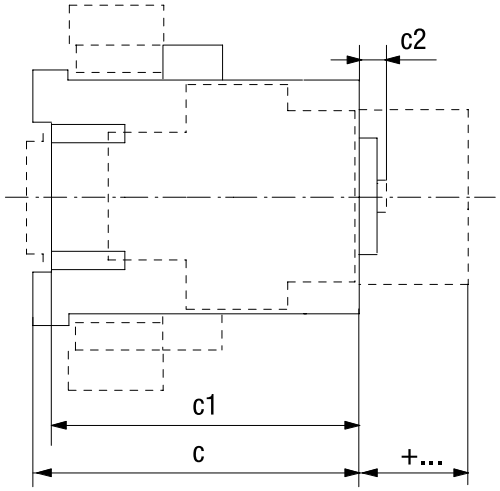



SSNA9000

## Series CA7, CAU7, CAQ7, CNX, CAN7 and CAL7 (Contactors, Reversing Contactors & Special Use Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



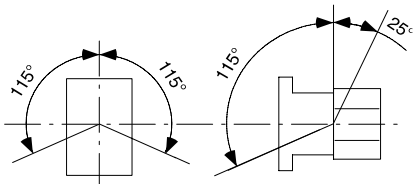




| | Catalog Number | a | b | c | c1 | c2 | ød | d1 | d2 |
|---|---|---|---|---|---|---|---|---|---|
| AC Contactors | CA7-9...CA7-23; CAQ7-16; CAN7-12, CNX-205...208; CAN7-12, CA(V)L7-20 | 45 (1-25/32) | 80 (3-3/16) | 80.5 (3-11/64) | 75.5 (3-3/32) | 6 (1/4) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-30...CA7-37; CNX-209; CAN7-30... CAN7-37 | 45 (1-25/32) | 81 (3-3/16) | 97.5 (4) | 92.6 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-40-M... CAL7-30-M40 | 59 (2-21/64) | 81 (3-3/16) | 100.5 (4-7/64) | 95.5 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| | CA7-43, CNX-212 | 54 (2-1/8) | 81 (3-3/16) | 100.5 (4-7/64) | 95.5 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| | CA7-60...CA7-97 CNX-218 | 72 (2-53/64) | 122 (4-51/64) | 117 (4-49/64) | 111.5 (4-35/64) | 8.5 (21/64) | 4-5.4 (4-7/32) | 100 (3-15/16) | 55 (2-11/64) |
| | CA7-90-M... CAL7-60-M40 | 95 (3-3/4) | 122 (4-51/64) | 117 (4-49/64) | 111.5 (4-35/64) | 8.5 (21/64) | 4-5.4 (4-7/32) | 100 (3-15/16) | 55 (2-11/64) |

### Reversing Contactors, Capacitor Contactors & Accessories (+...)

| Contactors with... | | Dim. [mm] | Dim. [inches] |
|---|---|---|---|
| auxiliary contact block-front mounting | 2-, or 4-pole | c/c1 + 39 | c/c1 +1-37/64 |
| (CAQ7) capacitor switching deck -front mounting | | c/c1 + 39 | c/c1 +1-37/64 |
| auxiliary contact block-side mounting | 1-, or 2 pole | a + 9 | a + 23/64 |
| pneumatic timing module | | c/c1 + 58 | c/c1 + 2-23/64 |
| electronic timing module | on coil terminal side | b + 24 | b + 15/16 |
| reversing contactor w-mech.interlock | on side of contactor | a+9+a | a+ 23/64+a |
| mechanical latch | | c/c1 + 61 | c/c1 +2-31/64 |
| interface module | on coil terminal side | b + 9 | b + 23/64 |
| surge suppressor | on coil terminal side | b + 3 | b + 1/8 |
| Labeling with... | label sheet<br>marking tag sheet with clear cover<br>marking tag adapter for V7 Terminals | +0<br>+0<br>+5.5 | +0<br>+0<br>+7/32 |

**Mounting Position**

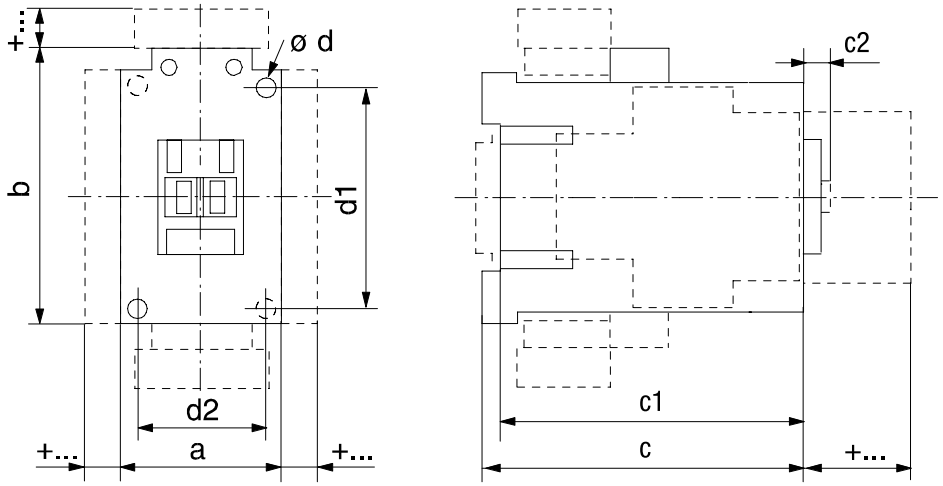



*AC contactors*

SSNA9000

## Series CA7 with DC Coil (True DC and Electronic Coils)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

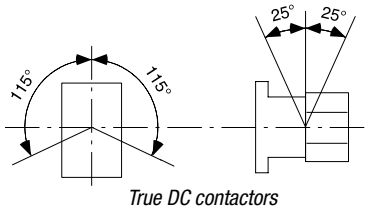



| | Catalog Number | a | b | c | c1 | c2 | ød | d1 | d2 |
|---|---|---|---|---|---|---|---|---|---|
| True DC Contactors | CA7-9C...CA7-16C, CAQ7-16C CNX-205C...206C; CAN7-12C | 45 (1-25/32) | 81 (3-3/16) | 106.5 (4-3/16) | 101.5 (4) | 6 (1/4) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-23C CNX-207C...208C | 45 (1-25/32) | 81 (3-3/16) | 123.5 (4-55/64) | 119 (4-43/64) | 6 (1/4) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-30C...CA7-37C; CAQ7-37C; CNX-209C; CAN7-30C... CAN7-37C | 45 (1-25/32) | 81 (3-3/16) | 141.5 (5-37/64) | 136.5 (5-3/8) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-40C | 59 (2-21/64) | 81 (3-3/16) | 144.5 (5-11/16) | 139.5 (5-1/2) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| | CA7-43C, CNX-212C | 54 (2-1/8) | 81 (3-3/16) | 144.5 (5-11/16) | 140 (5-33/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| Electronic DC Contactors | CA7-9E...CA7-23E | 45 (1-25/32) | 81 (3-3/16) | 80.5 (3-11/64) | 75.5 (3-3/32) | 6 (1/4) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-30E, CA7-37E | 45 (1-25/32) | 81 (3-3/16) | 97.5 (4) | 92.6 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-40E | 59 (2-21/64) | 81 (3-3/16) | 100.5 (4-7/64) | 95.5 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| | CA7-43E | 54 (2-1/8) | 81 (3-3/16) | 100.5 (4-7/64) | 95.5 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |

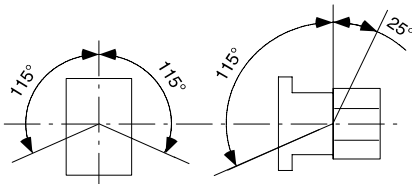
### Reversing Contactors, Capacitor Contactors & Accessories (+...)

| | Contactors with... | Dim. [mm] | Dim. [inches] |
|---|---|---|---|
| auxiliary contact block-front mounting | 2-, or 4-pole | c/c1 + 39 | c/c1 +1-37/64 |
| auxiliary contact block- left side mounting | 1-, or 2 pole | a + 9 | a + 23/64 |
| pneumatic timing module | | c/c1 + 58 | c/c1 + 2-23/64 |
| electronic timing module | on coil terminal side | b + 24 | b + 15/16 |
| mechanical latch | | c/c1 + 61 | c/c1 +61 |
| interface module | on coil terminal side | b + 9 | c/c1 + 2-31/64 |
| Labeling with... | label sheet<br>marking tag sheet with clear cover<br>marking tag adapter for V7 Terminals | +0<br>+0<br>+5.5 | +0<br>+0<br>+7/32 |

### Mounting Position




*True DC contactors*

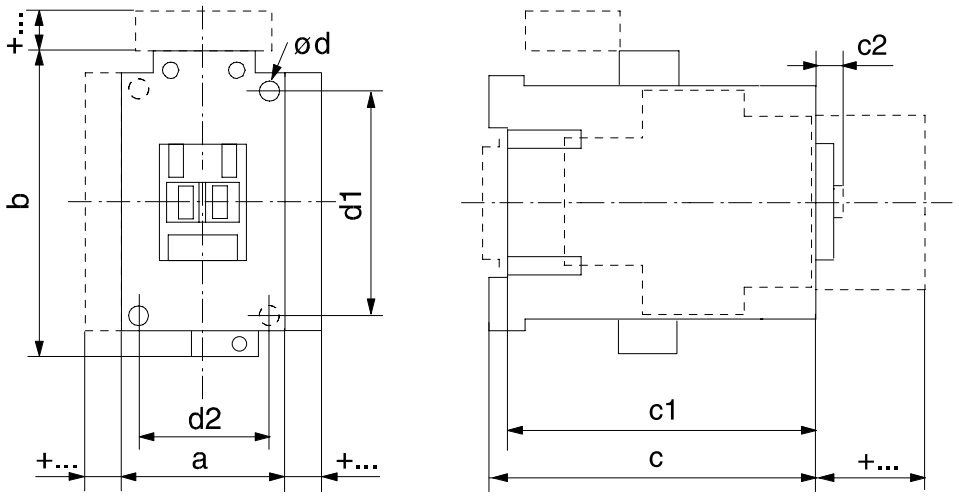



*Electronic DC contactors*

SSNA9000

## Series CA7 with DC Coil (Two Winding)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

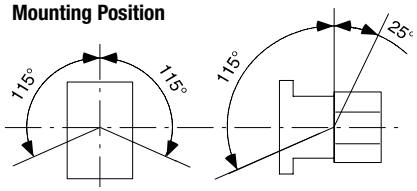



| | Catalog Number | a | b | c | c1 | c2 | ød | d1 | d2 |
|---|---|---|---|---|---|---|---|---|---|
| Two Winding DC Contactors | CA7-9Y...CA7-23Y | 54 (2-9/64) | 90 (3-35/64) | 80.5 (3-11/64) | 75.5 (3-3/32) | 6 (1/4) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-30Y, CA7-37Y | 54 (2-9/64) | 90 (3-35/64) | 97.5 (4) | 92.6 (3-49/64) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 35 (1-25/64) |
| | CA7-43Y | 63 (2-31/64) | 90 (3-35/64) | 100.5 (4-7/64) | 95.6 (3-7/8) | 6.5 (17/64) | 2-4.5 (2-3/16) | 60 (2-23/64) | 45 (1-25/32) |
| | CA7-60D...CA7-97D<br>CAN7-72D, CNX-218D | 81 (3-3/16) | 131 (5-5/32) | 117 (4-49/64) | 111.5 (4-35/64) | 8.5 (21/64) | 4-5.4 (4-7/32) | 100 (3-15/16) | 55 (2-11/64) |
| | CA7-90D | 95 (3-3/4) | 122 (4-51/64) | 117 (4-49/64) | 111.5 (4-35/64) | 8.5 (21/64) | 4-5.4 (4-7/32) | 100 (3-15/16) | 55 (2-11/64) |

### Reversing Contactors, Capacitor Contactors & Accessories (+...)

| | Contactors with... | Dim. [mm] | Dim. [inches] |
|---|---|---|---|
| auxiliary contact block-front mounting | 2-, or 4-pole | c/c1 + 39 | c/c1 +1-37/64 |
| auxiliary contact block- left side mounting | 1-, or 2 pole | a + 9 | a + 23/64 |
| pneumatic timing module | | c/c1 + 58 | c/c1 + 2-23/64 |
| electronic timing module | on coil terminal side | b + 24 | b + 15/16 |
| mechanical latch | | c/c1 + 61 | c/c1 +61 |
| interface module | on coil terminal side | b + 9 | c/c1 + 2-31/64 |
| Labeling with... | label sheet<br>marking tag sheet with clear cover<br>marking tag adapter for V7 Terminals | +0<br>+0<br>+5.5 | +0<br>+0<br>+7/32 |

**Mounting Position**

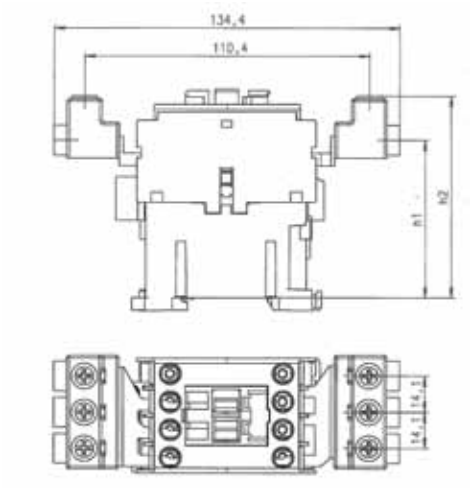



*Two Winding DC contactors*

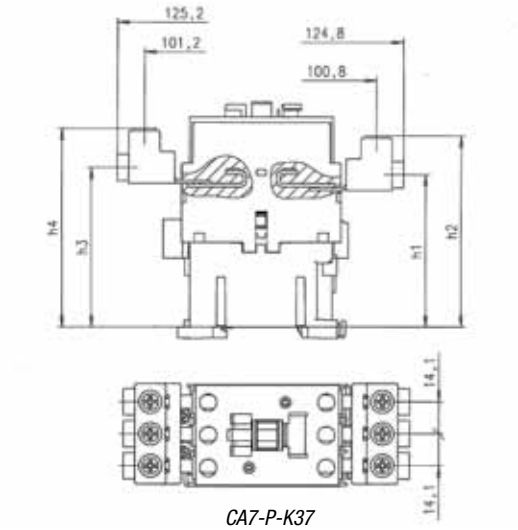
SSNA9000

## CA7 Contactors with Terminal Lugs

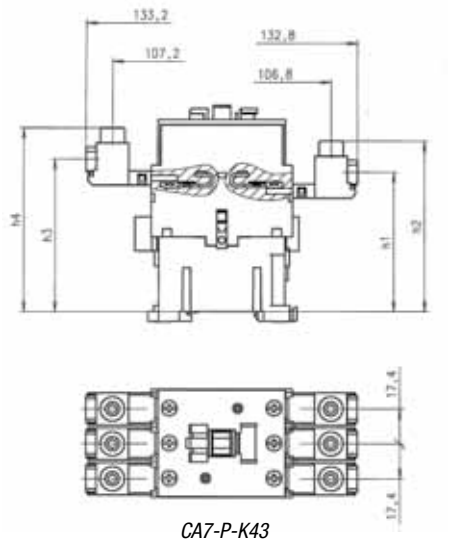
Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.



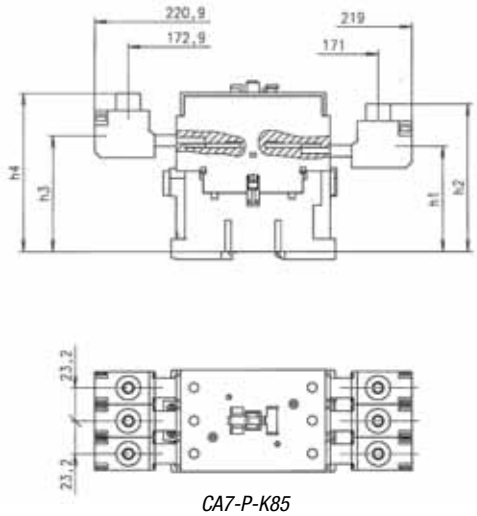

*CA7-P-KN23 / KL23*




*CA7-P-K37*




*CA7-P-K43*



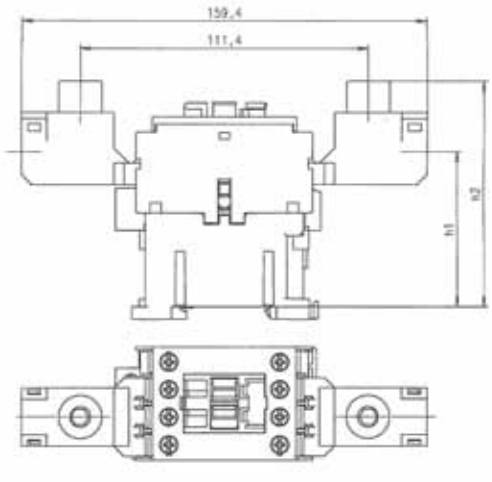

*CA7-P-K85*

| Catalog Number | With Contactor | AC Operated Contactor | | | | DC Operated Contactor | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | h1 | h2 | h3 | h4 | h1 | h2 | h3 | h4 |
| **CA7-P-KN23 / KL23** | CA7-9...16 | 61.6 (2-27/64) | 78.6 (3-3/32) | ~ | ~ | 87.2 (3-7/16) | 104.2 (4-3/32) | ~ | ~ |
| | CA7-23 | 61.6 (2-27/64) | 78.6 (3-3/32) | ~ | ~ | 105.2 (4-9/64) | 122.2 (4-13/16) | ~ | ~ |
| **CA7-P-K37** | CA7-30 & 37 | 67.6 (2-21/32) | 84.6 (3-21/64) | 71.5 (2-13/16) | 88.5 (3-31/64) | 111.2 (4-3/8) | 128.2 (5-3/64) | 115.1 (4-17/32) | 132.1 (5-13/64) |
| **CA7-P-K43** | CA7-43 | 69.0 (2-23/32) | 85.0 (3-11/32) | 74.5 (2-15/16) | 90.5 (3-9/16) | 112.6 (4-7/16) | 128.6 (5-1/16) | 118.1 (4-21/32) | 134.1 (5-9/32) |
| **CA7-P-K85** | CA7-60...97 | 79.7 (3-1/8) | 104.7 (4-1/8) | 86.7 (3-13/64) | 111.7 (4-3/8) | 79.7 (3-1/8) | 104.7 (4-1/8) | 86.7 (3-13/64) | 111.7 (4-3/8) |

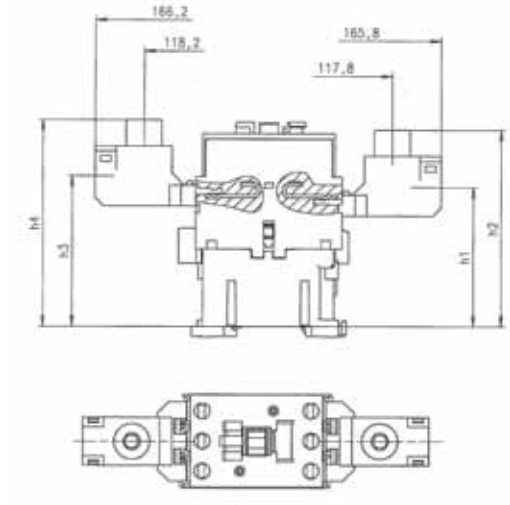
SSNA9000

## CA7 Contactors with Paralleling Links

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.




*CA7-P-B23*




*CA7-P-B37*

| Catalog Number | With Contactor | AC Operated Contactor | | | | DC Operated Contactor | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | h1 | h2 | h3 | h4 | h1 | h2 | h3 | h4 |
| **CA7-P-B23** | CA7-9...16 | 65.1 (2-9/16) | 90.1 (3-9/16) | ~ | ~ | 90.7 (1/4) | 104.2 (2-3/16) | ~ | ~ |
| | CA7-23 | 65.1 (2-9/16) | 90.1 (3-9/16) | ~ | ~ | 108.7 (4-9/32) | 133.7 (5-17/64) | ~ | ~ |
| **CA7-P-K37** | CA7-30 & 37 | 69.0 (2-23/32) | 94.0 (3-45/64) | 74.5 (2-15/16) | 99.5 (3-29/32) | 112.6 (4-7/16) | 137.6 (5-13/32) | 118.1 (4-21/32) | 143.1 (5-5/8) |

# *Series CA6 Contactors*

## The modern contactor for demanding applications from 60 to 600HP (@460V) - 75 to 700HP (@ 575V)

Sprecher + Schuh's CA6 contactor line combines the simple function of our popular CA7 series with the rugged performance demanded in this middle horsepower range. On average these contactors are 50% smaller than traditional contactors in this size class.

## A broad selection for middle horsepower applications

The CA6 range consists of ten contactors in four frame sizes covering motors from 60 to 600HP at 460V and from 75 to 700HP at 575V. This line is ideally suited for demanding applications such as steel mills, rock quarries, mines or for any middle horsepower application where a sturdy, durable contactor is needed.

## Rugged and reliable

CA6 contactors conform to UL508, IEC 60947 and can be operated at rated voltages up to 600V (UL) and 1000V (IEC). High thermal and switching capacities guarantee reliable operation and long life. CA6 contactors are listed in CSA Certified Elevator Equipment for heavy duty use in elevators, refrigerators and heating installations in Canada.

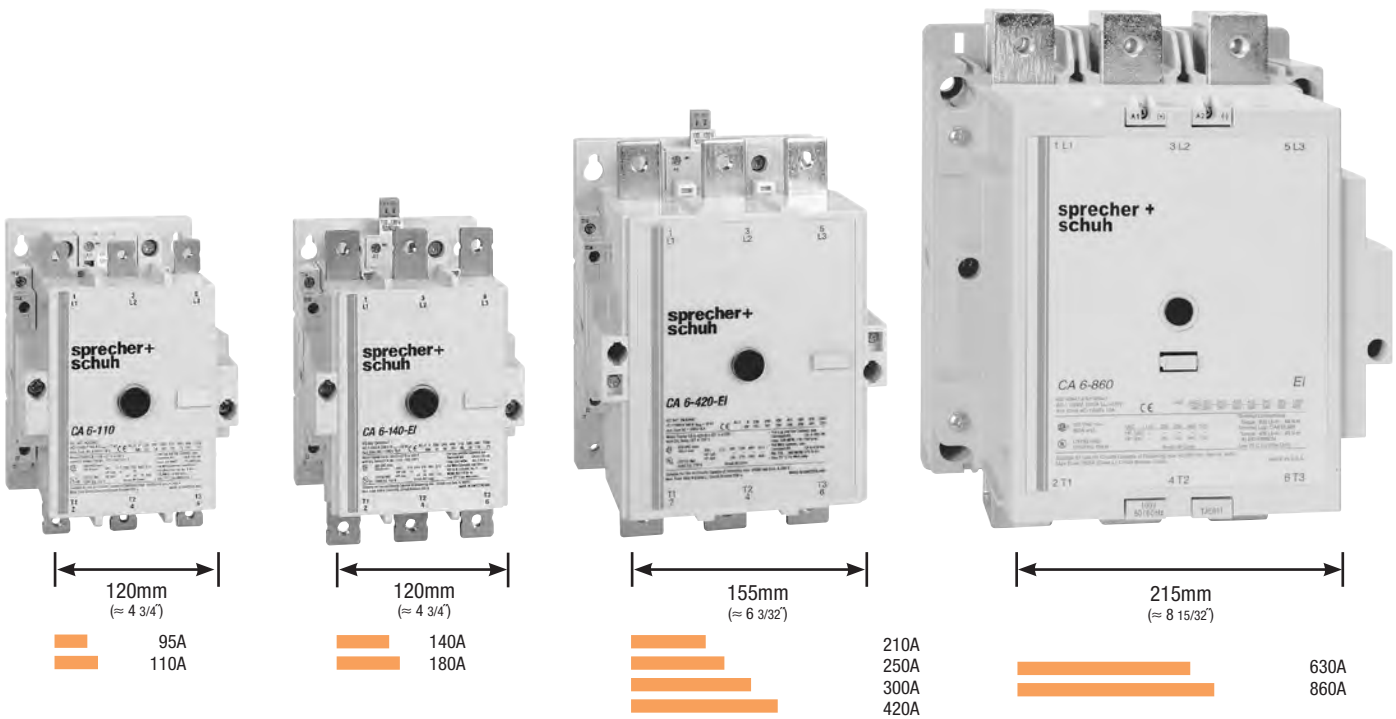
## Arc quenching extends contact life

All CA6 contactors are designed with sophisticated arc quenching techniques that extinguish damaging breaking arcs quickly. This is accomplished by guiding the arc away from the contacts and into "arc chambers" which are built-in to every CA6 cover.

## Safety first

CA6 arc chambers are completely enclosed (without arc exhaust vents), offering the best protection against hot arcing gases. A large safety distance in front of the contactor is unnecessary. CA6 contactors are also designed so that operation is impossible if the arc chambers are removed. Conversely, once the contactor is energized, the arc chambers cannot be removed.

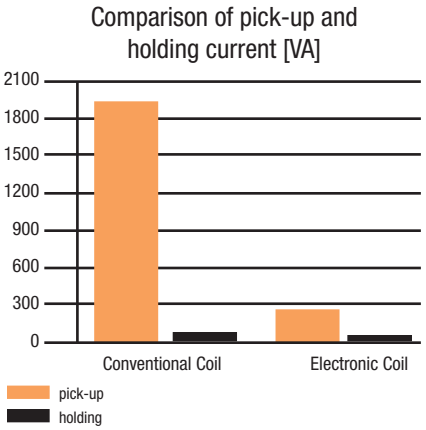
When used with terminal covers or HB Touch-Safe Lugs, CA6 contactors meet international standards for touch-safe design.




SSNA9000

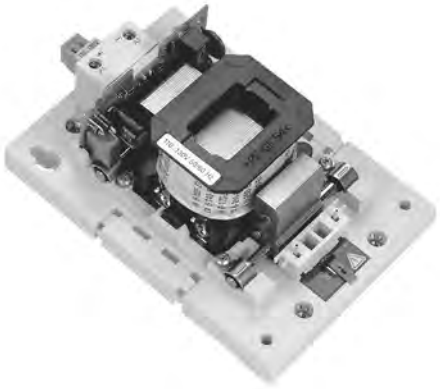
## Electronic coils offer many advantages

Behind the attractive outward appearance of the CA6 contactor are advanced engineering solutions that offer convenience and savings. The entire line can be equipped with an electronically controlled coil that reduces pick-up currents by 60% on average. Holding current is also reduced.




Other advantages of the CA6 electronic coil include:

- Direct connection to a PLC
- Overvoltage protection and suppression circuits (eliminating interference from the coil) are standard

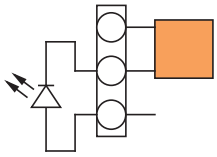


*CA6 "EI" electronic coils offer many unique advantages over conventional types*

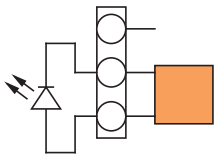
- Smooth, even operation over the entire voltage range minimizes the possibility of contact bounce
- No safeguards are necessary to bridge brief supply interruptions
- Precisely defined pick-up and drop-out voltages, eliminate the possibility of chattering
- Electronic coils operate over a much broader voltage range, providing flexibility in applications and lower costs due to reduced inventory

## Two user-selectable modes

CA6 contactors with electronic coils operate in either the "E" mode for normal operation or the "EI" mode for interfacing directly with a Programmable Logic Controller (PLC) or other low level signal source (13...30.2 VDC). The coil is set in the "E" mode from the factory, offering all of the functions and advantages of an electronic coil with the exception of electronic interface. An orange "jumper" located on the bottom of the contactor can be quickly changed if interface from a PLC is desired. A detailed technical explanation of CA6-EI coils along with connection diagrams can be found in the Technical Section.



Jumper set in "E" mode (factory default)



Jumper set in "EI" mode (user selectable)

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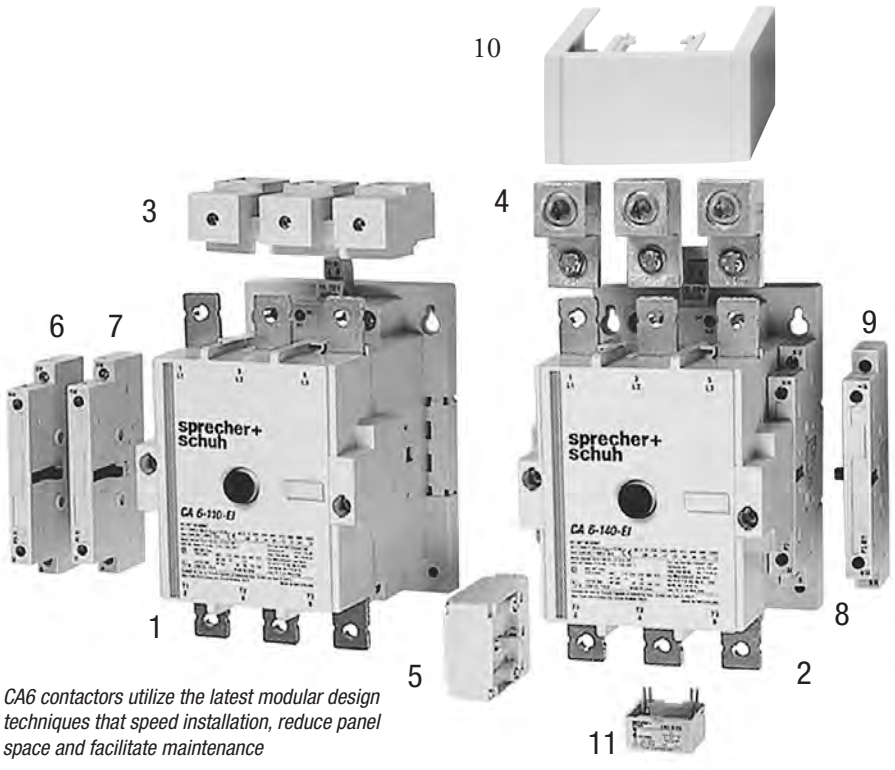
The entire CA6 line is modularly designed for easy inspection, coil change and contact replacement. Maintenance can be performed from the front so that mounting requires no additional space. Even with the installation of mechanical interlocks and auxiliary contact blocks, the units can be flush mounted side by side, saving panel space.

1 CA6-110-EI Contactor
2 CA6-140-EI Contactor
3 Main Terminal Set
4 Lug set
5 Mechanical Interlock
6 Aux. Contact Block
7 Aux. Contact Block
8 Aux. Contact Block
9 Aux. Contact Block
10 Terminal Cover
11 Surge Suppressor




*CA6 contactors utilize the latest modular design techniques that speed installation, reduce panel space and facilitate maintenance*

SSNA9000

## Non-Reversing, Three Pole Contactors With AC Coil, Series CA6 (Open type only) ❶❸

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 ) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number ❶❸ | Price |
| 95 | 160 | 30 | 50/55 | 63 | 90 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | 1 | 1 | CA6-95-11-✱<br>CA6-95-EI-11-✱ | 600<br>725 |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | 1 | 1 | CA6-110-11-✱<br>CA6-110-EI-11-✱ | 750<br>880 |
| 140 | 250 | 45 | 75/80 | 80 ❹ | 110 | 15 | 30 | 40 | 50 | 100 | 125 | 1 | 1 | CA6-140-11-✱<br>CA6-140-EI-11-✱ | 1145<br>1308 |
| 180 | 250 | 55 | 90/100 | 90 ❹ | 132 ❹ | ~ | 40 | 50 | 60 | 150 | 150 | 1 | 1 | CA6-180-11-✱<br>CA6-180-EI-11-✱ | 1608<br>1850 |
| 210 | 350 | 63 | 110/125 | 150 | 200 | ~ | 50 | 60 | 75 | 150 | 200 | 1 | 1 | CA6-210-EI-11-✱ | 1917 |
| 250 | 350 | 80 | 132/150 | 160 | 250 | ~ | ~ | 75 | 100 | 200 | 250 | 1 | 1 | CA6-250-EI-11-✱ | 2180 |
| 300 | 450 | 90 | 160/160 | 200 | 300 | ~ | ~ | 100 | 125 | 250 | 300 | 1 | 1 | CA6-300-EI-11-✱ | 2375 |
| 420 | 540 | 132 | 220/250 | 300 ❺ | 425 ❺ | ~ | ~ | 150 | 175 | 350 | 400 | 1 | 1 | CA6-420-EI-11-✱ | 5125 |
| 630 | 800 | 200 | 355 | 450 | 500 | ~ | ~ | 200 | 250 | 500 | 600 | 1 | 1 | CA6-630-EI-11-✱ | 8746 |
| 860 | 1000 | 250 | 500 | 560 | 600 | ~ | ~ | 250 | 300 | 600 | 700 | 1 | 1 | CA6-860-EI-11-✱ | 11900 |

*CA6-140-EI contactor*

*CA6-420-EI contactor*

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

## Coil Codes ❷

| CA6-95 /110 /140 /180 | | |
|---|---|---|
| AC Coil Code | Voltage Range 50 Hz | 60 Hz |
| **24** | ~ | 24V |
| **120B** | **110V** | **120V** |
| **208** | ~ | 208V |
| **240B** | 220-230V | 260V |
| **277** | 240V | 277V |
| **380** | 380-400V | 440V |
| **480** | 415V | 480V |
| **575** | 500V | 575V |

| CA6-95-EI ...CA6-420-EI ❶ | |
|---|---|
| AC Coil Code | Voltage Range 50 Hz / 60 Hz |
| **24** ❻ | **24V** |
| **120** ❼ | 110-130V |
| **220W** | 208-277V |
| **460W** | 380-500V |

| CA6-630-EI ...CA6-860-EI ❶ | |
|---|---|
| AC Coil Code | Voltage Range 50 Hz / 60 Hz |
| **120** | **110-130V** ❼ |
| **208W** | 200-220V |
| **240W** | 230-250V ❼ |
| **277** | 277V |
| **480** | 440-480V |

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

### *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ "-EI" designates contactor with Electronic Interface coil.
❷ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ For CSA Elevator duty rating, consult Technical Information on page A91.
❹ Ratings are higher for contactors with electronic coil:

| CA6-140-EI-11-✱ | CA6-180-EI-11-✱ |
|---|---|
| 500V = 90kW | 500V = 110kW |
| 690V = 132kW | 690V = 160kW |

❺ AC3 ratings only. AC4 ratings are lower. See Technical Information.
❻ 24 VAC Coil is not available for CA6-300-EI or CA6-420-EI.
❼ Coil is rated AC/DC.

SSNA9000

## Non-Reversing, Three Pole Contactors With DC Coil, Series CA6 (Open type only) ❶❸

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number ❶❸ | Price |
| 95 | 160 | 30 | 50/55 | 63 | 90 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | 1 | 1<br>1 | CA6-95-L22-✱<br>CA6-95-EI-11-✱ | 750<br>921 |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | 1 | 1<br>1 | CA6-110-L22-✱<br>CA6-110-EI-11-✱ | 880<br>1005 |
| 140 | 250 | 45 | 75/80 | 80 ❹ | 110 ❹ | 15 | 30 | 40 | 50 | 100 | 125 | 1 | 1<br>1 | CA6-140-L22-✱<br>CA6-140-EI-11-✱ | 1425<br>1625 |
| 180 | 250 | 55 | 90/100 | 90 ❹ | 132 ❹ | ~ | 40 | 50 | 60 | 150 | 150 | 1 | 1<br>1 | CA6-180-L22- ✱<br>CA6-180-EI-11- ✱ | 2004<br>2290 |
| 210 | 350 | 63 | 110/125 | 150 | 200 | ~ | 50 | 60 | 75 | 150 | 200 | 1 | 1 | CA6-210-EI-11-✱ | 2385 |
| 250 | 350 | 80 | 132/150 | 160 | 250 | ~ | ~ | 75 | 100 | 200 | 250 | 1 | 1 | CA6-250-EI-11-✱ | 2700 |
| 300 | 450 | 90 | 160/160 | 200 | 300 | ~ | ~ | 100 | 125 | 250 | 300 | 1 | 1 | CA6-300-EI-11-✱ | 2950 |
| 420 | 540 | 132 | 220/250 | 300 ❺ | 425 ❺ | ~ | ~ | 150 | 175 | 350 | 400 | 1 | 1 | CA6-420-EI-11-✱ | 6395 |
| 630 | 800 | 200 | 355 | 450 | 500 | ~ | ~ | 200 | 250 | 500 | 600 | 1 | 1 | CA6-630-EI-11-✱ | 8746 |
| 860 | 1000 | 250 | 500 | 560 | 600 | ~ | ~ | 250 | 300 | 600 | 700 | 1 | 1 | CA6-860-EI-11-✱ | 11900 |

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

*CA6-140-EI contactor with DC coil*

*CA6-420-EI contactor with DC coil*

## Coil Codes ❷

| CA6-95 / 110 / 140 / 180 | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D | 24V |
| 110D | 110V |
| 220D | 220V |

| CA6-95...CA6-420-EI ❶❻ | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D ❻ | 24V |
| 120D | 110-130V |
| 220D | 200-255V |

| CA6-630...CA6-860-EI ❶ | |
|---|---|
| DC Coil Code | Voltage Range |
| 120 | 110-130V ❼ |
| 240W | 200-255V ❼ |

***Note:*** Conventional DC coils have high current pick-up winding and low current "seal-in" winding wired in parallel. The pick-up winding is taken out of the circuit after the armature pulls in. Price includes two winding coil and an L11 block including one NC late break auxiliary contact mounted on the right side. See page A122 for functional schematic and see page C78 for a starter wiring diagram.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ "-EI" designates contactor with Electronic Interface coil.
❷ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ For CSA Elevator duty rating, consult Technical Information on page A111.
❹ Ratings are higher for contactors with electronic coil:

| CA6-140-EI-11-✱ | CA6-180-EI-11-✱ |
|---|---|
| 500V = 90kW | 500V = 125kW |
| 690V = 132kW | 690V = 160kW |

❺ AC3 ratings only. AC4 ratings are lower. See Technical Information.
❻ 24V DC Coil not available for CA6-420-EI. Customers selecting 24V DC Coils should consider the "EI" functionality of the CA6 (see page A121-122).
❼ Coil is rated AC/DC.

## Reversing, Three Pole Contactors With AC Coil, Series CA6 (Open type only) ❻

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | Catalog Number ❶❸ | Price |
| 95 | 160 | 30 | 50/55 | 63 | 90 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | 1 | 1 | CAU6-95-22-✱<br>CAU6-95-EI-22-✱ | 1760<br>1900 |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | 1 | 1 | CAU6-110-22-✱<br>CAU6-110-EI-22-✱ | 1925<br>2117 |
| 140 | 250 | 45 | 75/80 | 80 ❽ | 110 ❽ | 15 | 30 | 40 | 50 | 100 | 125 | 1 | 1 | CAU6-140-22-✱<br>CAU6-140-EI-22-✱ | 2838<br>3008 |
| 180 | 250 | 55 | 90/100 | 90 ❽ | 132 ❽ | ~ | 40 | 50 | 60 | 150 | 150 | 1 | 1 | CAU6-180-22-✱<br>CAU6-180-EI-22-✱ | 3765<br>4000 |
| 210 | 350 | 63 | 110/125 | 150 | 200 | ~ | 50 | 60 | 75 | 150 | 200 | 1 | 1 | CAU6-210-EI-22-✱ | 4880 |
| 250 | 350 | 80 | 132/150 | 160 | 250 | ~ | ~ | 75 | 100 | 200 | 250 | 1 | 1 | CAU6-250-EI-22-✱ | 5380 |
| 300 | 450 | 90 | 160/160 | 200 | 300 | ~ | ~ | 100 | 125 | 250 | 300 | 1 | 1 | CAU6-300-EI-22-✱ | 5790 |
| 420 | 540 | 132 | 220/250 | 300 ❼ | 425 ❼ | ~ | ~ | 150 | 175 | 350 | 400 | 1 | 1 | CAU6-420-EI-22-✱ | 11300 |
| 630 | 800 | 200 | 355 | 450 | 500 | ~ | ~ | 200 | 250 | 500 | 600 | 1 | 1 | CAU6-630-EI-22-✱ | 19440 |
| 860 | 1000 | 250 | 500 | 560 | 600 | ~ | ~ | 250 | 300 | 600 | 700 | 1 | 1 | CAU6-860-EI-22-✱ | 25790 |

*CAU6-180 reversing contactor*

***Includes:***

- Mechanical and electrical Interlock ❹
- Reversing power wiring (using Power Wiring Kit Cat.# CA6-…VL[T]) ❶
- Mounting plate
- Control wiring available; see footnote ❷

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

## Coil Codes ❷

| CA6-95 /110 /140 180 | | |
|---|---|---|
| AC Coil Code | Voltage Range 50 Hz | 60 Hz |
| **24** | ~ | 24V |
| **120B** | **110V** | **120V** |
| **208** | ~ | 208V |
| **240B** | 220-230V | 260V |
| **277** | 240V | 277V |
| **380** | 380-400V | 440V |
| **480** | 415V | 480V |
| **575** | 500V | 575V |

| CA6-95-EI ...CA6-420-EI ❶ | |
|---|---|
| AC Coil Code | Voltage Range 50 Hz / 60 Hz |
| **24 ❾** | **24V** |
| **120** | 110-130V |
| **220W** | 208-277V |
| **460W** | 380-500V |

| CA6-630-EI ...CA6-860-EI ❶ | |
|---|---|
| AC Coil Code | Voltage Range 50 Hz / 60 Hz |
| **120** | **110-130V ❿** |
| **208W** | 200-220V |
| **240W** | 230-250V ❿ |
| **277** | 277V |
| **480** | 440-480V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct $175 for CA6-95…180 and $360 for CA6-210-EI…860-EI. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-LW.** Control wiring is not included.

❷ For control wiring, add suffix **-CW** to catalog number and add $20. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-CW.**

❸ "-EI" designates contactor with Electronic Interface coil.

❹ One NC auxiliary contact on each contactor is used for electrical interlocking.

❺ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ For CSA Elevator duty rating, consult Technical Information on page A111.

❼ AC3 ratings only. AC4 ratings are lower. See Technical Information.

❽ Ratings are higher for contactors with electronic coil:

| CA6-140-EI-11-✱ | CA6-180-EI-11-✱ |
|---|---|
| 500V = 90kW | 500V = 125kW |
| 690V = 132kW | 690V = 160kW |

❾ 24 VAC Coil is not available for CA6-300-EI or CA6-420-EI.

❿ Coil is rated AC/DC.

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## Reversing, Three Pole Contactors With DC Coil, Series CA6 (Open type only) ❻

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC❹ | Catalog Number ❶❸❺ | Price |
| 95 | 160 | 30 | 50/55 | 63 | 90 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | 2<br>1 | 1 | CAU6-95-L42-✱<br>CAU6-95-EI-22-✱ | 1960<br>2290 |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | 2<br>1 | 1 | CAU6-110-L42-✱<br>CAU6-110-EI-22-✱ | 2250<br>2484 |
| 140 | 250 | 45 | 75/80 | 80 ❽ | 110 ❽ | 15 | 30 | 40 | 50 | 100 | 125 | 2<br>1 | 1 | CAU6-140-L42-✱<br>CAU6-140-EI-22-✱ | 3400<br>3800 |
| 180 | 250 | 55 | 90/100 | 90 ❽ | 132 ❽ | ~ | 40 | 50 | 60 | 150 | 150 | 1 | 1 | CAU6-180-L42-✱<br>CAU6-180-EI-22-✱ | 4715<br>5129 |
| 210 | 350 | 63 | 110/125 | 150 | 200 | ~ | 50 | 60 | 75 | 150 | 200 | 1 | 1 | CAU6-210-EI-22-✱ | 5816 |
| 250 | 350 | 80 | 132/150 | 160 | 250 | ~ | ~ | 75 | 100 | 200 | 250 | 1 | 1 | CAU6-250-EI-22-✱ | 6440 |
| 300 | 450 | 90 | 160/160 | 200 | 300 | ~ | ~ | 100 | 125 | 250 | 300 | 1 | 1 | CAU6-300-EI-22-✱ | 6951 |
| 420 | 540 | 132 | 220/250 | 300 ❼ | 425 ❼ | ~ | ~ | 150 | 175 | 350 | 400 | 1 | 1 | CAU6-420-EI-22-✱ | 13836 |
| 630 | 800 | 200 | 355 | 450 | 500 | ~ | ~ | 200 | 250 | 500 | 600 | 1 | 1 | CAU6-630-EI-22-✱ | 19440 |
| 860 | 1000 | 250 | 500 | 560 | 600 | ~ | ~ | 250 | 300 | 600 | 700 | 1 | 1 | CAU6-860-EI-22-✱ | 25790 |

*CAU6-180 reversing contactor with DC coil*

***Includes:***

- DC operating mechanism
- Mechanical and electrical Interlock ❹
- Reversing power wiring (using Power Wiring Kit Cat.# CA6-…VL[T]) ❶
- Mounting plate
- Control wiring available; see footnote ❷

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

## Coil Codes ❺

| CA6-95 / 110 / 140 / 180 | |
|---|---|
| **DC Coil Code** | Voltage Range |
| **24D** | **24V** |
| **110D** | 110V |
| **220D** | 220V |

| CA6-95...CA6-420-EI ❶❻❾ | |
|---|---|
| **DC Coil Code** | **Voltage Range** |
| **24D ❻** | **24V** |
| **120D** | 110-130V |
| **220D** | 200-255V |

| CA6-630...CA6-860-EI ❶❾ | |
|---|---|
| **DC Coil Code** | **Voltage Range** |
| **120** | 110-130V ❿ |
| **240W** | 200-255V ❿ |

***Note:*** Conventional DC coils have high current pick-up winding and low current "seal-in" winding wired in parallel. The pick-up winding is taken out of the circuit after the armature pulls in. Price includes two winding coil and an L11 block including one NC late break auxiliary contact mounted on the right side. See page A122 for functional schematic and see page C78 for a starter wiring diagram.

❶ For Reversing Contactors *without* power wiring add suffix "**-LW**" to catalog number and deduct $175 for CA6-95…180 and $360 for CA6-210-EI…860-EI. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-LW.** Control wiring is not included.

❷ For control wiring, add suffix **-CW** to catalog number and add $20. Example: CAU6-95-22-✱ becomes CAU6-95-22-✱**-CW.**

❸ "-EI" designates contactor with Electronic Interface coil.

❹ One NC auxiliary contact on each contactor is used for electrical interlocking.

❺ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*

❻ For CSA Elevator duty rating, consult Technical Information on page A111.

❼ AC3 ratings only. AC4 ratings are lower. See Technical Information.

❽ Ratings are higher for contactors with electronic coil:

| CA6-140-EI-11-✱ | CA6-180-EI-11-✱ |
|---|---|
| 500V = 90kW | 500V = 125kW |
| 690V = 132kW | 690V = 160kW |

❾ 24V DC Coil not available for CA6-420-EI. Customers selecting 24V DC Coils should consider the "EI" functionality of the CA6 (see page A121-122).

❿ Coil is rated AC/DC

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

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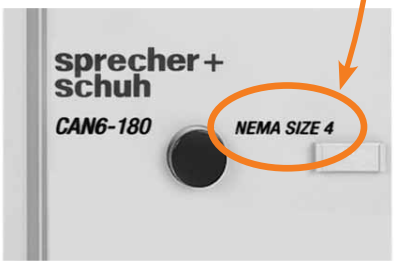
## Non-Reversing, Three Pole NEMA Labeled Contactors with AC Coil ❶❸

| NEMA Size | Maximum Horsepower | | | | | | Standard Auxiliary Contacts | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1Ø | | 3Ø | | | | | | | |
| | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | | |
| 00 | 1/3 | 1 | 1-1/2 | 1-1/2 | 2 | 2 | 1 | 0 | CAN7-12-10-✱ | 155 |
| 0 | 1 | 2 | 3 | 3 | 5 | 5 | 1 | 0 | CAN7-16-10-✱ | 174 |
| 1 | 2 | 3 | 7-1/2 | 7-1/2 | 10 | 10 | 1 | 0 | CAN7-37-10-✱ | 288 |
| 2 | 3 | 7-1/2 | 10 | 15 | 25 | 25 | 1 | 0 | CAN7-43-10-✱ | 308 |
| 3 | 7-1/2 | 15 | 25 | 30 | 50 | 50 | 1 | 0 | CAN7-85-10-✱ | 482 |
| 4 | ~ | ~ | 40 | 50 | 100 | 100 | 1 | 1 | CAN6-180-11-✱ | 1608 |
| | | | | | | | | | CAN6-180-EI-11-✱ | 1850 |
| 5 | ~ | ~ | 75 | 100 | 200 | 200 | 1 | 1 | CAN6-300-EI-11-✱ | 2375 |


*CAN6 NEMA labeled contactor (AC)*




***Application Notes***

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A61 for CAN7 coils and pages A106-108 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CA[N]7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing. NEMA sized starters with AC Coils are listed on page C26.

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

### CAN7 AC Coil Codes ❷

| CAN7-12...85 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| 24Z | 24V | 24V |
| 120 | 110V | **120V** |
| 208 | ~ | 208V |
| 220W | ~ | **208V-240V** |
| 240 | 220V | 240V |
| 277 | 240V | 277V |
| 380 | 380V-400V | 440V |
| 480 | 440V | **480V** |
| 600 | **550V** | **600V** |

### CAN6 AC Coil Codes Conventional Coils ❷

| CAN6-180 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| 24 | ~ | 24V |
| 120B | **110V** | **120V** |
| 208 | ~ | 208V |
| 240B | 220-230V | 260V |
| 277 | 240V | 277V |
| 380 | 380V-400V | 440V |
| 480 | **415V** | **480V** |
| 575 | 500V | 575V |

### CAN6 AC Coil Codes "EI" Electronic Coils ❷❸

| CAN6-180-EI...300-EI | |
|---|---|
| AC Coil Code | Voltage Range |
| | 50 Hz / 60 Hz |
| 24 ❹ | 24V |
| 120 | **110-130V** |
| 220W | 208-277V |
| 460W | 380-500V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Refer to page A87 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A61 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ 24 V AC coil not available for CAN6-300-EI.

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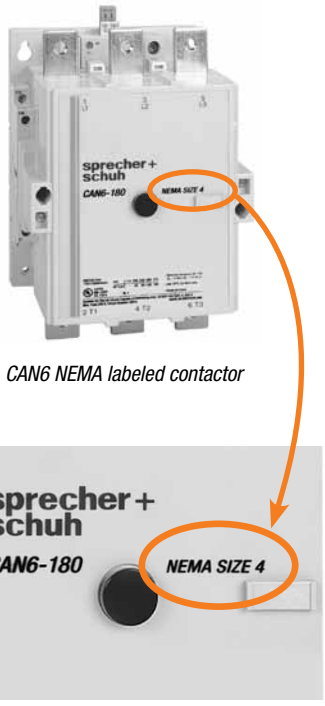
## Non-Reversing, Three Pole NEMA Labeled Contactors with DC Coil ❶

| NEMA Size | Maximum Horsepower | | | | | | Standard Auxiliary Contacts | | Catalog Number | Price |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1Ø | | 3Ø | | | | | | | |
| | 115V | 230V | 200V | 230V | 460V | 575V | NO | NC | | |
| 00 | 1/3 | 1 | 1-1/2 | 1-1/2 | 2 | 2 | 1 | 0 | CAN7-12E-10-24E ❺ | 242 |
| | | | | | | | | | CAN7-12C-10-✱ | 200 |
| 0 | 1 | 2 | 3 | 3 | 5 | 5 | 1 | 0 | CAN7-16E-10-24E ❺ | 267 |
| | | | | | | | | | CAN7-16C-10-✱ | 225 |
| 1 | 2 | 3 | 7-1/2 | 7-1/2 | 10 | 10 | 1 | 0 | CAN7-37E-10-24E ❺ | 414 |
| | | | | | | | | | CAN7-37C-10-✱ | 372 |
| 2 | 3 | 7-1/2 | 10 | 15 | 25 | 25 | 1 | 0 | CAN7-43E-10-24E ❺ | 475 |
| | | | | | | | | | CAN7-43C-10-✱ | 432 |
| 3 | 7-1/2 | 15 | 25 | 30 | 50 | 50 | 2 | 1 | CAN7-85D-10-✱ | 612 |
| 4 | ~ | ~ | 40 | 50 | 100 | 100 | 1 | 1 | CAN6-180-EI-11-✱ ❸ | 2290 |
| 5 | ~ | ~ | 75 | 100 | 200 | 200 | 1 | 1 | CAN6-300-EI-11-✱ ❸ | 2950 |




*CAN6 NEMA labeled contactor*

***Application Notes***

- NEMA contactors are UL Listed and rated in accordance with the requirements of NEMA standards publication ICS-2. These contactors are labeled for applications that require compliance with NEMA standards.
- Sizes are based on standard NEMA classifications.
- Easy coil change and contact replacement. See page A62 for CA(N)7 coils and pages A106-107 for CA(N)6 coils and contacts.
- Snap-on auxiliary contact blocks available in many configurations. See pages A52-53 (CAN7) and page A104 (CA[N]6).
- Available as open units or in NEMA 1, 3R, 4, 4X and 12 enclosures. Contact your Sprecher + Schuh representative for enclosed pricing.

***Note:*** CA6 open-type contactors include terminal bolts. If lugs are required, see page A101 for ordering information.

### CAN7 DC Coil Codes ❷

| CAN7-12C...72C | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D | 24V |
| 110D | 110V |

### CAN7 DC Coil Codes with integrated Diode ❷

| CAN7-85D | |
|---|---|
| DC Coil Code | Voltage Range |
| 24DD | 24V |
| 110DD | 110V |

### CAN6 DC Coil Codes "EI" Electronic Coils ❷❹

| CAN6-180-EI...300-EI | |
|---|---|
| DC Coil Code | Voltage Range |
| 24D | 24V |
| 120D | 110 - 130V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ Refer to page A88 for CAN7 dimensional information and page A127 for CA(N)6 dimensions.
❷ Other voltages available, see page A62 for CAN7 and pages A106-107 for CA(N)6. *Nonstandard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❸ "-EI" designates contactor with Electronic Interface coil.
❹ Refer to page A120 for CA6-EI Application Notes for 24 volt DC Electronic Coils.
❺ CAN7-12E..43E have an electronic 24VDC coil that is not interchangeable.

## Hydraulic Elevator Wye Delta, with AC Coils (Two Contactor Type ❶❷❺)

| Maximum Horsepower Three Phase | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|
| 200V | 230V | 460V | 575V | NO | NC ❸ | Catalog No. | Price |
| 60 / 40 | 60 / 50 | 125 / 100 | 150 / 125 | 1 | 1 | CA6Y2-110-22-✱-LW | 1705 |
| | | | | | | CA6Y2-110-EI-22-✱-LW | 1906 |
| 60 / 50 | 75 / 60 | 175 / 125 | 200 / 125 | 1 | 1 | CA6Y2-140-22-✱-LW | 2658 |
| | | | | | | CA6Y2-140-EI-22-✱-LW | 3001 |
| 75 / 60 | 100 / 75 | 200 / 150 | 250 / 150 | 1 | 1 | CA6Y2-180-22-✱-LW | 3628 |
| | | | | | | CA6Y2-180-EI-22-✱-LW | 3644 |

**HP Selection**

Industrial Application ❺ / CSA Elevator Duty ❻

*Larger sizes are possible. Contact your Sprecher + Schuh representative.*

*CA6Y2-110 Wye-Delta contactor*

***Includes:***

- Mechanical and electrical Interlocks ❸
- Mounting plate

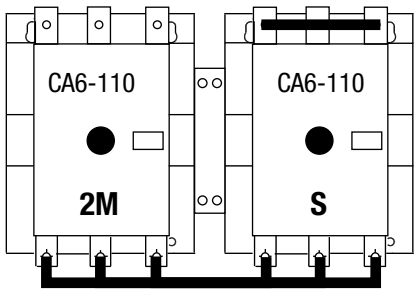
***Optional:***

- Power wiring available but not included (see page A102) ❶❼

CA6 "EI" coils are electronically controlled coils with the following characteristics:

- Ability to connect directly to a low level signal source such as a PLC (13-30 VDC at 15mA max.)
- Very low pull-in and holding current for contactors in this size class
- Threshold voltages for pull-in and drop-out are very precisely defined, eliminating "chattering"
- Supply voltage dips are bridged without extra equipment
- "EI" coils cover a much wider voltage range with only one coil

CA6-180-VYU




CA6-180-VLHB

## Coil Codes ❹

| CA6-110…180 | | |
|---|---|---|
| AC Coil Code | Voltage Range 50 Hz | Voltage Range 60 Hz |
| 24 | ~ | 24V |
| 120B | 110V | 120V |
| 208 | ~ | 208V |
| 240B | 220-230V | 260V |
| 277 | 240V | 277V |
| 380 | 380-400V | 440V |
| 480 | 415V | 480V |
| 575 | 500V | 575V |

| CA6-110-EI …CA6-180-EI ❶ | |
|---|---|
| AC Coil Code | Voltage Range 50 Hz / 60 Hz |
| 24 | 24V |
| 120 | 110-130V |
| 220W | 208-277V |
| 440W | 380-440V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page.** |

❶ For Contactors *with* power wiring add suffix "**-PW**" to catalog number and add $273. Example: CA6Y2-110-22-✱-**LW** becomes CA6Y2-110-22-✱-**PW.** Control wiring is not included.
❷ "-EI" designates contactor with Electronic Interface coil.
❸ One NC auxiliary contact on each contactor is used for electrical interlocking.
❹ Other voltages available, see page A106-107. *Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.*
❺ HP selection based on UL508 for Industrial Applications.
❻ HP selection based on CSA Elevator Duty Ratings.
❼ See typical Wye-Delta Wiring Diagram on page C72.

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## Main Lugs and Lug Accessories

| Lug or Accessory | Connection | Description | Catalog Number | Price |
|---|---|---|---|---|
|  *Multiple conductors (flat or round) fit in each terminal on CA6-HB Main Terminal Sets (top view)* | • Accommodation for dual connections to each pole<br>• Accepts flat or round conductors<br>• Touch safe to IP20 according to IEC 60529<br>• Eliminates need for Terminal Shields<br><br>Main Terminal Sets (catalog #: CA6-HB…) are specifically designed for connecting line and load to all three poles on CA6 contactors. Each touch safe terminal set contains three built-in terminals capable of carrying two round conductors or multiple flat conductors. Main Terminal Sets add a clean finished appearance to CA6 contactors | **Main Terminal Set, Dual Conductor, Touch Safe** (price as complete set, containing 2 blocks, 6 lugs)<br>For CA6-95 and 110<br>For CA6-95-EI...110-EI; 140(-EI); 180(-EI)<br>For CA6-210(EI to 420-EI) | <br>**CA6-HB1**<br>**CA6-HB2**<br>**CA6-HB3** | <br>**160**<br>**200**<br>**295** |
|  | **Screw Type Lugs -**<br>• Single connections to each pole<br>• Accepts round conductors only<br>• Copper construction<br>(set of 3 - two sets required to wire line and load sides) | For CA6-95 to CA6-110<br>For CA6-95-EI to CA6 -110-EI; CA6-140(-EI) to CA6-180(EI)<br>For CA6-210-EI to CA6-420-EI | **CA6-L110**<br>**CA6-L180**<br>**CA6-L420** | **84**<br>**168**<br>**250** |
|  | **Screw Type Lugs -**<br>• Accommodation for dual connections to each pole<br>• Accepts round conductors only<br>• Copper construction<br>(set of 3 - two sets required to wire line and load sides) | For CA6-630-EI | **CA6-L630** | **328** |
|  | **Screw Type Lugs -**<br>• Accommodation for dual connections to each pole<br>• Accepts round conductors only<br>• Copper construction<br>(set of 3 - two sets required to wire line and load sides) | For CA6-860-EI | **CA6-L860** | **490** |
|  (Typical) | **Control Wire Terminal -**<br>• Connects to lug indicated | Supplies control voltage from current terminal<br>For CA6-L110 to L180<br>For CA6-L420<br>For CA6-L630…L860 | <br>**CA6-AT1**<br>**CA6-AT2**<br>**CA6-AT3** | <br>**5**<br>**15**<br>**29** |

**See Page A118 for terminal wire ranges.**

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## Power Wiring Connection Kits

| Connection Kits | Application | Used with contactor... | Use with Lug... | Catalog Number | Price |
|---|---|---|---|---|---|
|  *CA6-180-VLHB* | **Reversing Line Side**<br>**Wye-Delta Line Side**<br>Connects L1-L1<br>L2-L2<br>L3-L3 | CA6-95(-EI) to 180(-EI) | CA6-105-HU<br>CA6-170-HU<br>CA6-L110<br>CA6-L180 | **CA6-180-VLHB** | **118** |
| | | CA6-95(-EI) to 180(-EI) | CA6-HB1<br>CA6-HB2 | | |
| | | CA6-210-EI to 420-EI | CA6-HB3 | **CA6-420-VLHB** | **288** |
| | | | CA6-420-HU<br>CA6-L420 | | |
| | | CA6-630-EI to 860-EI | CA6-L630<br>CA6-L860 | **CA6-860-VL** | **540** |
|  *CA6-180-VT* | **Reversing Load Side**<br>Connect T1-T3<br>T2-T2<br>T3-T1 | CA-95(-EI) to 180(-EI) | CA6-105-HU<br>CA6-170-HU<br>CA6-L110<br>CA6-L180 | **CA6-180-VT** | **156** |
| | | CA6-95(-EI) to 180(-EI) | CA6-HB1<br>CA6-HB2 | **CA6-180-VTHB** | **156** |
| | | CA6-210-EI to 420-EI | CA6-HB3 | **CA6-420-VTHB** | **273** |
| | | CA6-210-EI to 420-EI | CA6-420-HU<br>CA6-L420 | **CA6-420-VT** | **273** |
| | | CA6-630-EI to 860-EI | CA6-L860 | **CA6-860-VT** | **503** |
|  *CA6-180-VYU* | **Wye-Delta Shorting Bar** | CA-95(-EI) to 180(-EI)<br>CA6-210-EI to 420-EI<br>CA6-630-EI to 860-EI | N/A | **CA6-180-VYU**<br>**CA6-420-VYU**<br>**CA6-860-VYU** | **16**<br>**31**<br>**62** |
| | **Wye-Delta (2M to S jumper)** | Connects 2M contactor CA6-210-EI to 420-EI... to S contactor CA6140(-EI ) to 180(-EI) | CA6-HB3 | **CA6-420-VYHB** | **247** |
| | | Connects 2M contactor CA6-210-EI to 420-EI... to S contactor CA6-210-EI to 420-EI | CA6-420-HU<br>CA6-L420 | **CA6-420-VT** | **273** |

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## Lug Accessories and Backpans

| Accessory | Description | For use with contactor... | Catalog Number | Price |
|---|---|---|---|---|
|  | **Main Terminal Cover - ❶**<br>• CA6 touch protection<br>• Line **or** load **(price each)**<br>• IP20; IEC60529 & DIN 40 050 protection | CA6-95(-EI) to 180(-EI)<br>CA6-210-EI to 420-EI<br>CA6-630-EI to 860-EI | **CA6-TC180**<br>**CA6-TC420**<br>**CA6-TC860** | **46**<br>**76**<br>**103** |
|  | **Mounting Plates –**<br>1 contactor & 1 O/L relay (Across-The-Line) | CA6-95(-EI)...180(-EI)<br>CA6-210-EI...420-EI<br>CA6-630-EI...860-EI | **CA6-MS180**<br>**CA6-MS420**<br>**CA6-MS860** | **46**<br>**102**<br>**255** |
| | 2 contactors & 2 O/L relays (Reversing or Multispeed) | CA6-95(-EI)...180(-EI)<br>CA6-210-EI...420-EI<br>CA6-630-EI...860-EI | **CA6-MU180**<br>**CA6-MU420**<br>**CA6-MU860** | **76**<br>**155**<br>**310** |
| | 3 contactors, 2 O/L relays & 1 relay/timer (Wye-delta) | For CA6-95(-EI) to 180(-EI)<br>For CA6-210-EI to 420-EI<br>CA6-630-EI to 860-EI | **CA6-MY180**<br>**CA6-MY420**<br>**CA6-MY860** | **175**<br>**210**<br>**364** |

❶ Terminal Covers not necessary when using Main Terminal Sets (CA6-HB…) which are insulated.
❷ Not for use with CA6-105-HU lugs.

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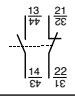
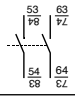
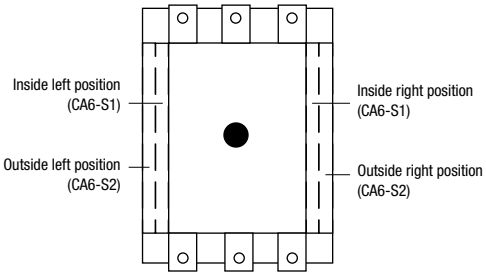
## Auxiliary Contact Blocks, 2 Pole

| Auxiliary Contact Blocks | NO | NC | Contact Arrangement | Mounting Position | Catalog Number | Price |
|---|---|---|---|---|---|---|
|  | 1 | 1 |  | Inside left or right | **CA6-S1-11** | **46** |
| | 1 | 1 |  | Outside left or right | **CA6-S2-11** | **46** |
| | 1 | 1 LB |  | Inside left or right | **CA6-S1-L11** | **48** |
| | 2 | 0 |  | Inside left or right | **CA6-S1-20** | **46** |
| | 2 | 0 |  | Outside left or right | **CA6-S2-20** | **46** |
| | Form C Electronic Compatible | |  | Inside left or right | **CA6-S1-B11** ❶ | **76** |

**NOTE:** Up to four auxiliary contact blocks (8 poles) may be mounted on the side of the CA6 contactor. One auxiliary contact block (1 NO + 1 NC) is mounted at the factory. New style CA6-95…140 contactors with conventional DC coils have an "-L11" mounted to right side and an "-11" mounted to left side at the factory.




## Miscellaneous Accessories

| Accessory | Description | For use with... | Catalog Number | Price |
|---|---|---|---|---|
|  CM6  CM6-D00 | **Mechanical Interlock-**<br>● No built-in auxiliaries | Interlocks CA6 contactors | **CM6** | **50** |
| | | Interlocks CA6 contactors | **CM6-D00** | **57** |
|  CM6-D02 | **Mechanical / Electrical Interlock -**<br>● Two built-in N.C. auxiliaries | Interlocks CA6 to CA7-60...85 contactors | **CM6-C02** | **57** |
| | | Interlocks CA6 contactors | **CM6-D02** | **68** |

❶ Electronic compatible auxiliary contacts function through the use of an internal micro-switch and have the following ratings:

| | | |
|---|---|---|
| **IEC 947 Data:** | | |
| AC-1 | 250V | 0.1A |
| AC-15/DC-13 min. | 3…125V | 1…100mA |
| **UL 508, CSA 22.2 Data:** | 250VAC max. | 0.1A |
| Minimum Switching | 17V | 5mA |

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## Miscellaneous Accessories

| Accessory | Description | For use with... | Catalog Number | Price |
|---|---|---|---|---|
|  | **Surge Suppressor -** Limits voltage spikes when switching off coil. Attaches to all CA6 contactors.<br><br>RC Link:<br>21-48V 50Hz . 24-55V 60Hz<br>95-110V 50 Hz / 110-127V 60 Hz<br>190-240V 50Hz / 220-277V 60Hz<br>380-550V 50Hz / 440-575V 60Hz | Conventional AC Coils | **CRC6-48**<br>**CRC6-110**<br>**CRC6-240**<br>**CRC6-550** | **37** |
| | Varistor Link:<br>12-55V 50/60Hz<br>56-136V 50/60Hz<br>137-277V 50/60Hz<br>278-575V 50/60Hz | Conventional AC Coils | **CRV6-55**<br>**CRV6-136**<br>**CRV6-277**<br>**CRV6-575** | **24.50** |
| | Varistor Link:<br>24-28V AC/DC<br>48-72V DC<br>43-65V 50/60Hz<br>208-277 50/60 Hz<br>380-400V 50/60Hz | Electronic (-EI) Coils ❶ | **CRV6-40**<br>**CRV6-55**<br>**CRV6-75**<br>**CRV6-550**<br>**CRV6-460** | **24.50** |

## Marking Systems

| Component | Description | Pkg. Qty. | Catalog Number | Price Each |
|---|---|---|---|---|
|  | **Label Sheet -**<br>1 sheet with 105 self-adhesive paper labels each, 6 x17mm | 1 | **CA7-FMS** | **See page A58** |
|  | **Marking Tag Sheet -**<br>1 sheet with 160 perforated paper labels each, 6 x 17mm. To be used with transparent cover | 1 | **CA7-FMP** | |
| | **Transparent Cover -**<br>To be used with Marking Tag Sheets | 100 ❷ | **CA7-FMC** | |
|  | **Tag Carrier -**<br>For marking with Clip-on Tags. See Terminals Section for complete listing of Clip-on Tags. | 100 ❷ | **CA7-FMA2** | |

❶ "EI" contactors are supplied with factory installed integrated surge protection (see page A87).
❷ Minimum order quantity is one package of 100. Price each x 100 = total price.

## Renewal Coils - A.C., Conventional Coil ❶

| AC Control Voltages | | | AC Coil Codes | For use with contactor... | | Optional RC Module ❷ | Optional Varistor Module ❷ |
|---|---|---|---|---|---|---|---|
| Conventional Coil | | | | CA6-95 CA6-110 | CA6-140 CA6-180 CAN6-180 | | |
| 50 Hz | 60 Hz | 50/60 Hz | | Catalog No. | Catalog No. | Catalog No. | Catalog No. |
| 24V | ~ | ~ | 24A | CA6-TG407 | CA6-TG407 | CRC6-48 | CRV6-55 |
| ~ | 24V | ~ | **24** | **CA6-TG013** | **CA6-TG013** | **CRC6-48** | **CRV6-55** |
| 32V | 36V | ~ | ~ | CA6-TG481 | CA6-TG481 | CRC6-48 | CRV6-55 |
| 42V | 48V | ~ | 48 | CA6-TG482 | CA6-TG482 | CRC6-48 | CRV6-55 |
| 48V | 55V | ~ | 48A | CA6-TG414 | CA6-TG414 | CRC6-48 | CRV6-55 |
| 110V | 120V | ~ | **120B** | **CA6-TG473** | **CA6-TG473** | **CRC6-110** | **CRV6-136** |
| ~ | 208V | ~ | 208 | CA6-TG049 | CA6-TG049 | CRC6-240 | CRV6-277 |
| 220-230V | 240V | ~ | **240B** | **CA6-TG441** | **CA6-TG441** | **CRC6-240** | **CRV6-277** |
| 240V | 277V | ~ | 277 | CA6-TG480 | CA6-TG480 | CRC6-240 | CRV6-277 |
| 380V-400V | 440V | ~ | 380 | CA6-TG071 | CA6-TG071 | CRC6-880 | CRV6-575 |
| 415V | 480V | ~ | **480** | **CA6-TG475** | **CA6-TG475** | **CRC6-550** | **CRV6-575** |
| 440V | 508V | ~ | ~ | CA6-TG478 | CA6-TG478 | CRC6-550 | CRV6-575 |
| 500V | 575V | ~ | 575 | CA6-TG479 | CA6-TG479 | CRC6-550 | CRV6-575 |
| 550V | 600V | ~ | 600 | CA6-TG476 | CA6-TG476 | CRC6-550 | CRV6-575 |
| **Price** | | | | **212** | | See page A105 for pricing | |

*CA6 A.C. Coil (typical)*

## Renewal Coils - D.C., Conventional Two-Winding Coil ❶❸

| DC Control Voltages | DC Coil codes | For use with contactor... | | Factory Integrated Varistor built into coil |
|---|---|---|---|---|
| Conventional Coil | | CA6-95 CA6-110 | CA6-140 CA6-180 | |
| | | Catalog No. | Catalog No. | |
| 12V | 12D | CA6-TG708 | CA6-TG708 | Yes |
| 24V | **24D** | **CA6-TG714** | **CA6-TG714** | **Yes** |
| 48V | 48D | CA6-TG724 | CA6-TG724 | Yes |
| 110V | **110D** | **CA6-TG733** | **CA6-TG733** | **Yes** |
| 125V | 125D | CA6-TG737 | CA6-TG737 | Yes |
| 220V | **220D** | **CA6-TG761** | **CA6-TG761** | **Yes** |
| 240V | ~ | CA6-TG750 | CA6-TG750 | Yes |
| 250V | 250D | CA6-TG751 | CA6-TG751 | Yes |
| **Price** | | **300** | | |

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for information.
❷ Not factory installed, must be ordered separately.
❸ For conventional DC coils, the pickup winding must be connected to a NC late-break auxiliary contact. (See page A122)

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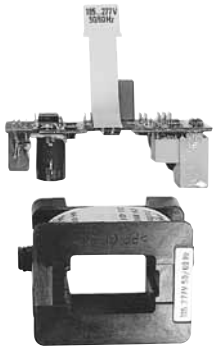
## Renewal Coils - A.C., "-EI" Electronic Coil ❶❸❺

| AC Control Voltages | | AC Coil Codes ❷ | For use with contactor... | | | | 'EI' Coil Suppressor Info | |
|---|---|---|---|---|---|---|---|---|
| | | | CA6-95-EI CA6-110-EI CA6-140-EI CA6-180-EI CAN6-180-EI CA6-210-EI CA6-250-EI | CA6-300-EI CAN6-300-EI | CA6-420-EI | CA6-630-EI CA6-860-EI | Factory Integrated Suppressor on Coil Circuit Board ❸ | Factory Installed External Suppressor Module ❸ |
| EI Coil | | | | | | | | |
| 60 Hz | 50/60 Hz | | Catalog No. | Catalog No. | Catalog No. | Catalog No. | | Catalog No. |
| ~ | 24V | 24 | CA6-TGE855 | ~ | ~ | ~ | No | CRV6-40 |
| ~ | 42-64V | 48 | CA6-TGE864 | CA6-TGE864 | ~ | ~ | No | CRV6-75 |
| ~ | 110-130V | **120** | **CA6-TGE865** | **CA6-TGE865** | **CA6-THE865** | ~ | Yes | ~ |
| ~ | 208-277V | **220W** | CA6-TGE866 | CA6-TGE866 | CA6-THE866 | ~ | Yes | ❹ |
| ~ | 380-500V | **460W** | CA6-TGE867 | CA6-TGE867 | CA6-THE867 ❽ | ~ | Yes | RC 100N ❺ |
| ~ | 110-130V | **120** | ~ | ~ | ~ | CA6-TJE865 ❻ | Yes | ~ |
| ~ | 200-220V | **208W** | ~ | ~ | ~ | CA6-TJE878 | Yes | ~ |
| ~ | 230-250V | **240W** | ~ | ~ | ~ | CA6-TJE879 ❻ | Yes | ~ |
| ~ | 277V | 277 | ~ | ~ | ~ | CA6-TJE880 | Yes | ~ |
| ~ | 380-415V | 380 | ~ | ~ | ~ | CA6-TJE867 | Yes | ~ |
| ~ | 440-480V | **480** | ~ | ~ | ~ | CA6-TJE868 | Yes | ~ |
| **Price** | | | **515** | **515** | **685** | **1030** | | |



*CA6 A.C. "-EI" coil (typical)*

## Renewal Coils - D.C., "-EI" Electronic Coil ❶❸❹

| DC Control Voltage | DC Coil Codes | For use with contactor... | | | | 'EI' Coil Suppressor Info | |
|---|---|---|---|---|---|---|---|
| | | CA6-95-EI CA6-110-EI CA6-140-EI CA6-180-EI CAN6-180-EI CA6-210-EI CA6-250-EI | CA6-300-EI CAN6-300-EI | CA6-420-EI | CA6-630-EI CA6-860-EI | Factory Integrated Suppressor on Coil Circuit Board ❸ | Factory Installed External Suppressor Module ❸ |
| EI Coil | | Catalog No. | Catalog No. | Catalog No. | Catalog No. | | Catalog No. |
| 24V ❼ | **24D** | **CA6-TGE708** | **CA6-TGE708** | ~ | ~ | No | CRV6-40 |
| 48-72V | 48D | CA6-TGE779 | CA6-TGE779 | ~ | ~ | No | CRV6-55 |
| 110-130V | **120D** | CA6-TGE780 | CA6-TGE780 | CA6-THE780 | ~ | Yes | ~ |
| 200-255V | 220D | CA6-TGE781 | CA6-TGE781 | CA6-THE781 | ~ | Yes | ~ |
| 110-130 | **120** | ~ | ~ | ~ | CA6-TJE865 ❻ | Yes | ~ |
| 200-255V | **240W** | ~ | ~ | ~ | CA6-TJE879 ❻ | Yes | ~ |
| **Price** | | **600** | **600** | **772** | **1030** | | |

❶ Other coil voltages available. Contact your Sprecher + Schuh representative for more information.
❷ Coil Codes in bold letters and shaded indicate coils that are standard stocked items.
❸ Factory external suppressor module provided where shown, included with r eplacement coil.
❹ Factory integrated suppressor is overvoltage category III, for optional category IV, e.g. lightning protection, a CRV6-550 module can be added.
❺ Special capacitor module supplied on CA6-420 only, not shown in catalog.
❻ Coil is rated AC / DC.
❼ Customers selecting a 24V DC Coil should consider the "EI" functionality of the CA6.
❽ Contactor manufactured with 380-500V coils can not be interchanged with any other coils because of the circuit board built into the base of the CA6-420.

## Main Contact - 3 Per Set

| Main Contacts *(typical)* | For use with... | Catalog Number | Price/ Set |
|---|---|---|---|
|  | CA6-95 | **CA6-C95** | **290** |
| | CA6-95-EI | **CA6-CE95** | **343** |
| | CA6-110 | **CA6-C110** | **360** |
| | CA6-110-EI | **CA6-CE110** | **360** |
| | CA6-140 | **CA6-C140** | **550** |
| | CA6-140-EI | **CA6-CE140** | **550** |
| | CA6-180 | **CA6-C180** | **685** |
| | CA6-180-EI | **CA6-CE180** | **685** |
| | CA6-210-EI | **CA6-CE210** | **895** |
| | CA6-250-EI | **CA6-CE250** | **1120** |
| | CA6-300-EI | **CA6-CE300** | **1345** |
| | CA6-420-EI | **CA6-CE420** | **1945** |
| | CA6-630-EI | **CA6-CE-630** ❹ | **3150** |
| | CA6-860-EI | **CA6-CE-860** ❹ | **4225** |

## Standard Terminal Hardware (screw & washer) ❶

| Terminal Hardware | Fits Contactor... | Screw Type | Catalog Number | Price Each |
|---|---|---|---|---|
|  | CA6-95 & 110 | M6 | **CA6-HF110** | **34** |
| | CA6-110-EI, 140(-EI) & 180(-EI) | M8 | **CA6-HF180** | **48** |
| | CA6-210-EI to 420-EI | M10 | **CA6-HF420** | **54** |
| | CA6-630-EI to 860-EI | M12 | **CA6-HF860** | **130** |

## Arc Chutes ❷❸

| Arc Chutes *(typical)* | For use with... | Catalog Number | Price/ Set |
|---|---|---|---|
|  | CA6-95 | **CA6-A95** | **145** |
| | CA6-95-EI | **CA6-AE95** | **145** |
| | CA6-110 | **CA6-A110** | **196** |
| | CA6-110-EI | **CA6-AE110** | **196** |
| | CA6-140 | **CA6-A140** | **237** |
| | CA6-140-EI | **CA6-AE140** | **237** |
| | CA6-180 | **CA6-A180** | **280** |
| | CA6-180-EI | **CA6-AE180** | **280** |
| | CA6-210-EI | **CA6-AE210** | **530** |
| | CA6-250-EI | **CA6-AE250** | **635** |
| | CA6-300-EI | **CA6-AE300** | **735** |
| | CA6-420-EI | **CA6-AE420** | **835** |
| | CA6-630-EI | **CA6-CE-630** ❹ | **3150** |
| | CA6-830-EI | **CA6-CE-860** ❹ | **4225** |

❶ Set of six (6). Priced per set.
❷ One (1) required per contactor.
❸ CA6-…W Arc Chutes available by special order.
❹ Kit includes Main Contacts and Arc Chute Chamber.

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## Replacement Contactors Cross Reference, Series CA1 to Series CA6 (Open Type Only) ❶

| $I_e$ [A] ❶ | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Series CA1 Obsolete | Series CA6 Equivalent |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | UL/CSA HP (60 Hz) | | | | | | | |
| | | | | | | 1 Ø | | 3 Ø | | | | | |
| AC-3 | AC-1 | 230V | 400V / 415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | Catalog Number | Catalog Number |
| 95 | 160 | 30 | 50/55 | 63 | 80 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | | CA6-95 |
| | | | | | | 7-1/2 | 20 | 30 | 30 | 60 | 75 | CA1-55 | |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | | CA6-110 |
| | | | | | | 10 | 25 | 40 | 40 | 75 | 100 | CA1-60 | |
| 110 | 160 | 32 | 55/63 | 75 | 100 | 10 | 25 | 40 | 40 | 75 | 100 | | CA6-140 |
| | | | | | | 15 | 30 | 50 | 50 | 100 | 125 | CA1-100 | |
| 180 | 250 | 55 | 90/100 | 90 | 132 | ~ | 40 | 50 | 60 | 150 | 150 | | CA6-180 |
| | | | | | | ~ | ~ | 60 | 60 | 150 | 150 | CA1-150 | |
| 210 | 350 | 63 | 110/125 | 150 | 200 | ~ | 50 | 60 | 75 | 150 | 200 | | CA6-210 |
| | | | | | | ~ | ~ | 75 | 100 | 200 | 250 | CA1-250 | |
| 250 | 350 | 80 | 132/150 | 160 | 250 | ~ | ~ | 75 | 100 | 200 | 250 | | CA6-250 |
| 300 | 450 | 90 | 160/160 | 200 | 300 | ~ | ~ | 100 | 125 | 250 | 300 | | CA6-300 |
| | | | | | | ~ | ~ | 150 | 150 | 350 | 400 | CA1-480 | |
| 420 | 500 | 132 | 200/250 | 300 | 425 | ~ | ~ | 150 | 175 | 350 | 400 | | CA6-420 |

*CA1-10 Contactor*

❶ Available auxiliary contacts may vary. See selection pages for more information.

## Technical Information

| | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rated Insulation Voltage $U_i$** | | | | | | | | | | | |
| IEC, AS, BS, SEV, VDE 0660 | [V] | | | | | | 1000V | | | | |
| UL; CSA | [V] | | | | | | 600V | | | | |
| **Rated Voltage $U_{imp}$** | (kV) | | | | | | 12kV | | | | |
| **Rated Voltage $U_e$ - Main Contacts** | | | | | | | | | | | |
| AC 50/60Hz | [V] | | | | | | 230, 240, 400, 415, 500, 690, 1000V | | | | |
| DC | [V] | | | | | | 24, 48, 110, 220, 440V | | | | |
| **Operating Frequency for AC Loads** | [Hz] | | | | | | 50/60Hz | | | | |
| **Switching Motor Loads** | | | | | | | | | | | |
| **Standard IEC Ratings** | | | | | | | | | | | |
| **AC-2, AC-3** | 230V | [A] | 95 | 110 | 140 | 180 | 210 | 250 | 300 | 420 | 630 | 860 |
| DOL & Reversing | 240V | [A] | 95 | 110 | 140 | 180 | 210 | 250 | 300 | 420 | 630 | 860 |
| 50Hz | 400V | [A] | 95 | 110 | 140 | 180 | 210 | 250 | 300 | 420 | 630 | 860 |
| | 415V | [A] | 95 | 110(130)❶ | 140(155)❶ | 180(189)❸ | 210(227)❶ | 250(258)❶ | 300(315)❶ | 420 | 630 | 860 |
| | 500V | [A] | 95 | 110 | 115/140❷ | 140(180)❶ | 210 | 250 | 300 | 420 | 630 | 753 |
| | 690V | [A] | 95 | 110 | 115/140❷ | 140(180)❶ | 210 | 250 | 300 | 420 | 492 | ❸ |
| | 1000V | [A] | 33 | 40 | 55 | 65 | 80 | 95 | 115 | 160 | ❸ | ❸ |
| | 230V | [kW] | 30 | 34 | 45 | 57 | 67 | 80 | 97 | 135 | 200 | 250 |
| | 240V | [kW] | 31 | 36 | 47 | 60 | 70 | 83 | 101 | 141 | 200 | 250 |
| | 400V | [kW] | 53 | 61 | 78 | 101 | 118 | 140 | 170 | 238 | 335 | 500 |
| | 415V | [kW] | 45(55)❶ | 63(75)❶ | 80(90)❶ | 105 | 122(132)❶ | 148(150)❶ | 174(185)❶ | 250 | 335 | 500 |
| | 500V | [kW] | 66 | 76 | 80(90)❷ | 98(126)❶ | 150 | 177 | 213 | 300 | 450 | 560 |
| | 600V | [kW] | 92 | 106 | 110/132❷ | 135(176)❶ | 205 | 250 | 300 | 425 | 500 | ❸ |
| | 1000V | [kW] | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 225 | ❸ | ❸ |
| **UL/CSA** | 115V | [A] | 80 | 100 | 135 | ~ | ~ | ~ | ~ | ~ | | |
| DOL & Reversing 1∅ | 230V | [A] | 68 | 110 | 136 | 176 | 216 | ~ | ~ | ~ | ❸ | ❸ |
| 60Hz | 115 V | [HP] | 7.5 | 10 | 15 | ~ | ~ | ~ | ~ | ~ | | |
| | 230 V | [HP] | 15 | 25 | 30 | 40 | 50 | ~ | ~ | ~ | | |
| | 200V | [A] | 78.2 | 120 | 120 | 150 | 177 | 221 | 285 | 414 | 552 | 692 |
| | 230 V | [A] | 80 | 104 | 130 | 154 | 192 | 248 | 312 | 420 | 602 | 720 |
| | 460 V | [A] | 77 | 96 | 124 | 180 | 180 | 240 | 302 | 414 | 590 | 702 |
| 3∅ | 575 V | [A] | 77 | 99 | 125 | 144 | 192 | 242 | 289 | 382 | 562 | 651 |
| | 200 V | [HP] | 25 | 40 | 40 | 50 | 60 | 75 | 100 | 150 | 200 | 250 |
| | 230 V | [HP] | 30 | 40 | 50 | 60 | 75 | 100 | 125 | 175 | 250 | 300 |
| | 460 V | [HP] | 60 | 75 | 100 | 150 | 150 | 200 | 250 | 350 | 500 | 600 |
| | 575 V | [HP] | 75 | 100 | 125 | 150 | 200 | 250 | 300 | 400 | 600 | 700 |
| **AC4** (200,000 Op. Cycles) | 230V | [A] | 43 | 50 | 60 | 67 | 85 | 105 | 140 | 170 | | |
| 50Hz | 240V | [A] | 43 | 50 | 60 | 67 | 85 | 105 | 140 | 170 | | |
| | 400/415V | [A] | 43 | 50 | 60 | 67 | 85 | 105 | 140 | 170 | ❸ | ❸ |
| | 500V | [A] | 43 | 50 | 60 | 67 | 85 | 105 | 140 | 170 | | |
| | 690V | [A] | 43 | 50 | 60 | 67 | 85 | 105 | 140 | 170 | | |
| | 1000V | [A] | 19 | 23 | 37 | 43 | 60 | 72 | 85 | 105 | | |
| | 230V | [kW] | 13 | 15 | 17 | 20 | 25 | 32 | 45 | 55 | | |
| | 240V | [kW] | 13 | 15 | 18.5 | 22 | 25 | 32 | 45 | 55 | | |
| | 400/415V | [kW] | 22 | 25 | 32 | 37 | 45 / 50 | 55 | 75 /80 | 90 / 100 | ❸ | ❸ |
| | 500V | [kW] | 25 | 32 | 40 | 45 | 55 | 75 | 100 | 110 | | |
| | 690V | [kW] | 40 | 45 | 55 | 63 | 80 | 100 | 132 | 160 | | |
| | 1000V | [kW] | 22 | 30 | 50 | 55 | 80 | 100 | 110 | 150 | | |
| Max. Operating Rate | | [ops/hr] | 120 | 120 | 120 | 100 | 120 | 100 | 70 | 70 | ❸ | ❸ |

❶ Values in ( ) represent ratings for AC3 & AC4 and result in reduced lifespan of 25%. Use 400V values for full life span.
❷ Second number is rating for the "-EI" model.
❸ Under test. Contact your Sprecher + Schuh representative.

SSNA9000

## Electrical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Switching Motor Loads** *(continued)* | | | | | | | | | | | | |
| **Wye-Delta (Star Delta)** | 230V | [A] | 165 | 191 | 242 | 312 | 364 | 433 | 520 | 727 | ~ | ~ |
| 50Hz | 240V | [A] | 165 | 191 | 242 | 312 | 364 | 433 | 520 | 727 | ~ | ~ |
| | 400V | [A] | 165 | 191 | 242 | 312 | 364 | 433 | 520 | 727 | ~ | ~ |
| | 415V | [A] | 165 | 100(132) | 242(268)❶ | 312(332) | 364(393)❶ | 433(447)❶ | 520(546)❶ | 727 | ~ | ~ |
| | 500V | [A] | 165 | 191 | 199 / 242❷ | 312 | 364 | 433 | 520 | 727 | ~ | ~ |
| | 690V | [A] | 165 | 191 | 199 / 242❷ | 312 | 364 | 433 | 520 | 727 | ~ | ~ |
| | 1000V | [A] | 55 | 69 | 95 | 113 | 139 | 165 | 200 | 277 | ~ | ~ |
| | 230V | [kW] | 45 | 55 | 75 | 90 | 110 | 132 | 160 | 220 | ~ | ~ |
| | 240V | [kW] | 50 | 63 | 80 | 100 | 125 | 150 | 160 | 250 | ~ | ~ |
| | 400V | [kW] | 80 | 100 | 132 | 160 | 200 | 250 | 300 | 425 | ~ | ~ |
| | 415V | [kW] | 80(90)❶ | 100(132)❶ | 132(160)❶ | 160 | 220 | 250 | 315(335)❶ | 425(450)❶ | ~ | ~ |
| | 500V | [kW] | 100 | 132 | 132 / 160❷ | 200 | 250 | 315 | 375 | 530 | ~ | ~ |
| | 690V | [kW] | 132 | 160 | 200 / 220❷ | 300 | 355 | 425 | 530 | 750 | ~ | ~ |
| | 1000V | [kW] | 75 | 90 | 132 | 160 | 200 | 220 | 280 | 400 | ~ | ~ |
| **60 Hz** | 200V | [HP] | 40 | 60 | 60 | 75 | 100 | 125 | 175 | 250 | ~ | ~ |
| | 230V | [HP] | 50 | 60 | 75 | 100 | 125 | 175 | 200 | 250 | ~ | ~ |
| | 460V | [HP] | 100 | 125 | 175 | 200 | 250 | 350 | 450 | 600 | ~ | ~ |
| | 575V | [HP] | 125 | 150 | 200 | 250 | 300 | 450 | 500 | 650 | ~ | ~ |
| **CSA Elevator Duty** | 200V | [HP] | 20 | 25 | 30 | 40 | 50 ❸ | ~ | ~ | ~ | ~ | ~ |
| Full voltage | 230V | [HP] | 25 | 30 | 40 | 50 | 50 ❸ | ~ | ~ | ~ | ~ | ~ |
| | 460V | [HP] | 50 | 60 | 75 | 100 | 125 ❸ | ~ | ~ | ~ | ~ | ~ |
| | 575V | [HP] | 60 | 75 | 75 | 100 | 125 ❸ | ~ | ~ | ~ | ~ | ~ |
| Wye-Delta | 200V | [HP] | 30 | 40 | 50 | 60 | 75 ❸ | ~ | ~ | ~ | ~ | ~ |
| | 230V | [HP] | 40 | 50 | 60 | 75 | 75 ❸ | ~ | ~ | ~ | ~ | ~ |
| | 460V | [HP] | 75 | 100 | 125 | 150 | 200 ❸ | ~ | ~ | ~ | ~ | ~ |
| | 575V | [HP] | 100 | 125 | 125 | 150 | 200 ❸ | ~ | ~ | ~ | ~ | ~ |
| **AC-1 Load, 3∅ Switching** | $I_{th}$ | [A] | 160 | 160 | 250 | 250 | 350 | 350 | 450 | 540 | 800 | 1000 |
| Ambient Temperature 40°C | 230V | [kW] | 64 | 64 | 100 | 100 | 139 | 139 | 179 | 215 | 319 | 398 |
| | 240V | [kW] | 67 | 67 | 104 | 104 | 145 | 145 | 187 | 224 | 333 | 416 |
| | 400V | [kW] | 111 | 111 | 173 | 173 | 242 | 242 | 312 | 374 | 554 | 693 |
| | 415V | [kW] | 115 | 115 | 180 | 180 | 252 | 252 | 323 | 388 | 575 | 719 |
| | 500V | [kW] | 139 | 139 | 217 | 217 | 303 | 303 | 390 | 468 | 693 | 866 |
| | 690V | [kW] | 191 | 191 | 299 | 299 | 418 | 418 | 538 | 645 | 956 | 1195 |
| | 1000V | [kW] | 277 | 277 | 433 | 433 | 606 | 606 | 779 | 935 | | |
| Ambient Temperature 60°C | $I_{th}$ | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ~ | ~ |
| | 230V | [kW] | 54 | 54 | 84 | 84 | 120 | 120 | 151 | 169 | ~ | ~ |
| | 240V | [kW] | 56 | 56 | 87 | 87 | 125 | 125 | 158 | 177 | ~ | ~ |
| | 400V | [kW] | 94 | 94 | 145 | 145 | 208 | 208 | 263 | 294 | ~ | ~ |
| | 415V | [kW] | 97 | 97 | 151 | 151 | 216 | 216 | 273 | 305 | ~ | ~ |
| | 500V | [kW] | 117 | 117 | 182 | 182 | 260 | 260 | 329 | 368 | ~ | ~ |
| | 690V | [kW] | 161 | 161 | 251 | 251 | 359 | 359 | 454 | 508 | ~ | ~ |
| | 1000V | [kW] | 234 | 234 | 364 | 364 | 520 | 520 | 658 | 736 | ~ | ~ |

❶ Values in ( ) represent ratings for AC3 & AC4 and result in reduced lifespan of 25%. Use 400V values for full life span.
❷ Rating CA6-140 / CA6-140-EI.
❸ CSA Elevator Duty test passed. Documentation pending.

## Electrical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Continuous Current (UL/CSA)** | | | | | | | | | | | | |
| General Purpose Rating (40°C) | Open | [A] | 178 | 178 | 250 | 250 | 350 | 350 | 420 | 500 | 760 | 1000 |
| | Enclosed | [A] | 160 | 160 | 220 | 220 | 300 | 300 | 340 | 420 | 630 | 860 |
| **Lighting Loads** | | | | | | | | | | | ❶ | ❶ |
| Elect.Dischrg.Lamps-AC-5a, | Open | [A] | 144 | 144 | 225 | 225 | 315 | 315 | 405 | 450 | | |
| single compensated | Enclosed | [A] | 122 | 122 | 189 | 189 | 270 | 270 | 342 | 383 | | |
| Incandescent Lamps - AC-5b | | [A] | 107 | 120 | 140 | 170 | 210 | 250 | 300 | 420 | | |
| **Switching power transformers AC-6a** | | | | | | | | | | | | |
| Inrush | | | | | | | | | | | | |
| Rated transformer current, $P_e$ | | | | | | | | | | | | |
| n=30 | 240VAC | [A] | 53 | 60 | 70 | 85 | 105 | 125 | 150 | 210 | | |
| | 230 VAC | [kVA] | 21 | 24 | 28 | 34 | 42 | 50 | 60 | 84 | | |
| | 240 VAC | [kVA] | 22 | 25 | 29 | 35 | 44 | 52 | 62 | 87 | | |
| | 400 VAC | [kVA] | 37 | 42 | 48 | 59 | 73 | 87 | 104 | 145 | ❶ | ❶ |
| | 415 VAC | [kVA] | 38 | 43 | 50 | 61 | 75 | 90 | 108 | 151 | | |
| | 500 VAC | [kVA] | 46 | 52 | 61 | 74 | 91 | 108 | 130 | 182 | | |
| | 690 VAC | [kVA] | 64 | 72 | 84 | 102 | 125 | 149 | 179 | 251 | | |
| | 1000 VAC | [kVA] | 92 | 104 | 121 | 147 | 182 | 217 | 260 | 364 | | |
| n = 20 | 690 VAC | [A] | 80 | 90 | 105 | 128 | 158 | 188 | 225 | 315 | | |
| n = 15 | 690 VAC | [A] | 107 | 120 | 140 | 170 | 210 | 250 | 300 | 420 | | |
| 60Hz Peak inrush/peak rated transformer | | | | | | | | | | | | |
| n = 30 | | [A] | 53 | 60 | 70 | 85 | 105 | 125 | 150 | 210 | | |
| | 200V | [kVA] | 18.4 | 20.8 | 24.1 | 29.4 | 34.4 | 43.3 | 52.0 | 72.2 | | |
| | 208V | [kVA] | 19.1 | 26.6 | 25.2 | 30.6 | 37.8 | 45.6 | 54.0 | 75.7 | | |
| | 240V | [kVA] | 22.0 | 24.9 | 21.1 | 38.3 | 43.6 | 52.6 | 62.4 | 81.3 | ❶ | ❶ |
| | 480V | [kVA] | 44.1 | 49.9 | 58.2 | 79.7 | 87.3 | 104 | 125 | 175 | | |
| | 600V | [kVA] | 55.1 | 62.4 | 72.7 | 88.3 | 101 | 130 | 156 | 218 | | |
| | 660V | [kVA] | 60.6 | 68.6 | 80.0 | 97.2 | 120 | 143 | 171 | 240 | | |
| 60Hz Peak inrush/peak rated transformer | | | | | | | | | | | | |
| n = 20 | | [A] | 80 | 90 | 105 | 128 | 158 | 188 | 225 | 315 | | |
| | 200V | [kVA] | 27.7 | 31.2 | 36.4 | 44.3 | 54.7 | 65.4 | 77.9 | 109 | | |
| | 208V | [kVA] | 28.8 | 32.4 | 37.8 | 46.1 | 56.3 | 67.7 | 84.4 | 113 | | |
| | 240V | [kVA] | 33.3 | 37.4 | 63.6 | 53.2 | 65.7 | 78.2 | 93.3 | 171 | ❶ | ❶ |
| | 480V | [kVA] | 66.5 | 74.8 | 87.3 | 106 | 131 | 156 | 187 | 262 | | |
| | 600V | [kVA] | 83.1 | 93.5 | 109 | 133 | 164 | 195 | 234 | 327 | | |
| | 660V | [kVA] | 91.5 | 103 | 120 | 146 | 131 | 215 | 257 | 360 | | |
| 60Hz Peak inrush/peak rated transformer | | | | | | | | | | | | |
| n = 15 | | [A] | 107 | 120 | 140 | 170 | 210 | 250 | 300 | 420 | | |
| | 200V | [kVA] | 39.1 | 46.6 | 48.5 | 58.3 | 72.7 | 86.6 | 104 | 145 | | |
| | 208V | [kVA] | 38.5 | 43.2 | 50.4 | 61.2 | 75.7 | 90.1 | 108 | 151 | | |
| | 240V | [kVA] | 44.5 | 43.9 | 58.2 | 70.7 | 87.3 | 104 | 125 | 175 | ❶ | ❶ |
| | 480V | [kVA] | 82.0 | 99.8 | 116 | 141 | 175 | 208 | 243 | 349 | | |
| | 600V | [kVA] | 111 | 125 | 145 | 177 | 218 | 260 | 312 | 436 | | |
| | 660V | [kVA] | 122 | 137 | 160 | 194 | 240 | 286 | 343 | 480 | | |

❶ Under test. Contact your Sprecher + Schuh representative.

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## Electrical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630(EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DC Ratings** | | | | | | | | | | | | |
| **DC-1 Rating at 60°C** | | | | | | | | | | | | |
| Non-inductive or slightly | 24VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ❶ | ❶ |
| inductive loads, resistive | 48VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| furnaces | 110VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| | 220VDC | [A] | 3 | 3 | 3.3 | 3.3 | 4.9 | 4.9 | 4.9 | 5.2 | | |
| 1 Pole | 440VDC | [A] | 0.6 | 0.6 | 1 | 1 | 1 | 1 | 1 | 1.2 | | |
| | 24VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| | 48VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| 2 Poles in Series | 110VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ❶ | ❶ |
| | 220VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| | 440VDC | [A] | 3 | 3 | 3.3 | 3.3 | 4.9 | 4.9 | 4.9 | 5.2 | | |
| | 24VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| | 48VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| 3 Poles in Series | 110VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ❶ | ❶ |
| | 220VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| | 440VDC | [A] | 11 | 11 | 11 | 11 | 14 | 14 | 14 | 15 | | |
| **DC-3 Rating at 60°C** | | | | | | | | | | | | |
| Shunt wound motors - | 24VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| Starting, reverse current | 48VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| breaking, reversing, stepping | 110VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ❶ | ❶ |
| | 220VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| 3 Poles in Series | 440VDC | [A] | 3 | 3 | 3.5 | 3.5 | 4.1 | 4.1 | 4.1 | 5.8 | | |
| **DC-5 Rating at 60°C** | | | | | | | | | | | | |
| Series wound motors - | 24VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| Starting, reverse current | 48VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| breaking, reversing, stepping | 110VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | ❶ | ❶ |
| | 220VDC | [A] | 135 | 135 | 210 | 210 | 300 | 300 | 380 | 425 | | |
| 3 Poles in Series | 440VDC | [A] | 1.2 | 1.2 | 2.1 | 2.1 | 2.4 | 2.4 | 2.4 | 3.0 | | |

❶ Under test. Contact your Sprecher + Schuh representative.

## Electrical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capacitor Ratings** | | | | | | | | | | | | |
| **Capacitor Switching - 50Hz** | | | | | | | | | | | | |
| Single Capacitor - 40°C | 230 V | [kVar] | 45 | 45 | 70 | 70 | 98 | 98 | 125 | 139 | ❶ | ❶ |
| | 240 V | [kVar] | 47 | 47 | 73 | 73 | 102 | 102 | 131 | 145 | | |
| | 400 V | [kVar] | 78 | 78 | 121 | 121 | 170 | 170 | 218 | 242 | | |
| | 415 V | [kVar] | 81 | 81 | 126 | 126 | 176 | 176 | 226 | 252 | | |
| | 500 V | [kVar] | 97 | 97 | 152 | 152 | 212 | 212 | 273 | 303 | | |
| | 690V | [kVar] | 134 | 134 | 209 | 209 | 293 | 293 | 376 | 418 | | |
| | 1000 V | [kVar] | 194 | 194 | 303 | 303 | 424 | 424 | 546 | 606 | | |
| Single Capacitor - 60°C | 230 V | [kVar] | 38 | 38 | 59 | 59 | 84 | 84 | 106 | 119 | | |
| | 240 V | [kVar] | 39 | 39 | 61 | 61 | 87 | 87 | 111 | 124 | | |
| | 400 V | [kVar] | 65 | 65 | 102 | 102 | 145 | 145 | 184 | 206 | | |
| | 415 V | [kVar] | 68 | 68 | 106 | 106 | 151 | 151 | 191 | 214 | ❶ | ❶ |
| | 500 V | [kVar] | 82 | 82 | 127 | 127 | 182 | 182 | 230 | 258 | | |
| | 690V | [kVar] | 103 | 103 | 176 | 176 | 251 | 251 | 318 | 356 | | |
| | 1000 V | [kVar] | 164 | 164 | 255 | 255 | 364 | 364 | 461 | 515 | | |
| Capacitor Bank- 40°C | 230 V | [kVar] | 42 | 45 | 70 | 70 | 98 | 98 | 125 | 139 | | |
| | 240 V | [kVar] | 43 | 47 | 73 | 73 | 102 | 102 | 131 | 145 | | |
| | 400 V | [kVar] | 44 | 56 | 78 | 111 | 170 | 170 | 218 | 212 | | |
| | 415 V | [kVar] | 44 | 56 | 76 | 112 | 170 | 176 | 226 | 252 | ❶ | ❶ |
| | 500 V | [kVar] | 44 | 56 | 76 | 113 | 172 | 212 | 273 | 303 | | |
| | 690V | [kVar] | 45 | 57 | 78 | 114 | 174 | 247 | 356 | 418 | | |
| | 1000 V | [kVar] | 46 | 58 | 79 | 116 | 177 | 251 | 361 | 606 | | |
| Capacitor Bank- 60°C | 230 V | [kVar] | 38 | 38 | 59 | 59 | 84 | 84 | 106 | 119 | | |
| | 240 V | [kVar] | 39 | 39 | 61 | 61 | 87 | 87 | 111 | 124 | | |
| | 400 V | [kVar] | 44 | 56 | 76 | 102 | 145 | 145 | 184 | 206 | | |
| | 415 V | [kVar] | 44 | 56 | 76 | 106 | 151 | 151 | 191 | 214 | ❶ | ❶ |
| | 500 V | [kVar] | 44 | 56 | 76 | 113 | 172 | 182 | 230 | 258 | | |
| | 690V | [kVar] | 45 | 57 | 78 | 114 | 174 | 247 | 318 | 356 | | |
| | 1000 V | [kVar] | 46 | 58 | 79 | 116 | 177 | 251 | 361 | 515 | | |
| **Capacitor Switching - 60Hz** | | | | | | | | | | | | |
| Single Capacitor - 40°C | 200 V | [kVar] | 39 | 39 | 61 | 61 | 85 | 85 | 109 | 121 | ❶ | ❶ |
| | 230 V | [kVar] | 45 | 45 | 70 | 70 | 88 | 88 | 125 | 133 | | |
| | 460 V | [kVar] | 83 | 83 | 139 | 139 | 195 | 195 | 251 | 273 | | |
| | 600V | [kVar] | 116 | 116 | 182 | 182 | 255 | 255 | 327 | 364 | | |
| Capacitor Bank- 40°C | 200 V | [kVar] | 39 | 39 | 61 | 61 | 85 | 85 | 103 | 121 | ❶ | ❶ |
| | 230 V | [kVar] | 42 | 45 | 70 | 70 | 98 | 98 | 125 | 135 | | |
| | 460 V | [kVar] | 44 | 56 | 76 | 112 | 131 | 195 | 254 | 279 | | |
| | 600V | [kVar] | 45 | 57 | 77 | 114 | 173 | 246 | 327 | 364 | | |

❶ Under test. Contact your Sprecher + Schuh representative.

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## Electrical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Short-Circuit Coordination** | | | | | | | | | | | | |
| **Contactors without Motor Protection Relays** | | | | | | | | | | | | |
| **DIn Fuses - gG, gL** | | | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | ~ | ~ |
| Type "1" | | [A] | 250(315) | 250(315) | 250(355) | 250(355) | 500 | 500 | 630 | 630 | ❶ | ❶ |
| Type "2" (380/400/415/690V) ❹ | | [A] | 200(250) | 200(250) | 200(315) | 200(315) | 400 | 400 | 500 | 500 | \| | \| |
| Type "2" (1000V) ❹ | | [A] | 200(250) | 200(250) | 200(315) | 200(315) | 400 | 400 | 500 | 500 | \| | \| |
| **cUL Short-Circuit Ratings** | | | | | | | | | | | | |
| **Class K1, RK1, K5, and RK5 Fuses (L Fuses)** | | | | | | | | | | | | |
| Available Fault Current | | [A] | 10 KA | 10 KA | 10 KA | 10 KA | 10 KA | 18 KA | 18 KA | 18 KA | 30 KA | 42 KA |
| cUL Max. Rating (600V) ❸ Type 1 | | [A] | 225 | 250 | 350 | 450 | 500 | L-700 | L-700 | L-1000 | L-2000 | L-2500 |
| **Class J CSA & HRCI-J Fuses ❷** | | | | | | | | | | | | |
| Available Fault Current | | [A] | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | 100 KA | ~ | ~ |
| cUL Max. Rating (600V) ❸ Type 2 | | [A] | 200 | 200 | 250 | 300 | 400 | 400 | 500 | 600 | ~ | ~ |
| **Circuit Breaker, inverse time ❺** | | | | | | | | | | | | |
| Available Fault Current | | [A] | 10 KA | 10 KA | 10 KA | 10 KA | 10 KA | 18 KA | 18 KA | 18 KA | 30 KA | 42 KA |
| cUL Max. Rating (600V) ❸ Type 1 | | [A] | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 500 | 1200 | 1200 |
| **Short Time Current Withstand Ratings** | | | | | | | | | | | | |
| $I_{cw}$ 60° C | 1 S | [A] | 1800 | 1800 | 1800 / 2550 ❷ | 2550 | 3405 | 3870 | 4725 | 6376 | ❶ | ❶ |
| | 4 S | [A] | 1500 | 1500 | 1800 / 1970 ❷ | 1970 | 3150 | 3870 | 4100 | 6376 | \| | \| |
| | 10 S | [A] | 1040 | 1040 | 1240 / 1360 ❷ | 1480 | 2760 | 2520 | 2840 | 4200 | \| | \| |
| | 15 S | [A] | 860 | 860 | 860 / 1130 ❷ | 1130 | 2000 | 2110 | 2270 | 3460 | \| | \| |
| | 60 S | [A] | 650 | 650 | 650 / 850 ❷ | 850 | 1215 | 1300 | 1500 | 1880 | \| | \| |
| | 240 S | [A] | 340 | 340 | 340 / 600 ❷ | 600 | 705 | 750 | 840 | 1280 | \| | \| |
| | 900 S | [A] | 240 | 240 | 250 / 440 ❷ | 440 | 460 | 500 | 590 | 840 | \| | \| |
| Off Time Between Operations | | [Min.] | 20 | 20 | 20 | 20 | 30 | 30 | 30 | 30 | \| | \| |
| **Resistance and Watt Loss** $I_e$ AC3 | | | | | | | | | | | | |
| Resistance per power pole | | [mΩ] | 0.4 | 0.4 | 0.42 | 0.42 | 0.22 | 0.22 | 0.18 | 0.15 | 0.19 | 0.14 |
| Watt Loss - 3 power poles | | [W] | 10.8 | 14.5 | 24.6 | 40.8 | 29.4 | 41.7 | 48.6 | 79.5 | 78.4 | 103.2 |
| Coil and 3 power poles | AC | [W] | 20.8(16.8) | 24.5(20.5)❷ | 34.6(30.6)❷ | 50.8(46.8)❷ | 35.4 | 47.7 | 54.6 | 89.5 | 105.4 | 133.2 |
| (@$I_{eAC3}$) | DC | [W] | 18.8(16.8) | 22.5(20.5)❷ | 32.6(30.6)❷ | 48.8(46.8)❷ | 35.4 | 47.7 | 54.6 | 87.5 | 105.4 | 133.2 |

❶ Under test. Contact your Sprecher + Schuh representative.
❷ Rating CA6-140 / CA6-140-EI.
❸ UL Listed Combination. (UL File E41850) Per UL508A, NEC409 and CSA 22.2 No.14 for contactor and fuses or circuit breaker only.
❹ Per IEC 60947-1 for contactor and fuses only.
❺ When used as a Branch Circuit Protection device, NEC 430-152 defines the maximum rating of an Inverse-time circuit breaker to be sized at 250% of the motor nameplate FLA for most applications.

## Short Circuit Ratings

**High Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14**

| CEP7 Second Generation Cat. No. | | Contactor Catalog No. | Max. starter FLC (A) | Fuse Ratings | | | UL Listed Circuit Breaker Ratings ❶ | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Max. available fault current (kA) | Max. voltage (V) | UL Class J and CSA HRCI-J fuse (A) | Short Circuit Rating (kA) | Max. Voltage (V) | Max. CB rating (A) |
| CEP7 | EEVF | CA6-95 | 90 | 100 | 600 | 200 | 10 | 600 | 125 |
| | EEHF | CA6-95 | 95 | | | 200 | | | |
| | | CA6-110<br>CAN6-110 | 110 | | | 200 | 10 | 600 | 150 |
| | | CA6-140 | 140 | | | 250 | 10 | 600 | 200 |
| | EEJF | CA6-180<br>CAN6-180 | 180 | | | 300 | 10 | 600 | 250 |
| | EEJG | CA6-210 | 200 | 100 | 600 | 400 | 10 | 600 | 300 |
| | | CA6-250 | 200 | | | 400 | 18 | 600 | 350 |
| | | CA6-300<br>CAN6-300 | 200 | | | 500 | 18 | 600 | 400 |
| | EEKG | CA6-210 | 210 | 100 | 600 | 400 | 10 | 600 | 300 |
| | | CA6-250 | 250 | | | 400 | 18 | 600 | 350 |
| | | CA6-300 | 300 | | | 500 | 18 | 600 | 400 |
| | EELG | CA6-300<br>CAN6-300 | 300 | 100 | 600 | 500 | 18 | 600 | 400 |
| | | CA6-420 | 420 | | | 600 | 18 | 600 | 500 |

**UL508 Tested Combination Assemblies - Motor Circuit Protector (HMCP per UL 489) - Magnetic Only ❷❸**

| Motor 3 ph [HP] | Eaton MCP Catalog Number (Max) | Magnetic Setting [A] | Contactor Catalog Number | Overload Relay Catalog Number | Rated Short-Circuit Current | | IEC Coordination Type |
|---|---|---|---|---|---|---|---|
| | | | | | 460 V 60 Hz (480 V line) | 575 V 60 Hz (600 V line) | |
| 75 | HMCPE100R3C | 3 - 10X | CA6-95-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❷ |
| 100 | HMCPE100R3C | 3 - 10X | CA6-110-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❷ |
| 125 | HMCPJ250L5L | 3 - 10X | CA6-140-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❷ |
| 150 | HMCPJ250L5L | 3 - 10X | CA6-180-11-* | CEP7-EEJF | 65kA | 30kA | Type 1 ❷ |
| 200 | HMCPJ250W5L | 3 - 10X | CA6-210-11-* | CEP7-EEKG | 65kA | 30kA | Type 2 |
| 250 | HMCP400X5W | 3 - 10X | CA6-250-11-* | CEP7-EEKG | 65kA | 30kA | Type 1 |
| 300 | HMCP400X5W | 3 - 10X | CA6-300-11-* | CEP7-EEKG | 65kA | 30kA | Type 1 |
| 400 | HMCPL600L6W | 3 - 10X | CA6-420-11-* | CEP7-EELG | 65kA | 30kA | Type 1 |

**UL508 Tested Combination Assemblies - Molded Case Circuit Breakers (MCCB per UL 489) - Thermal-Magnetic ❷❸**

| Motor 3 ph [HP] | Eaton MCCB Catalog Number (Max) | Magnetic Setting [A] | Contactor Catalog Number | Overload Relay Catalog Number | Rated Short-Circuit Current | | IEC Coordination Type |
|---|---|---|---|---|---|---|---|
| | | | | | 460 V 60 Hz (480 V line) | 575 V 60 Hz (600 V line) | |
| 60 | EGH3110FFG | 1100 | CA6-95-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❹ |
| 75 | EGH3110FFG | 1100 | CA6-110-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❹ |
| 100 | JGH3200* | 5 - 10X | CA6-140-11-* | CEP7-EEHF | 65kA | 30kA | Type 1 ❹ |
| 125 | JGH3200* | 5 - 10X | CA6-180-11-* | CEP7-EEJF | 65kA | 30kA | Type 1 ❹ |
| 150 | JGH3250* | 5 - 10X | CA6-210-11-* | CEP7-EEKG | 65kA | 30kA | Type 2 |
| 200 | HKD3400* | 5 - 10X | CA6-250-11-* | CEP7-EEKG | 65kA | 30kA | Type 1 |
| 250 | HKD3400* | 5 - 10X | CA6-300-11-* | CEP7-EEKG | 65kA | 30kA | Type 1 |
| 300 | LGH3600* | 5 - 10X | CA6-420-11-* | CEP7-EELG | 65kA | 30kA | Type 1 |

❶ Various Mfg. of UL Listed Circuit Breakers may be used.
❷ UL File pending approval at the time of this catalog printing. Refer to UL website at http://ul.com/controlequipment/shortcircuit.html.
❸ UL508 Tested combinations may not be substituted, ie: Eaton Breakers with Sprecher+Schuh contactors and overloads are specified.
❹ Type 2 Coordination when contactor is upsized to CA6-210.

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## Short Circuit Ratings

**IEC Short Circuit Ratings per EN60947-4-1**

| CEP7 Second Generation Cat. No. | | Prospective S.C. current, Ir (kA) | Conditional S.C. current, Iq (kA) | Max. voltage (V) |
|---|---|---|---|---|
| CEP7 | EEHF, EEJF, EEJG, EEKG | 1 | 100 | 690 |
| | EELG, EEMH | 1 | | |
| | EENH | 3<br>5 | | |
| | EEVF | 5 | | |

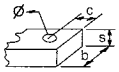
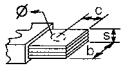
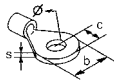
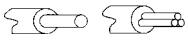
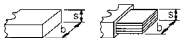
**Standard Fault Short Circuit Ratings per UL508 and CSA 22.2 No.14**

| CEP7 Second Generation Cat. No. | | Max. available fault current (kA) | Max. voltage (V) |
|---|---|---|---|
| CEP7 | EEVF | 10 | 600 |
| | EEHF | 10 | |
| | EEJG, EEKG, EELG | 18 | |
| | EEMH, EENH | 42 | |

**IEC Type 1 and Type II Fuse Coordination with CA7 Series contactors per EN60947-4-1**

| CEP7 Second Generation Cat. No. | | Contactor Cat. No. | Max. starter FLC (A) | Prospective S.C. current, Ir (kA) | Conditional S.C. current, Iq (kA) | Max. voltage (V) | Type I with Class J fuse (A) | Type II with Class J fuse (A) |
|---|---|---|---|---|---|---|---|---|
| CEP7 | EEVF | CA6-95 | 90 | 5 | 100 | 600 | 200 | 200 |
| | EEHF | CA6-95 | 95 | 10 | | | 200 | 200 |
| | | CA6-110 | 110 | | | | 200 | 200 |
| | | CA6-140 | 140 | | | | 250 | 250 |
| | EEJF | CA6-180 | 180 | | | | 300 | 300 |
| | EEJG | CA6-210 | 200 | | | | 400 | 400 |
| | | CA6-250 | 200 | | | | 400 | 400 |
| | | CA6-300 | 200 | | | | 500 | 500 |
| | EEKG | CA6-210 | 210 | | | | 400 | 400 |
| | | CA6-250 | 250 | | | | 400 | 400 |
| | | CA6-300 | 300 | | | | 500 | 500 |
| | EELG | CA6-300 | 300 | 18 | | | 500 | 500 |
| | | CA6-420 | 420 | | | | 600 | 600 |

## Mechanical Data

| | | | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Service Life** | | | | | | | | | | | | |
| Mechanical | AC | [Mil.] | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 2 | 2 |
| | DC | [Mil.] | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 2 | 2 |
| Electrical | AC-3 (400V) | [Mil.] | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | R/F | R/F |
| **Shipping Weights** | | | | | | | | | | | | |
| AC - CA6 | | [kg] | 3.3 (3.8) | 3.3 (3.8) | 3.3 (3.8) | 3.3 (3.8) | 7.5 | 7.5 | 7.5 | 7.5 | 28.6 | 28.6 |
| | | [Lbs] | 7.3 (8.4) | 7.3 (8.4) | 7.3 (8.4) | 7.3 (8.4) | 16.5 | 16.5 | 16.5 | 16.5 | 63 | 63 |
| AC - CAU6 | | [kg] | 8.9 (10.3) | 8.9 (10.3) | 10.3 | 10.3 | 18.5 | 18.5 | 18.5 | 18.5 | R/F | R/F |
| | | [Lbs] | 19.9 (23) | 19.9 (23) | 23 | 23 | 41.3 | 41.3 | 41.3 | 41.3 | R/F | R/F |
| DC - A6 | | [kg] | 3.3 (3.8) | 3.3 (3.8) | 3.3 (3.8) | 3.3 (3.8) | 7.5 | 7.5 | 7.5 | 7.5 | 28.6 | 28.6 |
| | | [Lbs] | 7.3 (8.4) | 7.3 (8.4) | 7.3 (8.4) | 7.3 (8.4) | 16.5 | 16.5 | 16.5 | 16.5 | 63 | 63 |
| DC - CAU6 | | [kg] | 8.9 (10.3) | 8.9 (10.3) | 10.3 | 10.3 | 18.5 | 18.5 | 18.5 | 18.5 | R/F | R/F |
| | | [Lbs] | 19.9(23) | 19.9(23) | 23 | 23 | 41.3 | 41.3 | 41.3 | 41.3 | R/F | R/F |
| **Terminations - Power** | | | | | | | | | | | | |
| Type | | |  |  |  |  |  |  |  |  |  |  |
| **Direct Connection** | | | | | | | | Hexagonal Bolt | | | | |
| | b max. | [mm] | 20 | | 25 | | | 30 | | | 52 | |
|  | c max. | [mm] | 10 | | 12.5 | | | 15 | | | 22 | |
|  | s max. | [mm] | 2 x 5 | | 2 x 5 | | | 2 x 6 | | | 2 x 8 | |
|  | Ø min. | [mm] | 6.1 | | 8.3 | | | 10.5 | | | 13 | |
| Recommended Torque | | [Nm] | 8...10 | | 10...12 | | | 16 | | | 68 | |
| | | [Lb-in] | 90 | | 250 | | | 250 | | | 400 | |
| **With Main Terminal Set (CA6-HB...)** | | | | | | | | | | | | |
|  | sm. opening | [mm²] | 16...35 | | 16...35 | | | 25...240 ❶ | | | ~ | |
| | lg. opening | [mm²] | 16...70 | | 16...95 | | | 25...240 ❶ | | | ~ | |
|  | sm. opening | [mm²] | 16...50 | | 16...50 | | | 25...300 | | | ~ | |
| | lg. opening | [mm²] | 16...95 | | 16...120 | | | 25...300 | | | ~ | |
| | b max. | [mm] | 16 | | 20 | | | 25 | | | ~ | |
|  | s. sm. opening | [mm] | 3...9 | | 3...9 | | | 6...20 | | | ~ | |
| | s. lg. opening | [mm] | 3...12 | | 3...14 | | | 6...20 | | | ~ | |
| Recommended Torque | | [Nm] | 8...10 | | 10...12 | | | 20...25 | | | ~ | |
| Wire Size per UL/CSA | sm. opening | [AWG] | #6...1 / 0 | | #6...1 / 0 | | | #4...600MCM | | | ~ | |
| | lg. opening | [AWG] | #6...3 / 0 | | #6...250MCM | | | #4...600MCM | | | ~ | |
| Recommended Torque | | [Lb-in] | 106 | | 124 | | | 220 | | | ~ | |

❶ Minimum 25mm² (#4 AWG) -95mm² (250mcm) with sleeve per DIN 46228.

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## Mechanical Data *(continued)*

| | | CA6 95…110 | CA6- 95-EI | CA6- 110-EI | CA6- 140(-EI) | CA6- 180(-EI) | CA6- 210-EI | CA6- 250-EI | CA6- 300-EI | CA6- 420-EI | CA6- 630-EI | CA6- 860-EI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **With Screw-type Lugs - Copper Clad (CA6-L…)** | | | | | | | | | | | | |
| Screw-type lugs accept round conductors only | | | | | | | | | | | | |
| **CA6-L110** | [AWG] | #8…#2 / 0 | | | ~ | | | ~ | | | ~ | ~ |
| Recommended Torque | [Lb-in] | 90 | | | ~ | | | ~ | | | ~ | ~ |
| **CA6-L180** | [AWG] | ~ | | | #6…300 MCM | | | ~ | | | ~ | ~ |
| Recommended Torque | [Lb-in] | ~ | | | 250 | | | ~ | | | ~ | ~ |
| **CA6-L420** | [AWG] | ~ | | | ~ | | | 2x #4…350 MCM | | | ~ | ~ |
| Recommended Torque | [Lb-in] | ~ | | | ~ | | | 250 | | | ~ | ~ |
| **CA6-L630** | [AWG] | ~ | | | ~ | | | ~ | | | 2 x 2 / 0… 500 MCM | ~ |
| Recommended Torque | [Lb-in] | ~ | | | ~ | | | ~ | | | 400 | ~ |
| **CA6-L860** | [AWG] | ~ | | | ~ | | | ~ | | | ~ | 4 x 2 / 0… 500 MCM |
| Recommended Torque | [Lb-in] | ~ | | | ~ | | | ~ | | | ~ | 400 |

### Terminations - Control

| | | | |
|---|---|---|---|
| Description | |  | |
| | | Combination Screw Head: Cross, Slotted, Pozidrive | |
| **Coils** | | | |
| Wires | 1 or 2 | [mm2] | 1...4 |
| | | [AWG] | 16...12 |
| Torque Requirement | | [Nm] | 1.4...2.3 |
| | | [Lb-in] | 12...20 |
| **Control Modules** | | | |
| Wires | 1 | [mm2] | 0.08...2.5 |
| | | [AWG] | 26...14 |
| **Degree of Protection - contactor** | | | IP00 per IEC 60529 and DIN 40 050 |
| **Type of Protection - with accessories** | | | |
| Single contactor cover | | | IP1X per IEC 60529 and DIN 40 050 |
| With main terminal set | | | IP2LX per IEC 60529 and DIN 40 050 |
| **Protection against accidental contact** | | | Finger and back-of-hand proof according to VDE 0106, Part 100 |

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## Coil Data

| | | | CA6-<br>95…180 | CA6-<br>95-EI…300-EI | CA6-<br>420-EI | CA6-<br>630-EI…860-EI |
|---|---|---|---|---|---|---|
| **Voltage Range** | | | Conventional Coil | "EI" Coil | "EI" Coil | "EI" Coil |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [x $U_s$] | 0.85…1.1 | 0.85 $U_s$ min…1.1 $U_s$ max | 0.85 $U_s$ min…1.1 $U_s$ max | 0.80 $U_s$ min…1.1 $U_s$ max |
| ❶ | Dropout | [x $U_s$] | 0.3…0.6 | 0.3 $U_s$ min…0.5 $U_s$ max | 0.3 $U_s$ min…0.5 $U_s$ max | 0.3 $U_s$ min…0.8 $U_s$ max |
| DC | Pickup | [x $U_s$] | 0.80…1.1 | 0.85 $U_s$ min…1.1 $U_s$ max | 0.85 $U_s$ min…1.1 $U_s$ max | 0.85 $U_s$ min…1.1 $U_s$ max |
| ❷ | Dropout | [x $U_s$] | 0.30…0.6 | 0.3 $U_s$ min…0.5 $U_s$ max | 0.3 $U_s$ min…0.5 $U_s$ max | 0.3 $U_s$ min…0.8 $U_s$ max |
| **Coil Consumption** | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [VA/W] | 650 / 310 | 380 / 240 | 490 / 270 | 1915 / 1720 |
| | Hold-in | [VA/W] | 50 / 10 | 13 / 6 | 18 / 7 | 33 / 30 |
| DC | Pickup | [W] | 540 ❸❹ | 265 ❸ | 340 ❸ | 1980 ❸ |
| | Hold-in | [W] | 8 | 6 | 7 | 30 |
| EI (B1-B2 24VDC Interface) | | [VA/W] | ~ | 15 ma | 15 ma | 15 ma |
| **Operating Times** | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | Pickup | [ms] | 20…47 | 20…45 | | 60…100 |
| | Dropout | [ms] | 6…12 | 25…110 | | 70…145 |
| with RC Suppressor | Dropout | [ms] | 9…18 | ~ | | ~ |
| DC | Pickup | [ms] | 27…47 | 25…50 | | 60…100 |
| with Integ. Suppression | Dropout | [ms] | 12…20 | 35…110 | | 70…145 |
| **Insulation Class** | | | Class "B" according to VDE 0660, Table 22 | | | |

### CA6-EI Application Notes for 24 volt AC/DC Electronic Coils

The CA6-EI 24 VAC or 24 VDC electronic coils are sensitive to voltage drops. These notes are provided to assist customers in control wiring methods and the selection of a power supply.

| | | | |
|---|---|---|---|
| < 10ms | $I_{peak}$ = | 25 amps | Start-up peak |
| < 100ms | $I_{mean}$ = | 11 amps | Pull-in values |
| > 100ms | $I_{hold}$ = | 0.5 amps | Average Hold-in values |

**Circuit operation**

- While the electronic coil is switching on, the power supply must deliver a peak of 25 amps. This period will not exceed 10ms.
- During the contactor closing period, the pull-in current of the coil drops to 11 amps. This period will not exceed 100ms.
- After approximately 80ms the demand of the electronic coil will be reduced to the holding value; which has an average of 0.5 amps.

**Power supply selection**

- Use peak value ($I_{peak}$) for the selection of the power supply.
- A regulated power supply is preferred.
- If an unregulated power supply is utilized then the no load value of the power supply must be less than 28 volts. Additional attention must be given to decrease the control wire resistance because unregulated power supplies have a high ripple voltage.

**Control Circuit Wiring**

To minimize wire resistance see the following:

- The wire gauge (cross-section) must be sufficient to allow a wire resistance of less than 150 milli-ohms for a regulated power supply and 100 milli-ohms for an unregulated power supply. For unregulated power supplies, 16 AWG can be used for runs up to 25 feet (longer for regulated power supply). Consult Sprecher + Schuh for additional information if longer runs are required.
- Stranded wire should be fitted with ferrules.
- Terminations should be tightened within the recommended torque values.
- If multiple CA6-EI contactors are used in the control circuit, the electronic coil terminations should be fed directly from the power supply (home runs). Do NOT parallel (jumper) multiple coil terminations. Switching of the home runs must be accomplished through separate (individual) contacts of a control relay or control device.

**A Recommendation**

A CA6 contactor used in the "EI" mode removes the burden of the coil from the 24 VDC power supply. The integrated electronic interface allows line voltage, or at least a higher AC voltage (i.e., 120V), to be applied to coil terminals A1 – A2, while the 24 VDC low level milli-ampere signal switches the B1 – B2 interface. The "EI" mode (method) has significant advantages over direct coil switching at 24 VDC. See the description of operation on the next page.

❶ CA6-95...CA6-110: Dual-frequency 50/60 Hz conventional coils will only work properly within the pick-up operating limits of 0.9...1.1x Us, deviating from the IEC-60947-Standards stating pick-up operating limits of 0.85...1.1 x Us.

❷ Dual frequency coils are not recommended for use with CA6-140...180 since voltages less than 1.0 x Us will not operate reliably.

❸ Customers with 24 VDC applications should consider using the "EI" functionality of the CA6 (see pages A121-122).

❹ Conventional DC coils are Two-Winding Coils. See page A122.

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## CA6 Electronic Coils *(CA6-95-EI…CA6-860-EI)*

CA6-EI contactors are supplied with an electronically controlled mechanism, which has an integrated electronic interface that consists of the following main parts:

- The coil bobbin rated for the control voltage.
- A printed circuit board with components for control and interface functions which is matched to the coil and rated for the control voltage.
- An interconnecting printed circuit board with coil terminals, which is located in the contactor base.
- R/C transient surge suppressors which are installed on the printed circuit board.

The CA6-EI coil bobbin and printed circuit board are a matched set; therefore, both must be changed when replacing the coil or changing out the coil to a different voltage. All replacement coils include both the coil bobbin and printed circuit board.

### *Commissioning*

The CA6-EI contactor is operated in either the "E" mode (normal operation) or the "EI" mode (electronic interface operation) and is programmed by an orange "jumper" located on the bottom side of the contactor (opposite the coil terminals). This orange jumper is directly underneath main terminal T2 and is exposed by removing the small plastic cover that shields the mating space for the CRC/CRV protection element.

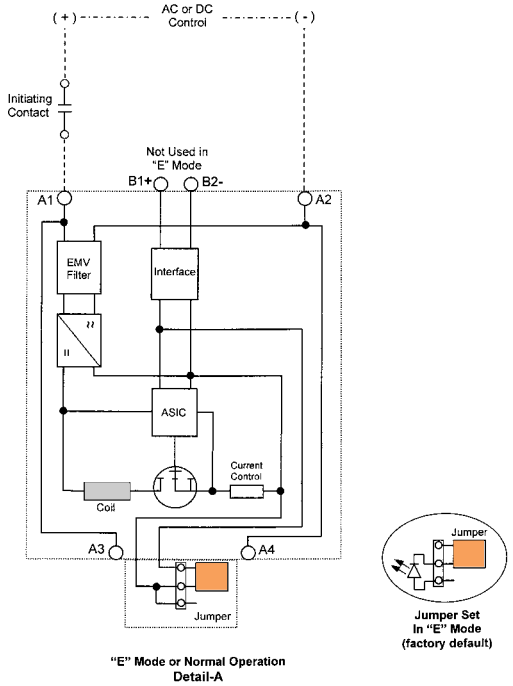
### *Electronic Operation – "E" Mode*

For the "E" mode (factory default setting), the contactor is connected and controlled using terminals A1 & A2 in the same manner as a traditional contactor with an electromechanical coil mechanism. The contactor is programmed from the factory in the "E" mode by means of the orange jumper in the position as shown in Detail A. The "E" mode (or electronic mode) provides electronic control of the coil mechanism, but does not allow coil energizing from a low level signal source such as a PLC.

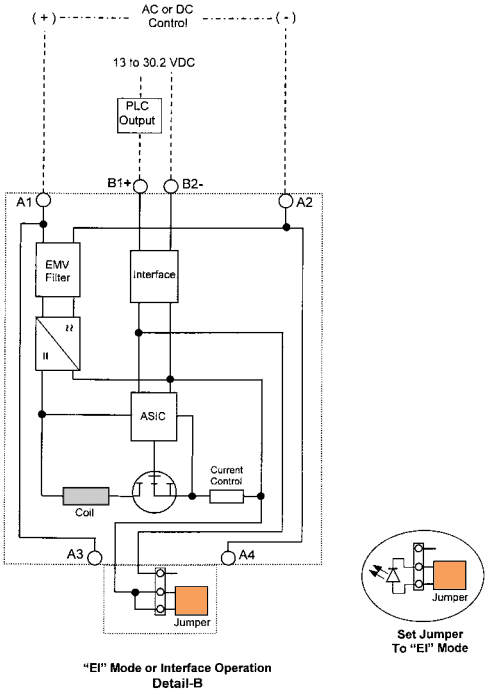
### *Electronic Interface Operation – "EI" Mode*

For the "EI" mode, or optional electronic interface setting, the contactor can be switched from a PLC or other low-level signal source (13…30.2 VDC) without the need for an interposing relay. The contactor is programmed for the "EI" mode by moving the orange jumper to the position as shown in Detail B.

In the "EI" mode, the control voltage (VAC or VDC) must be permanently switched on to terminals A1 & A2 while in operation. The control signal from the PLC or other low-level signal source must be applied to terminals B1 & B2 (orange terminals) of the electronic interface in order to energize the contactor. The current burden of the interface is 15mA maximum.




"E" Mode or Normal Operation
Detail-A




"EI" Mode or Interface Operation
Detail-B

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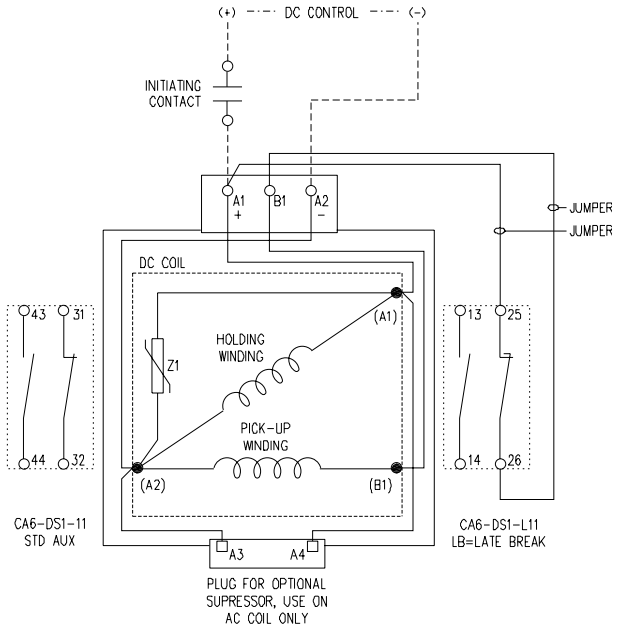
## CA6 Conventional DC Coil *(CA6-95…CA6-180)*

### Conventional 3-lead DC Coil




**Notes**

1) The CA6 conventional DC coil has dual windings with three leads brought out. One winding is the “pick-up” winding and the other is the “holding” winding. The coil also has a built-in voltage limiting varistor (Z1).
2) The pick-up winding has low resistance while the holding winding has a higher resistance.
3) When the control circuit is energized, the contactor “pulls-in” through the lower resistance pick-up winding and the NC late break auxiliary contact. After the contactor seals in, the late break contact opens and the contactor is held in through the holding winding.
4) The pick-up winding is not designed for continuous operation and must be disconnected by the “late break” contact immediately after the contactor pulls-in.

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## Environmental and General Specifications

| | CA6-95(-EI) | CA6-110(-EI) | CA6-140(-EI) | CA6-180(-EI) | CA6-210-EI | CA6-250-EI | CA6-300-EI | CA6-420-EI | CA6-630-EI | CA6-860-EI |
|---|---|---|---|---|---|---|---|---|---|---|
| **Ambient Temperature** | | | | | | | | | | |
| Storage | -55...+80˚C (-67...176˚ F) | | | | | | | | | |
| Operation at rated current | -25...+60˚C (-13...140˚ F) | | | | | | | | | |
| Conditioned 15% current reduction | -70˚ C (158˚ F) | | | | | | | | | |
| **Altitude at installed site** | 2000 meters above sea level per IEC 60947-1 | | | | | | | | | |
| **Resistance to Corrosion / Humidity** | Damp-alternating climate: cyclic to IEC 68-2, 56 cycles.<br>Dry heat: IEC 68-2, +100˚C (212˚F), relative humidity <50%, 7 days<br>Damp tropical: IEC 68-2, +40˚C (.104˚F), relative humidity <92%, 56 days. | | | | | | | | | |
| **Shock Resistance** | IEC 68-2: Half sinusoidal shock 11 ms, 4g (12g in all three directions) | | | | | | | | | |
| **Vibration Resistance** | IEC 68-2: Static >2g, in normal position | | | | | | | | | |
| **Operating Position** | See Dimensions | | | | | | | | | |
| **Standards** | IEC60947-4, BS 5424, VDE 0660 | | | | | | | | | |
| **Approvals** | CE, UL, CSA, Lloyd's Reg. of Shipping, SUVA, Germanischer Lloyd | | | | | | | | | |

## Auxiliary Contacts

| | | | Conventional auxiliary contacts | Suitable for electronic circuits |
|---|---|---|---|---|
| **Switching, AC & DC Loads** | | | | |
| AC-1 $I_{th}$ | at 40˚C | [A] | 16 | 0.1A at 250V |
| | at 60˚C | [A] | 12 | 0.1A at 250V |
| AC-15 at rated operating voltage of: | | [V] | 230 / 240 / 400 / 415 / 500 / 690 | |
| | | [A] | 5.5 / 5 / 3 / 2.5 / 1.6 / 1 | 1...100mA at 3...125V |
| DC-13, switching electromagnets at: | | [V] | 24 / 48 / 110 / 220 / 440 | |
| | | [A] | 5 / 2 / 0.7 / 0.25 / 0.12 | 1...100mA at 3...125V |
| **Short Circuit Protection - gG Fuse** | | | | |
| Type 2 Coordination | | [A] | 16 | 0.1 |
| **Rated Impulse Voltage** $U_{imp}$ | | [kV] | 8 | 1.5 |
| **Load carrying capacity per UL/CSA** | | | | |
| Rated Voltage | | [V] | 600 max. | 250V max. |
| Continuous Rating | | [A] | 10 general purpose | |
| Switching Capacity | | | Heavy pilot duty (A600) | 0.1A |
| Rated Voltage | | [V] | 600 max. | |
| Switching Capacity | | | Standard pilot duty (P600) | |
| Minimum Switching Capacity | | | 17V, 10mA | 17V, 5mA |
| **Terminals** | | | | |
| Terminal Type | | |  |  |
| | | | 1...2.5 | 1...2.5 |
| Maximum Wire Size per IEC 947-1 | | | 1...2.5 | 1...2.5 |
|  Flexible with Wire-End Ferrule | 1 Conductor | [mm²] | 1...4 | 1...4 |
| | 2 Conductor | [mm²] | | |
|  Solid/Stranded-Conductor | 1 Conductor | [mm²] | 1...4 | 1...4 |
| | 2 Conductor | [mm²] | | |
| Recommended Tightening Torque | | [Nm] | 1.4...2.3 | 1.4...2.3 |
| Max. Wire Size per UL/CSA | | [AWG] | 16...12 | 16...12 |
| Recommended Tightening Torque | | [lb-in] | 12...20 | 12...20 |
| **Degree of Protection** | IP2LX per IEC 529 and DIN 40 050 | | | |

## Contact Ratings *(Per UL508/NEMA A600 & Q600)*

| Standard | Circuit Voltage | Make (Amps/VA) | Break (Amps/VA) | Continuous Amps |
|---|---|---|---|---|
| A600 | 120AC<br>240AC<br>480AC<br>650AC | 60A/7200VA<br>30A/7200VA<br>15A/7200VA<br>12A/7200VA | 6A/720VA<br>3A/720VA<br>1.5/720VA<br>1.2/720VA | 10 |
| Q600 | 125DC<br>250DC<br>600AC | 0.55/69VA<br>0.27A/69VA<br>0.1A/69VA | 0.55A/69VA<br>0.27A/69VA<br>0.1A/69VA | 2.5 |

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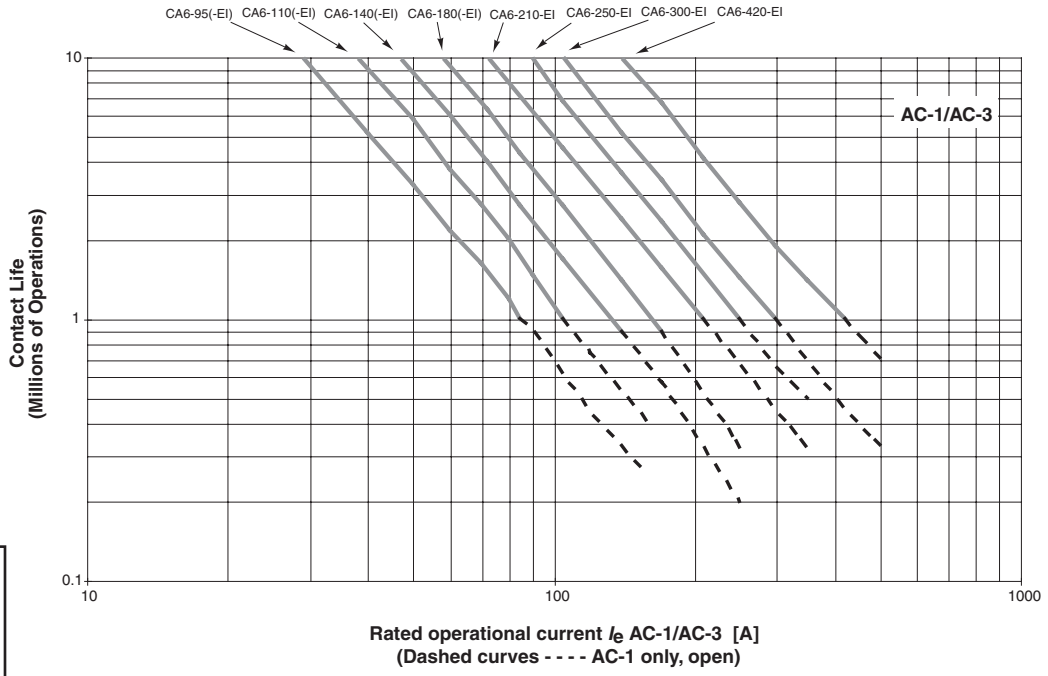
## Life-Load Curves

### AC-1 / AC-3

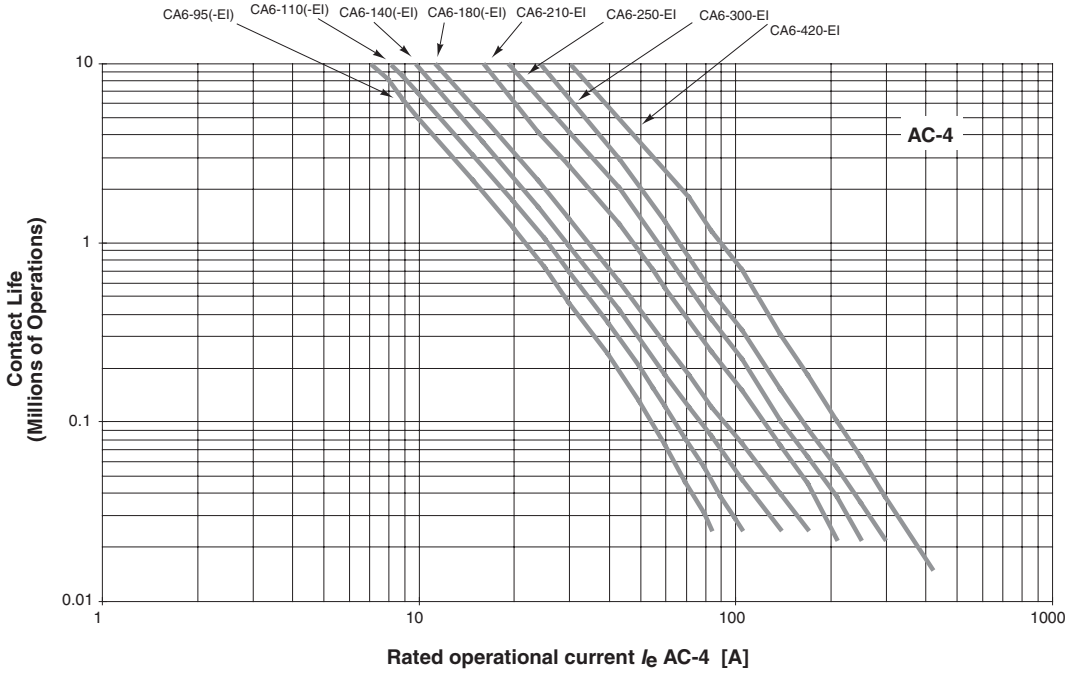
Non or slightly inductive loads, resistive furnaces; $U_e$=380...460 VAC ❶
Starting and stopping of running motors; $U_e$ = 380...460 VAC




***INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7***

### AC-4

Starting with inching and plugging; $U_e$=380...460 VAC ❶




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 460V applications use 90% of curve value.

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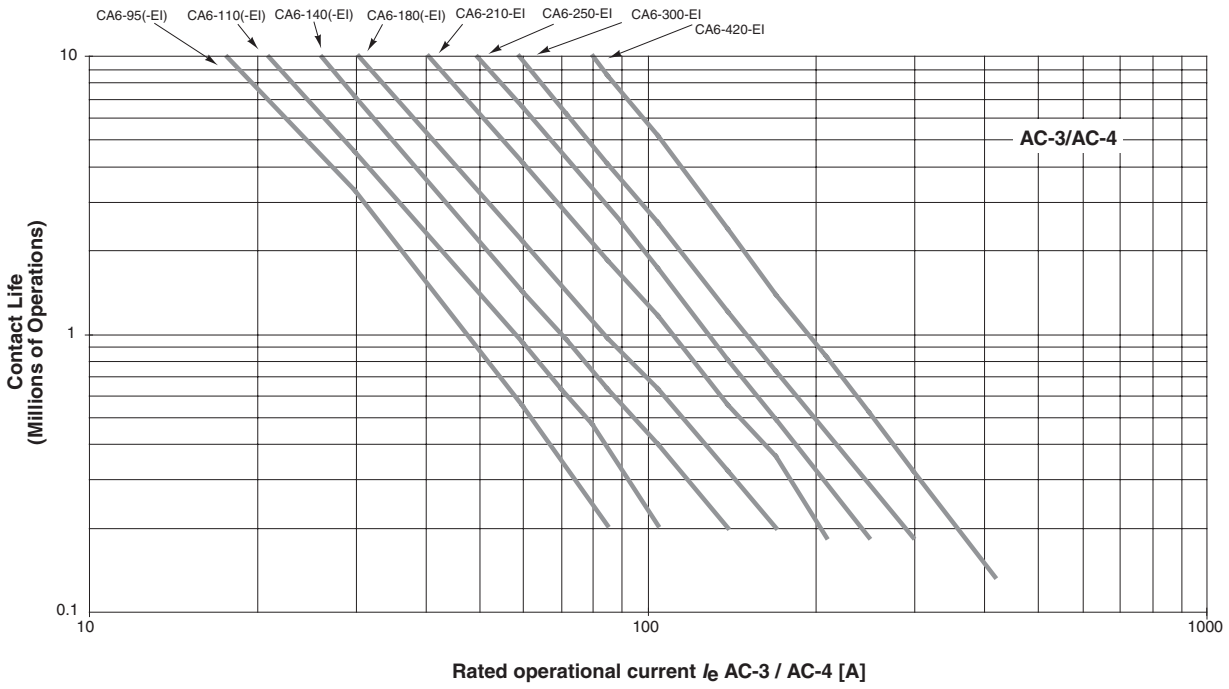
## Life-Load Curves

**Mixed operation of squirrel-cage motors; $U_e$ = 380...460 VAC ❶**
**AC-3 90% Starting and stopping of running motors**
**AC-4 10% Starting with inching or plugging**

**AC-3 (90%), AC-4 (10%)**




## Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

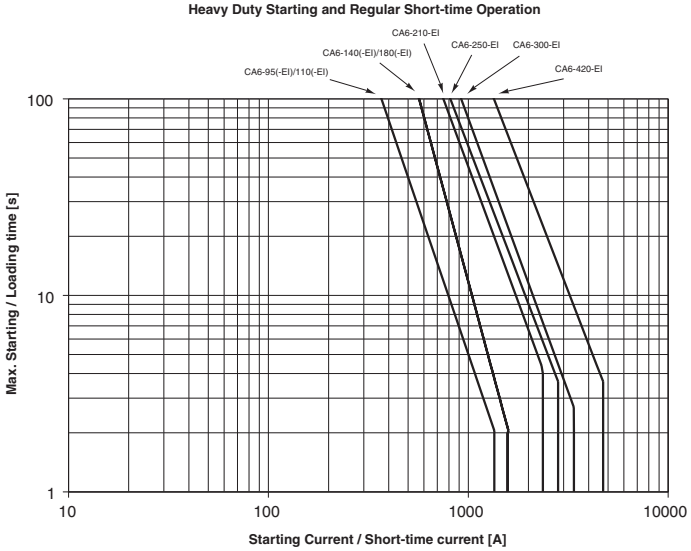
$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

$L_{mixed}$ Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

$L_{ac3}$ Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

$L_{ac4}$ Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

$P_{ac4}$ Percentage of AC-4 operations




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

❶ 460V applications use 90% of curve value.

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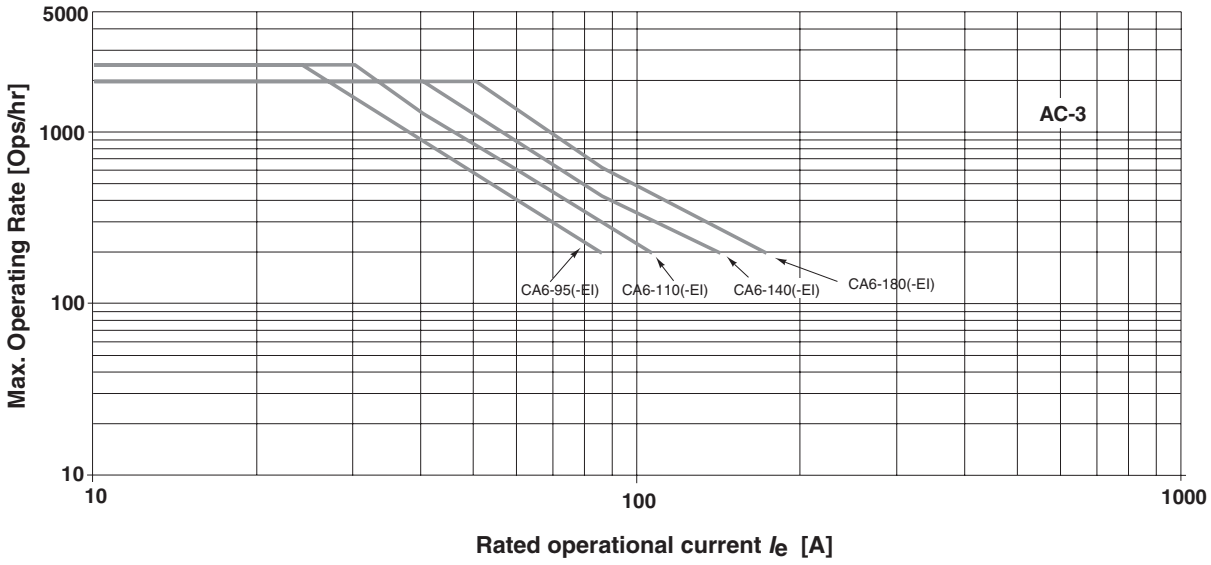
## Maximum Operating Rates

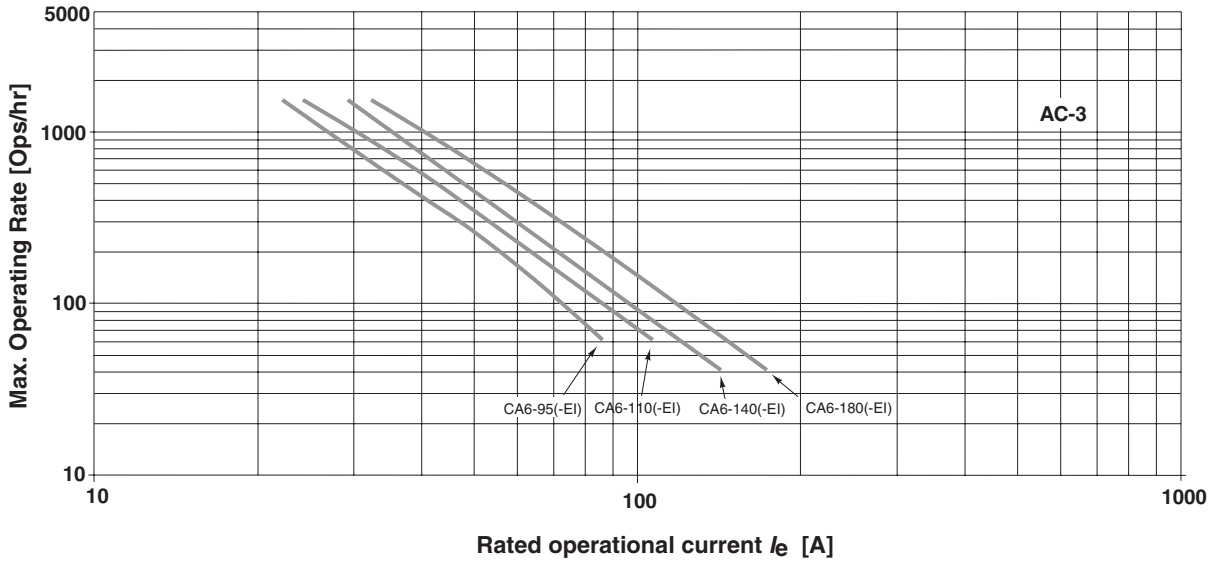
**AC-3**
250ms start time

**Squirrel cage motors; starting, switching off during running; $U_e$ = 380...460 VAC**
**250ms start time; 40% duty cycle**




**AC-3**
1 sec. start time

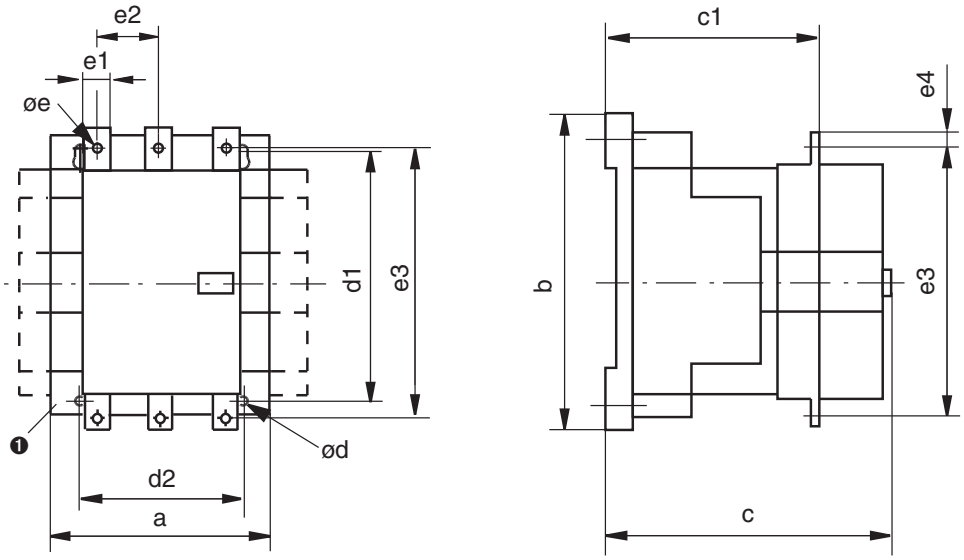
**Squirrel cage motors; starting, switching off during running; $U_e$ = 380...460 VAC**
**1s start time; 40% duty cycle**




SSNA9000

## Series CA6 & Series CAU6 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

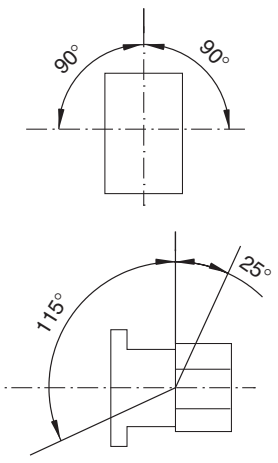



| Catalog Number | a | b | c | c1 | d | d1 | d2 | e | e1 | e2 | e3 | e4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CA6-95 & CA(N)6-110 | 120 (4-3/4) | 170 (6-11/16) | 156 (6-1/8) | 110.4 (4-11/32) | 5.2 (15/64) | 145 (5-11/16) | 100 (3-15/16) | M6 | 16 (5/8) | 38.5 (1-17/32) | 147 (5-51/64) | 8 (5/16) |
| CA6-95-EI; CA(N)6-110-EI; CA6-140(-EI); CA(N)6-180(-EI); | 120 (4-3/4) | 170 (6-11/16) | 156 (6-1/8) | 110.4 (4-11/32) | 5.2 (7/32) | 145 (5-11/16) | 100 (3-15/16) | M8 | 20 (13/16) | 39 (1-35/64) | 160 (6-19//64) | 10 (25/64) |
| CA6-210-EI…CA6-250-EI CA(N)6-300(-EI); CA6-420-EI | 155 (6-1/8) | 222 (8-23/32) | 180 (7-3/32) | 110.4 (4-11/32) | 6.5 (9/32) | 180 (7-3/32) | 130 (5-1/8) | M10 | 25 (1) | 48 (1-7/8) | 193 (7-19/32) | 12.5 (31/64) |
| CA6-630-EI…CA6-860-EI | 255 (10-3/64) | 337 (11-1/4) | 265 (10-7/16) | 110.5 (4-11/32) | 10 (25/64) | 230 (9-1/16) | 225 (8-55/64) | M12 | 40 (1-37/64) | 70 (2-3/4) | 291 (11-29/64) | 22 (55/64) |

**Reversing Contactors & Accessories (+...)**

| Contactor with... | CA6... | Dimension [mm] | Dimension [inches] |
|---|---|---|---|
| - auxiliary contact block ❶ | + P1 and /or P2 (DS1) | a | a |
| | + P3 or P4 (DS2) | a + 13.5 mm each | a + 9/32 each |
| - reversing w/mechanical interlock | | a + a | a + a |
| - main terminal set | HB1 | b + 7mm each | b + 19/64 each |
| | HB2 | b + 7mm each | b + 19/64 each |
| | HB3 | b + 8.5mm each | b + 11/32 each |
| - terminal cover | HA1 | b + 20...40mm each | b + 25/32...1-9/16 each |
| | HA2 | b + 15...40mm each | b + 19/32...1-9/16 each |
| | HA3 | b + 11...50mm each | b + 7/16...1-31/32 each |
| - label holder | | c + 5mm | c + 3/16 |

**Mounting Position**




❶ No change of base dimensions with 1 or 2 auxiliary contact blocks (P1, P2 or DS1).
Each dimension increased by 13.5 mm with 3 or 4 auxiliary contact blocks (P3, P4 or DS2).

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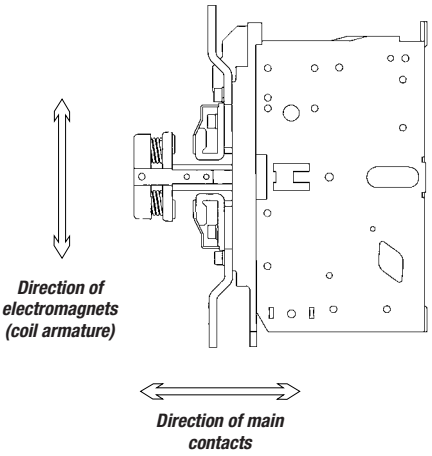
# Series CA5 Contactors

## The complete contactor for heavy industrial applications from 500HP to 900HP

CA5 Series contactors provide large horsepower performance with a design that is up to 40% smaller than traditional contactors of this rating. The entire line is modularly designed for easy inspection, contact replacement and coil change out. All maintenance can be performed from the front so that mounting can be accomplished with no wasted space on the sides.




## The contactor for large horsepower applications

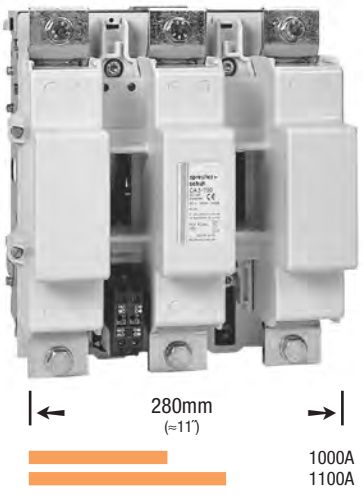
The CA5 series consists of four contactors in two frame sizes covering motors from 500 to 900 HP (at 460V/575V). This line is well suited for heavy industrial applications utilizing large machinery and equipment such as rock quarries and mines, or for any large horsepower application where a rugged and dependable contactor is needed.

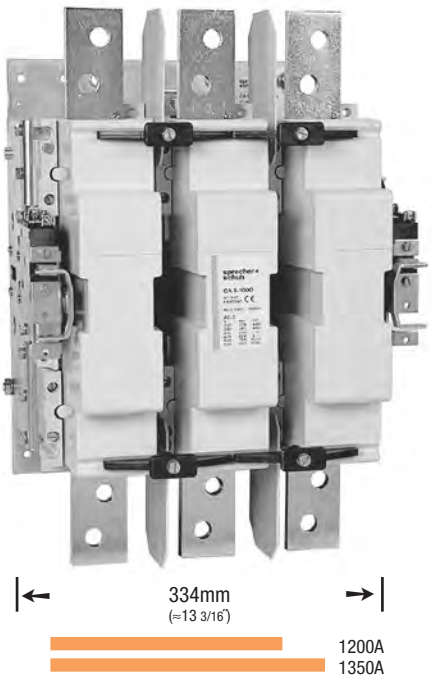
## Specially designed shock-free contact system

A characteristic of contactors in this size class is to transmit intense impact forces during operation. This is caused by the heavy magnetic armatures of the core, which can cause contact "bounce." CA5 contactors, however, are designed so that the operating planes of the electromagnets and the contacts are opposed to each other by 90°. This results in a bounce-free contact system, increasing the contactor's mechanical life and raising contact reliability.

## Rugged and reliable

A massive steel framework supporting the magnet system ensures high stability in all applications. Low-wear materials for bearings and sliding surfaces, as well as generously dimensioned magnet-pole faces result in above average mechanical life with a minimum of maintenance. Despite their rugged construction, overall contactor weight has been reduced considerably permitting simpler panel construction and easier assembly.




SSNA9000

## Unique coil "feeder group" offers many advantages

CA5-700 and 860 contactors are equipped with a special "feeder group" for the coil that accommodates AC control voltages of 50 or 60Hz, and a wide range of DC voltages.

This coil arrangement eliminates noise and provides very low pickup and hold-in current. In addition, the drop-out time of the coil can be adjusted within one of three ranges.

**Normal Drop** (150 to 200ms): for prompt reaction of contactor to a breaking command (factory setting).

**Delayed Drop** (0.5 to 1s): where it is necessary for the contactor to be immune to short power supply interruptions or uncertain control devices.

**Fast Drop** (about 20ms): for safety applications where instant dropout is required.

## Adjustable auxiliary contacts

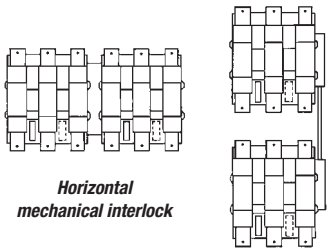
CA5 contactors can be equipped with a maximum of four NO and four NC auxiliary contacts. In addition, the closing time of the auxiliary contacts (on CA5-700 & 860 contactors) can be adjusted to meet individual control requirements.

## Add-on fourth pole

In many applications, the neutral also needs to be switched. All CA5 contactors can be fitted with a 4th pole on either the left or right side of the contactor. This switched neutral is available as an accessory that can easily be installed in the field.

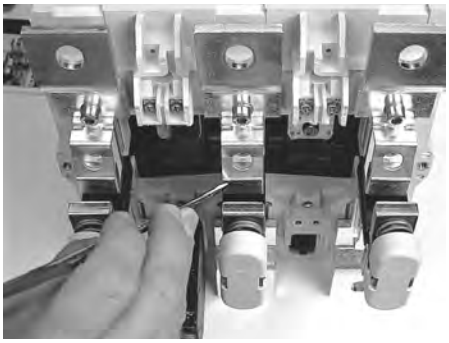
## Two choices for interlocking reversing contactors

Unique to the CA5 range is the ability to mechanically interlock reversing contactors in either a horizontal or vertical orientation. This feature allows maximum flexibility when laying out panels.



*Horizontal mechanical interlock*

*Vertical mechanical interlock*

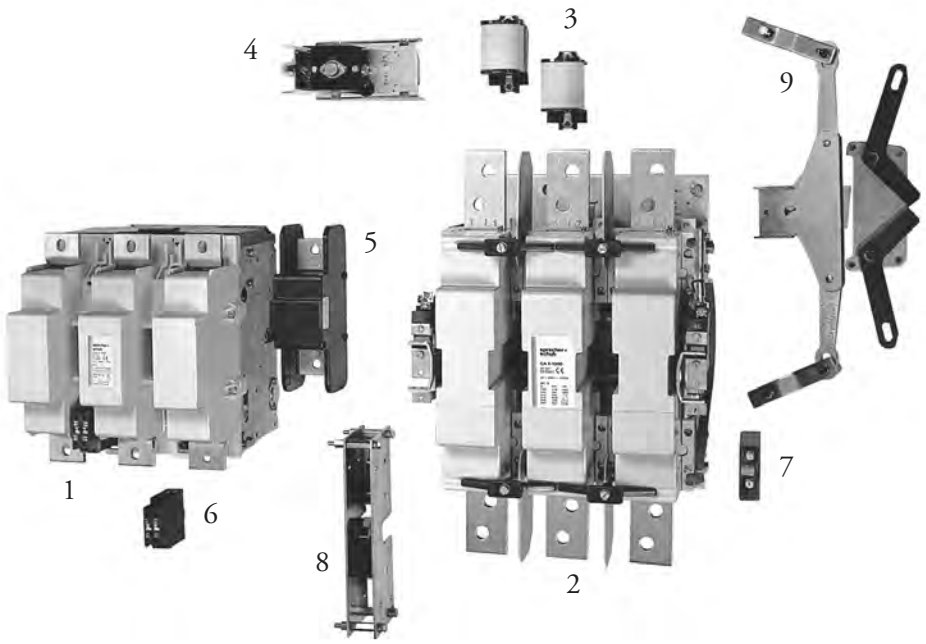


*Simple main contact inspection and easy coil change*

## Modular, convenient design

The CA5 line is modularly designed for easy inspection, coil change and contact replacement. Maintenance can be performed from the front so that mounting requires no additional space. Even with the installation of mechanical interlocks and auxiliary contact blocks, the units can be flush mounted side by side, saving panel space.

1 CA5-700 Contactor
2 CA5-1000 Contactor
3 Coil Pair
4 Feeder Group
5 4th Pole (Neutral Switching)
6 Auxiliary Contact Block
7 Auxiliary Contact Block
8 Mechanical Interlock (horizontal)
9 Mechanical Interlock (vertical)




*A full range of CA5 accessories is available, including a unique mechanical interlock that allows vertical mounting of contactors (see explanation above)*

SSNA9000

## Non-Reversing, Three Pole Contactors With AC or DC Coil, Series CA5 (Open type only) ❶❸❹

| $I_e$ [A] | | Ratings for Switching AC Motors (AC2 / AC3 / AC4) | | | | | | | | | | Auxiliary Contacts per Contactor | | Open Type | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | kW (50 Hz) | | | | | UL/CSA HP (60 Hz) ❸ | | | | | | | | |
| | | | | | | | 3 Ø | | | | | | | | |
| AC-3 | AC-1 | 230V | 400V 415V | 500V | 690V | 1000V | 200V | 230V | 460V | 575V | | NO | NC | Catalog Number ❶❸ | Price |
| 700 | 1000 | 220 | 400 | 500 | 630 | 500 | **200** | **250** | **500** | **500** | | 2 | 2 | CA5-700-22-✱ | **10425** |
| 860 | 1100 | 280 | 500 | 630 | 710 | 550 | **250** | **300** | **600** | **600** | | 2 | 2 | CA5-860-22-✱ | **12814** |
| 1000 | 1200 | 315 | 560 | 750 | 850 | ~ | **~** | **~** | **~** | **~** | | 1 | 2 | CA5-1000-12-✱ | **14900** |
| 1200 | 1350 | 375 | 710 | 850 | 1000 | ~ | **450** | **450** | **900** | **900** | | 1 | 2 | **CA5-1200-12-✱** | **17960** |

*CA5-700-22 contactor*

*CA5-1000-12 contactor*

***Note:*** CA5 open-type contactors include terminal bolts.
See page A132 for Lugs.

***See Section C for reversing CA5 contactors.***

## Coil Codes ❶❷

| CA5-700 / 860 | | | |
|---|---|---|---|
| AC & DC Coil Code | Voltage Range | | |
| | 50 Hz | 60 Hz | VDC |
| **120** | 110-120V | 110-120V | 100-110VDC |
| **240** | 220-240V | 220-240V | 200-220VDC |
| **380** | 380-415V | 380-415V | 345-380VDC |
| **480** | 440-480V | 440-480V | 400-440VDC |

| CA5-1000 / 1200 | | |
|---|---|---|
| AC Coil Code | Voltage Range | |
| | 50 Hz | 60 Hz |
| **110** | 110V | 110V |
| **220** | 220V | 220V |
| **380** | 380V | 380V |
| **440** | 440V | 440V |
| **480** | 440-480V | 440-480V |

❶ CA5-700 and 860 contactors are equipped with coils that operate with both AC and DC control voltages. CA5-1000 and 1200 contactors operate with AC control voltage input that is rectified for DC coil operation. See page A133. Consult factory for DC control voltage input.

❷ Other voltages available, see page A133. ***Non-standard coil voltages not listed here must be ordered and installed separately as renewal parts.***

❸ CA5-1000 horsepower ratings per IEC Utilization category AC-3. See CA5 Technical Data section for additional sizing information. Label does not bear a UL/CSA horsepower rating.

❹ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-700 has been replaced by CA6-630-EI. CA5-860 has been replaced by CA6-800-EI. These contactors are still available by special order if required for their higher AC1 ratings. See ratings in CA5 Technical Section.

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

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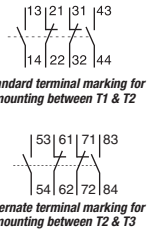
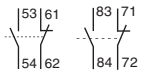
## Auxiliary Contact Blocks (2 & 4 Pole)

| Contact Block | Description | NO | NC | Contact Arrangement | For use with... | Catalog Number | Price |
|---|---|---|---|---|---|---|---|
|  *4-pole* | • For mounting between T1 & T2 or between T2 & T3<br>• Adjustable; provides normal, delayed or overlapping contacts ❶<br>• Maximum two blocks per contactor ❷<br>• Alternate terminal marking tags included | 2 | 2 |  *Standard terminal marking for mounting between T1 & T2*<br> *Alternate terminal marking for mounting between T2 & T3* | CA5-700<br>CA5-860 | **CA5-EF22** ❷ | **441** |
|  *2-pole* | • For side mounting on either side of the contactor<br>• Maximum four blocks per contactor ❸<br>• Alternate terminal marking tags included | 1 | 1 |  *Standard terminal marking*<br>  | CA5-1000<br>CA5-1200 | **CA5-EB11** ❸ | **698** |

## Switched Neutral (4th Pole)

| 4th Pole | 4th Pole Amperes | For use with... | Catalog Number | Price |
|---|---|---|---|---|
|  | 500 | CA5-700<br>CA5-860 | **CA5-NP500/6** | **1055** |
| | 900 | CA5-700<br>CA5-860 | **CA5-NP1000/6** | **1390** |
| | | CA5-1000<br>CA5-1200 | **CA5-NP1000/7** | **2094** |

❶ Further information on adjustable contacts can be found under "Auxiliary Contacts" in the CA5 Technical Section.
❷ Contactor comes standard with one 4-pole aux contact block.
❸ In addition to one standard two-pole auxiliary contact block (CA5-EB11), CA5-1000 & 1200 contactors are equipped from the factory with a special two pole auxiliary contact block (CA5-EB11DC). One of the poles is used for operation of the Feeder Group/Coil mechanism, the other NC contact is available for use. Two additional aux contact blocks may be added for a total of four.

## Main Lugs

| Lug or Accessory | Description | Wire Size | Catalog Number | Price |
|---|---|---|---|---|
|  | Screw Type Lugs - (set of 6) | | | |
| | For CA5-550 ❷ | (2) 2/0- 600MCM | **CA5-550-LU** | **335** |
| | For CA5-700 | (2) 3/0- 750MCM | **CA5-700-LU** | **419** |
| | For CA5-860 | (3) 2- 600MCM | **CA5-860-LU** | **1089** |
| | For CA5-1000 & CA5-1200 ❶ | (4) 1/0- 750MCM | **CA5-1200-LU** | **1256** |

## Mechanical Interlock Kit

| For Horizontal Mounting of Contactors | | | |
|---|---|---|---|
| **Interlock** | **For use with...** | **Catalog Number** | **Price** |
|  | CA5-700<br>CA5-860<br>CA5-700/CA5-860 | **CA5-BM6H** | **754** |
| | CA5-700/CA5-1000<br>CA5-700/CA5-1200<br>CA5-860/CA5-1000<br>CA5-860/CA5-1200 | **CA5-BM67H** | **2286** |
| | CA5-1000<br>CA5-1200<br>CA5-1000/CA5-1200 | **CA5-BM7H** | **1424** |
| **For Vertical Mounting of Contactors** | | | |
|  | CA5-700<br>CA5-860<br>CA5-700/CA5-860 | **CA5-BM6V** | **754** |
| | CA5-700/CA5-1000<br>CA5-700/CA5-1200<br>CA5-860/CA5-1000<br>CA5-860/CA5-1200 | **CA5-BM67V** | **2286** |
| | CA5-1000<br>CA5-1200<br>CA5-1000/CA5-1200 | **CA5-BM7V** | **1424** |

## Mechanical Latch

| Latch | For use with... | Catalog Number | Price |
|---|---|---|---|
|  | CA5-700<br>CA5-860 | **CA5-AM6-✱** | **1139** |

| CA5-AM | |
|---|---|
| **AC Coil Code** | Voltage Range |
| | 50 Hz / 60 Hz |
| **120** | 110V - 120V |
| **240** | 220V - 240V |
| **415** | 380V - 415V |
| **480** | 440V - 480V |
| Replace ✱ with Coil Code | |

❶ CA5-1000 is not UL Listed.

❷ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

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All CA5 contactor coils are made up of two parts; the Coil Pair and Feeder Group. When ordering replacement parts, usually assume the Coil Pair must be replaced. If control voltage changes, user must order Coil Pair and matching Feeder Group.

Even though all CA5 coils are designed for AC ***input*** (DC input also available for CA5-550…860 contactors), they are operated by a DC voltage ***supplied*** from a "feeder group". Always order by the Coil Code matched to the **actual control voltage available to the contactor.**

Further information on CA5 coil pairs and feeder groups can be found in CA5 Technical Information.

## AC & DC Coil Pairs & Feeder Groups (CA5-550 to CA5-860) ❶❷❸

| Voltage Range | COIL CODES | CA5-550 ❶ | | CA5-700 & CA5-860 | |
|---|---|---|---|---|---|
| | | Coil Pair | Feeder Group | Coil Pair | Feeder Group |
| 110-120V 50/60Hz 100-110VDC | **120** | **22.807.301-10** | **22.807.204-10** | **22.809.301-10** | **22.809.204-10** |
| 220-240V 50/60Hz 200-220VDC | **240** | **22.807.301-13** | **22.807.204-13** | **22.809.301-13** | **22.809.204-13** |
| 380-415V 50/60Hz 345-380VDC | **380** | **22.807.301-16** | **22.807.204-16** | **22.809.301-16** | **22.809.204-16** |
| 440-480V 50/60Hz 400-440VDC | **480** | **22.807.301-18** | **22.807.204-18** | **22.809.301-18** | **22.809.204-18** |
| **Price** | | **1017** | **1102** | **1256** | **1312** |

## AC Coil Pairs & Feeder Groups (CA5-1000 & CA5-1200) ❷❸

| Voltage Range | AC COIL CODES | CA5-1000 & CA5-1200 | |
|---|---|---|---|
| | | Coil Pair | Feeder Group |
| 110 Volts 50/60Hz | **110** | **22.811.301-10** | **22.811.204-10** |
| 220 Volts 50/60Hz | **220** | **22.811.301-13** | **22.811.204-13** |
| 230 Volts 50/60Hz | 230 | **22.811.301-14** | **22.811.204-14** |
| 380 Volts 50/60Hz | **380** | **22.811.301-16** | **22.811.204-16** |
| 400 Volts 50/60Hz | 400 | **22.811.301-31** | **22.811.204-31** |
| 440 Volts 50/60Hz | **440** | **22.811.301-18** | **22.811.204-18** |
| 440-480 Volts 50/60Hz | 480 | **22.811.301-19** | **22.811.204-19** NEW |
| **Price** | | **1982** | **3819** |

## DC Coil Pairs & Feeder Groups (CA5-1000 & CA5-1200) ❷❸

| Voltage Range | DC COIL CODES | CA5-1000 & CA5-1200 | |
|---|---|---|---|
| | | Coil Pair | Feeder Group |
| 110 Volts DC | **110D** | **Refer to factory** | **Refer to factory** |
| 220 Volts DC | **220D** | **Refer to factory** | **Refer to factory** |
| 440 Volts DC | NEW **480D** | **Refer to factory** | **Refer to factory** |
| **Price** | | **Refer to factory** | **Refer to factory** |

*CA5 Coil Pair (typical)*

*CA5 Feeder Group - front view (typical)*

*CA5 Feeder Group - rear view (typical)*

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ Other voltages available. Please contact factory.

❸ CA5-550, 700 and 860 contactors are equipped with coils that operate with both AC and DC control voltages. For DC coil operation, select AC Coil Code for desired DC voltage. CA5-1000 and 1200 contactors operate with AC control voltage input that is rectified for DC coil operation. See page A139. Consult factory for DC control voltage input.

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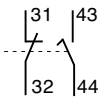
## Main Contact - (1 Pole Per Set)

| Main Contacts (1pole) *(typical)* | For use with... | Catalog Number | Price per pole |
|---|---|---|---|
|  | CA5-550 ❶ | 22.807.202-01 | 1089 |
| | CA5-700 | **22.808.202-01** | **1200** |
| | CA5-860 | **22.809.202-01** | **1400** |
| | CA5-1000 | **22.810.202-01** | **2200** |
| | CA5-1200 | **22.811.202-01** | **2500** |

## Arc Chutes

| Arc Chutes *(typical)* | For use with... | Catalog Number | Price |
|---|---|---|---|
|  3-pole (1 per contactor) | CA5-550 ❶ | 22.807.201-01 | 850 |
| | CA5-700 | **22.808.201-01** | **975** |
| | CA5-860 | **22.809.201-01** | **975** |
|  1-pole (3 per contactor) | CA5-1000 | **22.810.201-01** | **400** |
| | CA5-1200 | **22.811.201-01** | **400** |

## Replacement Auxiliary Contact Block (CA5-1000 & CA5-1200)

| Contact Block | Description | NO | NC | Contact Arrangement | For use with... | Catalog Number | Price |
|---|---|---|---|---|---|---|---|
|  | ● One supplied standard with contactor<br>● Special two pole design; 1 NO delayed make, 1 NC<br>● NO delayed make contact used for operation of the Feeder Group/Coil mechanism | 1 ***Delayed Make*** | 1 |   | CA5-1000<br>CA5-1200 | **CA5-EB11DC** | **771** |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

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## Technical Information

| | | | CA5-550 ❶ | CA5-700 ❸ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|
| **Rated Insulation Voltage $U_i$** | | | | | | | |
| to IEC947-1 | | [V] | 1000V | 1000V | 1000V | 690V | 690V |
| UL/CSA | | [V] | | | 600V | | |
| **Rated Impulse Voltage $U_{imp}$** | | | | | | | |
| CA5-550 / 700 / 860 | | [kV] | | | 3.5 | | |
| CA5-1000 / 1200 | | [kV] | | | 2.5 | | |
| **Rated Voltage Ue-Main Contacts** | | | | | | | |
| AC 50/60Hz | | [V] | | | 220/230, 240, 380/400,415,500,660/690 (1000V - CA5-550 to 860) | | |
| DC | | [V] | | | 24, 48, 110, 220, 440V | | |
| **Operating Frequency for AC Loads** | [Hz] | 50/60Hz | | | 180/hr. for 0.25s start time - 42/hr. for 1s start time | | |
| **Switching Motor Loads** | | | | | | | |
| **Standard IEC Ratings** | | | | | | | |
| **AC-2, AC-3** | 230/240V | [A] | 550 | 700 | 860 | 1000 | 1200 |
| DOL & Reversing | 400/415V | [A] | 550 | 700 | 860 | 1000 | 1200 |
| 50Hz/60° C | 500V | [A] | 550 | 700 | 860 | 1000 | 1200 |
| | 690V | [A] | 500 | 630 | 700 | 860 | 1000 |
| | 230V | [kW] | 179 | 228 | 280 | 326 | 391 |
| | 240V | [kW] | 187 | 238 | 293 | 340 | 408 |
| | 400V | [kW] | 312 | 414 | 509 | 592 | 710 |
| | 415V | [kW] | 324 | 430 | 528 | 628 | 737 |
| | 500V | [kW] | 407 | 518 | 636 | 756 | 888 |
| | 690V | [kW] | 510 | 657 | 730 | 897 | 1043 |
| **UL/CSA** | 200V | [A] | 414 | 552 | 692 | ~ | 1185 |
| DOL & Reversing | 230V | [A] | 360 | 602 | 722 | ~ | 1130 |
| 60Hz | 460 V | [A] | 414 | 590 | 708 | ~ | 1062 |
| 3∅ | 575 V | [A] | 336 | 472 | 576 | ~ | 864 |
| | 200 V | [HP] | 150 | 200 | 250 | ~ | 450 |
| | 230 V | [HP] | 150 | 250 | 300 | ~ | 450 |
| | 460 V | [HP] | 350 | 500 | 600 | ~ | 900 |
| | 575 V | [HP] | 350 | 500 | 600 | ~ | 900 |
| **AC4** -200,000 Op. Cycles | 230/240V | [A] | 140 | 180 | 210 | 260 | 300 |
| 50Hz | 400/415V | [A] | 140 | 180 | 210 | 260 | 300 |
| | 500V | [A] | 125 | 155 | 190 | 240 | 275 |
| | 690V | [A] | 110 | 145 | 165 | 180 | 210 |
| | 1000V | [A] | 95 | 120 | 145 | ~ | ~ |
| | 230V | [kW] | 45 | 57 | 67 | 83 | 97 |
| | 240V | [kW] | 47 | 60 | 70 | 87 | 101 |
| | 400V | [kW] | 78 | 101 | 118 | 146 | 170 |
| | 415V | [kW] | 81 | 105 | 122 | 151 | 176 |
| | 500V | [kW] | 86 | 106 | 132 | 170 | 195 |
| | 690V | [kW] | 100 | 135 | 155 | 165 | 190 |
| | 1000V | [kW] | 130 | 170 | 205 | ~ | ~ |
| **AC4** -200,000 Op. Cycles (25,000) | 230/240V | [A] | 360 | 430 | 520 | (630) | (700) |
| Squirrel-cage motors with reversing | 400/415V ❸ | [A] | 350 | 420 | 520 | (630) | (700) |
| and jogging | 230V | [kW] | 116 | 139 | 170 | (205) | (228) |
| | 240V | [kW] | 120 | 151 | 177 | (214) | (245) |
| | 400V | [kW] | 198 | 238 | 295 | (357) | (414) |
| | 415V | [kW] | 206 | 247 | 300 | (359) | (424) |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

❸ At rated voltage (415V) and rated current: Life span –25%.

## Electrical Data

| | | | CA5-550 ❶ | CA5-700 ❷ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|
| **Switching Motor Loads** (continued) | | | | | | | |
| **Wye-Delta (Star Delta)** | 230V | [A] | 953 | 1212 | 1490 | 1732 | 2078 |
| 50 Hz | 240V | [A] | 953 | 1212 | 1490 | 1732 | 2078 |
| | 400V | [A] | 953 | 1212 | 1490 | 1732 | 2078 |
| | 415V | [A] | 953 | 1212 | 1490 | 1732 | 2078 |
| | 500V | [A] | 953 | 1212 | 1490 | 1732 | 2078 |
| | 690V | [A] | 831 | 1091 | 1195 | 1490 | 1732 |
| | 230V | [kW] | 310 | 395 | 485 | 565 | 677 |
| | 240V | [kW] | 324 | 412 | 507 | 589 | 707 |
| | 400V | [kW] | 540 | 717 | 882 | 1025 | 1250 |
| | 415V | [kW] | 561 | 745 | 915 | 1088 | 1278 |
| | 500V | [kW] | 705 | 897 | 1102 | 1309 | 1538 |
| | 690V | [kW] | 883 | 1138 | 1247 | 1554 | 2078 |
| 60 Hz | 230V | [HP] | 250 | 400 | 500 | 650 | 750 |
| | 460V | [HP] | 600 | 800 | 1000 | 1300 | 1500 |
| | 575V | [HP] | 600 | 800 | 1000 | 1500 | 1500 |
| **AC-1 Load, 3∅ Switching** | $I_{th}$ | [A] | 760 | 1000 | 1100 | 1200 | 1350 |
| Ambient Temperature 40° C | 230V | [kW] | 303 | 398 | 438 | 478 | 538 |
| | 240V | [kW] | 316 | 416 | 457 | 499 | 561 |
| | 400V | [kW] | 527 | 693 | 762 | 831 | 935 |
| | 415V | [kW] | 546 | 719 | 791 | 863 | 970 |
| | 500V | [kW] | 658 | 866 | 953 | 1039 | 1169 |
| | 690V | [kW] | 908 | 1195 | 1315 | 1434 | 1613 |
| | 1000V | [kW] | 1316 | 1732 | 1905 | ~ | ~ |
| Ambient Temperature 60° C | $I_{th}$ | [A] | 605 | 800 | 870 | 960 | 1085 |
| | 230V | [kW] | 241 | 319 | 347 | 382 | 432 |
| | 240V | [kW] | 251 | 333 | 362 | 399 | 451 |
| | 400V | [kW] | 419 | 554 | 603 | 665 | 752 |
| | 415V | [kW] | 435 | 575 | 625 | 690 | 780 |
| | 500V | [kW] | 524 | 693 | 753 | 831 | 940 |
| | 690V | [kW] | 723 | 956 | 1040 | 1147 | 1297 |
| | 1000V | [kW] | 1048 | 1386 | 1507 | ~ | ~ |
| **Continuous Current (UL/CSA)** | | | | | | | |
| General Purpose Rating (40° C) | | [A] | 520 | 700 | 810 | ~ | 1215 |
| **Rated Making Capacity** | 415V | [A] | 5500 | 7000 | 8600 | 10000 | 12000 |
| AC-3 $I_e$ | 500V | [A] | 5500 | 7000 | 8600 | 10000 | 12000 |
| | 690V | [A] | 5500 | 7000 | 8600 | 10000 | 12000 |
| **Rated Breaking Capacity** | 240V | [A] | 4400 | 5600 | 6900 | 8000 | 9600 |
| AC-3 $I_e$ | 400V | [A] | 4400 | 5600 | 6900 | 8000 | 9600 |
| | 415V | [A] | 4400 | 5600 | 6900 | 8000 | 9600 |
| | 500V | [A] | 4400 | 5600 | 6900 | 8000 | 9600 |
| | 690V | [A] | 4000 | 5100 | 5600 | 6900 | 8000 |
| **Short Circuit Protection of Contactors Without Overload Relay** | | | | | | | |
| Fuse gG (aM) Type 1 Coordination | 500V | [A] | (630) | 800 | 1000 | 1000 | 1250 |
| (per IEC 60947-4-1) | 690V | [A] | (630) | 800 | 1000 | 1000 | 1000 |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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## Electrical Data

| | | | | | CA5-550 ❶ | CA5-700 ❷ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|---|---|
| **DC Ratings** | | | | | | | | | |
| **DC-1 Rating at 60° C** | | | | | | | | | |
| Non-inductive or slightly | 1 pole | 24VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| inductive loads, resistive furnaces | | 48VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| | | 24VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| | | 48VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| | 2 Poles in Series | 110VDC | [A] | | 480 | 560 | 630 | 800 | 900 |
| | | 220VDC | [A] | | 315 | 400 | 450 | 500 | 600 |
| | | 24VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| | | 48VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| | 3 Poles in Series | 110VDC | [A] | | 480 | 560 | 630 | 800 | 900 |
| | | 220VDC | [A] | | 315 | 400 | 450 | 500 | 600 |
| **DC-3 Rating at 60° C** | | | | | | | | | |
| Shunt wound motors - | 3 Poles in Series | 24VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| Starting, reverse current | | 48VDC | [A] | | 605 | 800 | 870 | 960 | 1085 |
| breaking, reversing, stepping | | | | | | | | | |
| **DC-5 Rating at 60° C** | | | | | | | | | |
| Series wound motors - | 3 Poles in Series | 24VDC | [A] | | 605 | 800 | 870 | 900 | 1085 |
| Starting, reverse current | | 48VDC | [A] | | 605 | 800 | 870 | 900 | 1085 |
| breaking, reversing, stepping | | | | | | | | | |
| **Lighting Loads** | | | | | | | | | |
| Elec.Dischrg.Lamps-AC-5a, | Open | [A] | | | 450 | 570 | 700 | 850 | 1000 |
| single compensated | Enclosed | [A] | | | 360 | 460 | 550 | 660 | 800 |
| Incandescent Lamps - AC AC-5b, | | | | | | | | | |
| Electrical endurance ~100,000 operations | | [A] | | | 315 | 440 | 500 | 560 | 630 |
| **Switching power transformers AC-6a** | | | | | | | | | |
| Inrush = n x $I_e$ | | | | | | | | | |
| Rated transformer current | | | | | | | | | |
| | Inrush | 400 VAC | [A] | | 7410 | 3450 | 11700 | 13500 | 16200 |
| | | 400 VAC | [A] | | 259 | 330 | 405 | 470 | 570 |
| n=30 | | 400 VAC | [kVA] | | 179 | 228 | 280 | 325 | 395 |
| | | 500 VAC | [kVA] | | 224 | 226 | 350 | 407 | 493 |
| | | 690 VAC | [kVA] | | 281 | 355 | 395 | 485 | 563 |
| n=20 | | 400 VAC | [A] | | 389 | 495 | 608 | 700 | 850 |
| n=15 | | 400 VAC | [A] | | 660 | 660 | 810 | 945 | 1130 |
| Rated making Capacity | | | | | | | | | |
| AC-3 $I_e$ | | ≤415V | [A] | | 5,500 | 7,000 | 8,600 | 10,000 | 12,000 |
| | | 500V | [A] | | 5,500 | 7,000 | 8,600 | 10,000 | 12,000 |
| | | 690V | [A] | | 5,500 | 7,000 | 8,600 | 10,000 | 12,000 |
| Rated making Capacity | | | | | | | | | |
| AC-3 $I_e$ | | ≤240V | [A] | | 5,500 | 5,600 | 6,900 | 8,000 | 9,600 |
| | | 400V | [A] | | 4,500 | 5,600 | 6,900 | 8,000 | 9,600 |
| | | 415V | [A] | | 4,500 | 5,600 | 6,900 | 8,000 | 9,600 |
| | | 500V | [A] | | 4,500 | 5,600 | 6,900 | 8,000 | 9,600 |
| | | 690V | [A] | | 4,500 | 5,100 | 5,600 | 6,900 | 8,000 |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

## Electrical Data

| | | | CA5-550 ❶ | CA5-700 ❷ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|
| **Capacitor Ratings** | | | | | | | |
| **Capacitor Switching - 50Hz** | | | | | | | |
| Single Capacitor - 40°C | 230 V | [kVar] | 180 | 220 | 250 | 290 | 330 |
| | 240 V | [kVar] | 200 | 250 | 300 | 325 | 360 |
| | 400 V | [kVar] | 320 | 400 | 450 | 500 | 575 |
| | 415 V | [kVar] | 350 | 430 | 500 | 550 | 630 |
| | 500 V | [kVar] | 450 | 520 | 600 | 660 | 750 |
| | 690 V | [kVar] | 580 | 700 | 800 | 875 | 1000 |
| Single Capacitor - 55°C | 230 V | [kVar] | 150 | 180 | 220 | 275 | 325 |
| | 240 V | [kVar] | 170 | 200 | 260 | 300 | 350 |
| | 400 V | [kVar] | 280 | 330 | 400 | 460 | 550 |
| | 415 V | [kVar] | 300 | 360 | 450 | 500 | 600 |
| | 500 V | [kVar] | 360 | 420 | 540 | 600 | 720 |
| | 690 V | [kVar] | 500 | 580 | 720 | 800 | 950 |
| Capacitor Bank - 40°C | 230 V | [kVar] | 180 | 220 | 250 | 290 | 330 |
| | 240 V | [kVar] | 200 | 250 | 300 | 325 | 360 |
| | 400 V | [kVar] | 320 | 400 | 450 | 500 | 575 |
| | 415 V | [kVar] | 350 | 430 | 500 | 550 | 430 |
| | 500 V | [kVar] | 450 | 520 | 600 | 660 | 750 |
| | 690 V | [kVar] | 580 | 700 | 800 | 875 | 1000 |
| Capacitor Bank - 55°C | 230 V | [kVar] | 150 | 180 | 220 | 275 | 325 |
| | 240 V | [kVar] | 170 | 200 | 260 | 300 | 350 |
| | 400 V | [kVar] | 280 | 330 | 400 | 460 | 550 |
| | 415 V | [kVar] | 300 | 360 | 450 | 500 | 600 |
| | 500 V | [kVar] | 360 | 420 | 540 | 600 | 720 |
| | 690 V | [kVar] | 500 | 580 | 720 | 800 | 950 |
| **Short-Circuit Coordination** | | | | | | | |
| **Short Time Current Withstand Ratings** | | | | | | | |
| $I_{cw}$ 60°C | 1 s | [A] | 5500 | 7000 | 8000 | 10000 | 12000 |
| | 4 s | [A] | 5500 | 7000 | 8000 | 10000 | 12000 |
| | 10 s | [A] | 4400 | 5600 | 6900 | 8000 | 9600 |
| | 15 s | [A] | 3800 | 5000 | 6000 | 7400 | 8500 |
| | 60 s | [A] | 2300 | 2800 | 3400 | 4000 | 4800 |
| | 240 s | [A] | 1300 | 1800 | 2000 | 2300 | 2700 |
| | 900 s | [A] | 850 | 1150 | 1350 | 1600 | 1900 |
| Off Time Between Operations | | [Min.] | 60 | 60 | 60 | 60 | 60 |
| **Resistance and Watt Loss $I_e$ AC3** | | | | | | | |
| Resistance per power pole | | [mΩ] | 0.11 | 0.1 | 0.08 | 0.06 | 0.05 |
| Watt Loss - 3 power poles | | [W] | 99 | 147 | 177 | 180 | 216 |
| Coil and 3 power poles | AC | [W] | 110 | 172 | 202 | 250 | 286 |
| (including series resistor) | DC | [W] | 109 | 169 | 199 | 240 | 276 |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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## Electrical Data

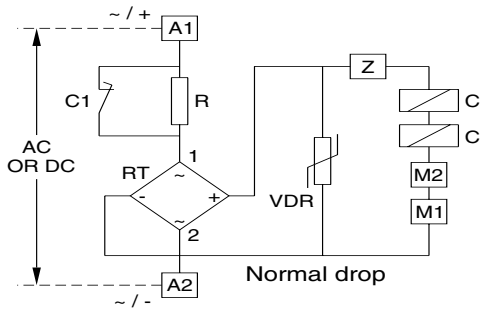
| | | | | CA5-550 | CA5-700 | CA5-860 | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|---|
| **Coil Data** | | | | | | | | |
| **Voltage Range** | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | | Pickup | [x$U_s$] | 0.85...1.1 | 0.85...1.1 | | 0.85...1.1 | |
| | | Dropout | [x$U_s$] | 0.2...0.5 | 0.20...0.75 | | 0.1...0.6 | |
| DC | | Pickup | [x$U_s$] | 0.85...1.1 | 0.85...1.1 | | 0.85...1.1 | |
| | | Dropout | [x$U_s$] | 0.2...0.5 | 0.20...0.75 | | 0.1...0.6 | |
| **Coil Consumption** | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | | Pickup | [VA] | 800...950 | 1350...1600 | | 2400 | |
| | | Hold-in | [VA] | 9...11 | 21...25 | | 70 | |
| DC | | Pickup | [VA] | 700...850 | 1350...1600 | | 2400 | |
| | | Hold-in | [W] | 8...10 | 21...25 | | 70 | |
| **Operating Times** | | | | | | | | |
| AC: 50Hz, 60Hz, 50/60 Hz | | Pickup | [ms] | 50...100 | 50...100 | | 50...100 | |
| | Normal | Dropout | [ms] | 150...200 | 150...200 | | 25...50 | |
| | Delayed | Dropout | [ms] | 500...1000 | 500...1000 | | ~ | |
| | Accelerated | Dropout | [ms] | 20...50 | 20...50 | | ~ | |
| DC | | Pickup | [ms] | 50...100 | 50...100 | | 50...100 | |
| | Normal | Dropout | [ms] | 150...200 | 150...200 | | 25...50 | |
| | Delayed | Dropout | [ms] | 500...1000 | 500...1000 | | ~ | |
| | Accelerated | Dropout | [ms] | 20...50 | 20...50 | | ~ | |
| **Insulation Class** | | | | | Class “B” to VDE 0660 table 22 | | | |

### *Control and Magnet System for CA5-700…CA5-860 Contactors*

Even though the ***input*** to the magnet system can either be AC or DC, the low pull-in and holding consumption of the magnet system is achieved by DC operating coils ***supplied*** by a “Feeder Group”. The Feeder Group for these contactors also allows delayed, normal or accelerated dropout times, selectable between 20ms and 1000ms.

Delayed: (500…1000ms)
Normal: (150…200ms)
Accelerated: (20…50ms)

As supplied, the contactors are wired for a normal dropout time. To compensate for wide voltage fluctuations or brief supply voltage interruptions, the dropout time can be delayed by wiring changes made to the Feeder Group at installation.



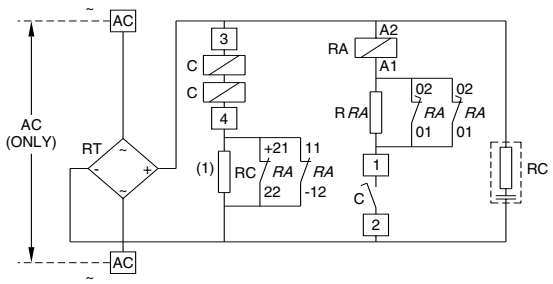

CA5-550 / 700 / 860
For AC or DC Control

***Coil Circuit for CA5-550, 700 & 860***
***AC or DC supply***

### *Control and Magnet System for CA5-1000…CA5-1200 Contactors*

Even though the ***input*** to the magnet system is only designed for AC voltages, the low pull-in and holding consumption of the magnet system is achieved by DC operating coils ***supplied*** by a “Feeder Group”. The Feeder Group for these contactors is configured for a dropout time of 25…50ms. Dropout times for these contactors are not selectable.

Further information regarding circuit possibilities can be obtained from assembly instructions supplied with each device.




CA5-1000 / 1200
For AC Control (Only)

***Coil Circuit for CA5-1000 & 1200***
***AC supply (only)***

**C:** Coil pair
**RA:** DC auxiliary relay coil for economy resistor switching
**R, RC, R*RA*:** Economy resistor
**VDR:** Varistor
**M1, M2:** Terminals for fast-drop connection
**Z:** Device for dropout operating time variation
**(1)** For control voltages up to 125V NC contacts 11-12 & 21-22 are connected in parallel; higher voltages are connected in series

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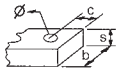
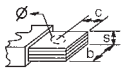
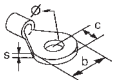
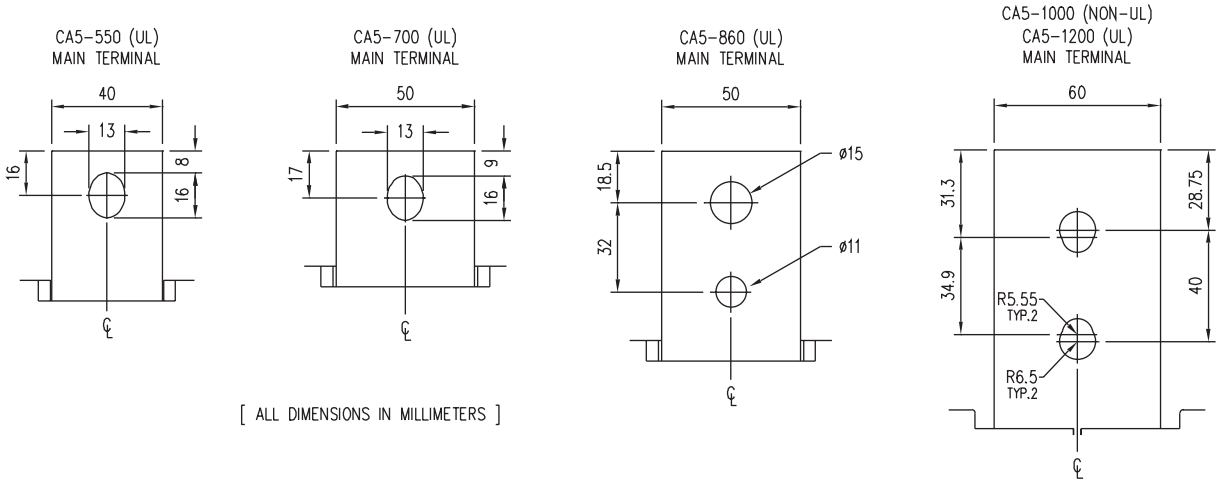
## Mechanical Data

| | | | CA5-550 ❶ | CA5-700 ❷ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|
| **Service Life** | | | | | | | |
| Mechanical | AC Control | [Mil.] | 5 | 5 | 5 | 1 | 1 |
| | DC Control | [Mil.] | 5 | 5 | 5 | 1 | 1 |
| Electrical | AC-3 (400V) | [Mil.] | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| **Shipping Weights** | | | | | | | |
| AC - CA5 | AC Control | [kg] | 13.8 | 26.4 | 28.4 | 50.3 | 53.4 |
| | DC Control | [Lbs] | 30.4 | 58.1 | 62.5 | 110.8 | 117.6 |
| AC - CAU5 | AC Control | [kg] | 28.5 | 53.9 | 57.9 | 102.3 | 108.5 |
| | DC Control | [Lbs] | 63.6 | 120.3 | 129.2 | 228.3 | 242.2 |
| **Terminations - Power** | | | | | | | |
| Type | | | |  | | | |
| | | | | | Hexagonal Bolt | | |
| Direct Connection (customer supplied connections) | | | | | | | |
|  | b max. | [mm] | 50 | 60 | 60 | 60 | 60 |
|  | c max. | [mm] | 20 | 20 | 25 | 25 | 25 |
| | s max. | [mm] | 2 x 5 | 2 x 5 | 2 x 6 | 2 x 6 | 2 x 8 |
|  | Ø min. | [mm] | | | Refer to CA5 stab dimensions below | | |
| Recommended Torque | | [Nm] | 50 | 60 | 75 | 60 | 60 |
| | | [Lb-ft] | 37 | 44 | 55 | 44 | 44 |

**CA5 Stab Dimensions**




[ ALL DIMENSIONS IN MILLIMETERS ]

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.

❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.

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## Mechanical Data *(continued)*

| | | | CA5-550 ❶ | CA5-700 ❷ | CA5-860 ❷ | CA5-1000 | CA5-1200 |
|---|---|---|---|---|---|---|---|
| **Terminations - Control** | | |  |  |  |  |  |
| Description | | | Combination Screw Head: Cross, Slotted, Pozidrive | | | | |
| Coils | 1 or 2 | [mm2] | 4 | | | | |
| Wires | | [AWG] | 25 | | | | |
| Control Modules | 1 or 2 | [mm2] | 4 | | | | |
| Wires | | [AWG] | 25 | | | | |
| Torque Requirement | | [Nm] | 1...2.5 | | | | |
| | | [Lb-in] | 8.9...22 | | | | |
| **Degree of Protection - contactor** | | | IP00 (open) per IEC 529 and DIN 40 050 | | | | |

## Environmental and General Specifications

| | | | | |
|---|---|---|---|---|
| **Rated Isolation Voltage $U_i$** | | | | |
| IEC, AS, BS, SEV, VDE 0660 | | [V] | 1000V | 690V |
| UL/CSA | | [V] | 600V | 600V |
| **Impulse Voltage - $U_{imp}$** | | | | |
| 1 minute per IEC 60947-1 | | [kV] | 3500V | 2500V |
| **Ambient Temperature** | | | | |
| Storage | | | -40...+80˚ C (-13...176˚ F) | |
| Operation at rated current | | | -25...+60˚ C (-13...140˚ F) | |
| Operation at 90% of rated current | | | -25...+60˚ C (-13...140˚ F) | |
| Operation at 85% of rated current | | | -25...+65˚C (-13...149˚F) | |
| **Altitude at installed site** | | | 2000 meters above sea level per IEC 60947-1 | |
| **Operating Frequency for AC Loads** | | | | |
| 50/60 Hz | | | 180/Hr. for 0.25, start time 42/ HR for 1s start time | |
| **Resistance to Corrosion / Humidity** | | | Damp-alternating climate: cyclic per DIN 50 016 and 40 046 Part 38 IEC 68<br>Dry heat: IEC 68-2, + 100˚C (212˚ F), relative humidity ,50%, 7 days<br>Damp tropical: IEC 68-2, +40˚C (104˚F), relative humidity 95%, 56 days ❸ | |
| **Operating Position** | | | See dimensions page | |
| **Standards** | | | UL (CA5-700, 860, 1200); IEC 60947-4; VDE 0660; NEMA; ICS BS 5424; UTE NF C 63-110 | |
| **Approvals** | | | Lloyd's registry of shipping, CE, UL, cUL | |

❶ The CA5-550 has been replaced by the CA6-420-EI contactor. CA5-550 contactors are still available by special order if required for their higher AC1 ratings.
❷ The CA5-700 & 860 has been replaced by the CA6-630 & 860 contactor. CA5-700 & 860 contactors are available by special order.
❸ Per DIN 50 016 and 40 046, part 38.

## Auxiliary Contacts

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Auxiliary Contact Block | | | | | | | Auxiliary Contact Blocks | | | | | | |
| **Switching, AC & DC Loads** | | | CA5-EF22 | | | | | | | CA5-EB11, CA5-EB11DC | | | | | | |
| AC-$I_{th}$ | at 40°C | [A] | 16 | | | | | | | 16 | | | | | | |
| | at 60°C | [A] | 12 | | | | | | | 12 | | | | | | |
| AC-15, switching electromagnetic loads at: | | [V] | 120 | 230 | 240 | 400 | 415 | 500 | 690 | 120 | 230 | 240 | 400 | 415 | 500 | 690 |
| | | [A] | 6 | 3 | 3 | 2 | 2 | 1.5 | 1 | 6 | 3 | 3 | 2 | 2 | 1.5 | 1 |
| DC-13, switching DC electromagnets at: | | [V] | | 24 | 48 | | 110 | 220 | | | 24 | 48 | | 110 | 220 | |
| | | [A] | | 6 | 3 | | 1 | 0.5 | | | 6 | 3 | | 1 | 0.5 | |
| **Short-Circuit Protection - gGFuse** | | | | | | | | | | | | | | | | |
| Type 2 Coordination | | [A] | 10 | | | | | | | 16 | | | | | | |
| **Terminals** | | | | | | | | | | | | | | | | |
| Terminal Type | | |  | | | | | | |  | | | | | | |
| Maximum Wire Size per IEC 947-1 | | | 2 x A4 | | | | | | | 2 x A4 | | | | | | |
|  | Flexible with Wire-End Fernule | 1 Conductor | [mm²] | 1...4 | | | | | | 0.5...2.5 | | | | | | |
| | | 2 Conductor | [mm²] | 1...4 | | | | | | 0.75...2.5 | | | | | | |
|  | Solid/Stranded-Conductor | 1 Conductor | [mm²] | 1.5...6 | | | | | | 0.5...2.5 | | | | | | |
| | | 2 Conductor | [mm²] | 1.5...6 | | | | | | 0.75...2.5 | | | | | | |
| Recommended Tightening Torque | | | [Nm] | 1...25 | | | | | | 1...1.5 | | | | | | |
| Max. Wire Size per UL/CSA | | | [AWG] | 16...10 | | | | | | 18...14 | | | | | | |
| Recommended Tightening Torque | | | [lb-in] | 8.9...22 | | | | | | 8.9...13.3 | | | | | | |
| **Degree of Protection** | | | IP2LX per IEC 529 and DIN 40 050 | | | | | | | | | | | | | |

## Mechanical Latch

| | | | CA5-AM5 | CA5-AM6 | CA5-AM7 |
|---|---|---|---|---|---|
| **Service Life** | | | | | |
| Mechanical | | [Mil ops.] | 0.5 | 0.5 | 0.5 |
| **Dropout Delay** | | | | | |
| Contactor Latch | | [ms] | 50...70 | 50...70 | 50...70 |
| **Trip Coil** | | | | | |
| Consumption | AC | [VA] | 950 | 1600 | 3500 |
| | DC | [W] | 500 | 800 | 3200 |
| OFF-command (min. impulse duration) | | [ms] | 200 | 200 | 200 |
| **Operation Voltage** | | | | | |
| Minimum | | | 0.5 $U_n$ | 0.5 $U_n$ | 0.5 $U_n$ |
| Maximum | | | 1.1 $U_n$ | 1.1 $U_n$ | 1.1 $U_n$ |

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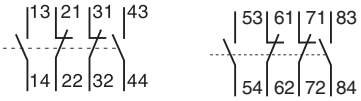
## Auxiliary Contacts

### *For CA5-700 & CA5-860 contactors*

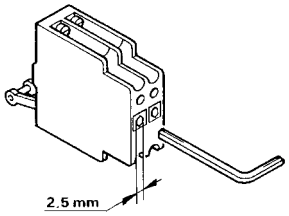
Up to two auxiliary contact blocks can be mounted on each contactor. One four-pole auxiliary contact block (CA5-EF22) is supplied standard and is installed on the contactor between T1 and T2. One additional auxiliary contact block can be installed between T2 and T3.

Each CA5-EF22 contains 2 NO and 2 NC adjustable auxiliary contacts. Standard terminal markings are shown below on the left. If an additional contact block is required, different terminal markings (right) are supplied and may be applied by the user.

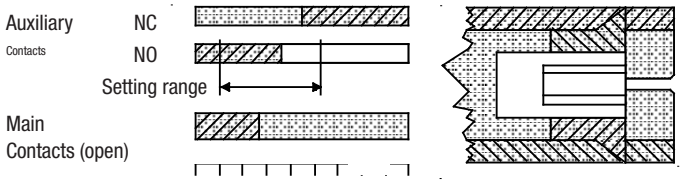



### *Adjustable Auxiliary Contacts*

The instant at which the NO contact closes, in relation to the main contacts, can be adjusted from the front of the CA5-EF22 auxiliary contact block by means of an Allen wrench. The following diagrams show the adjustments for Normal, Delayed and Overlapping auxiliary contacts.

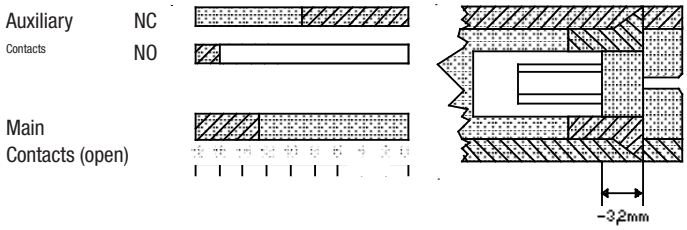



**Normal Setting** (from factory)



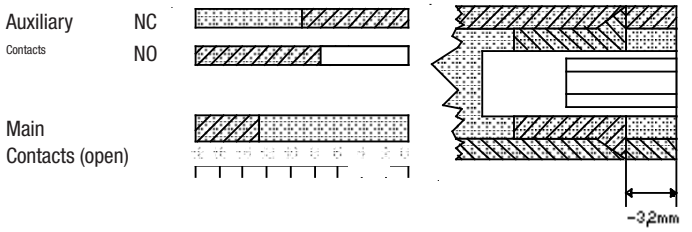

**Delayed NO Contact**

Adjusting screw after four turns to the right




**Overlapping NO and NC Contacts**

Adjusting screw after four turns to the left




### *For CA5-1000 and CA5-1200 contactors*

Up to four nonadjustable auxiliary contact blocks can be mounted on each contactor. One CA5-EB11 two pole aux contact and one CA5-EB11DC two pole aux contact come standard. The CA5-EB11DC has 1 NC contact (available) and 1 NO Delayed Make (unavailable) which is used for the operation of the coil feeder group.

CA5-EB11 – 1 NO/1NC
CA5-EB11DC – 1 NO Delayed Make/1 NC

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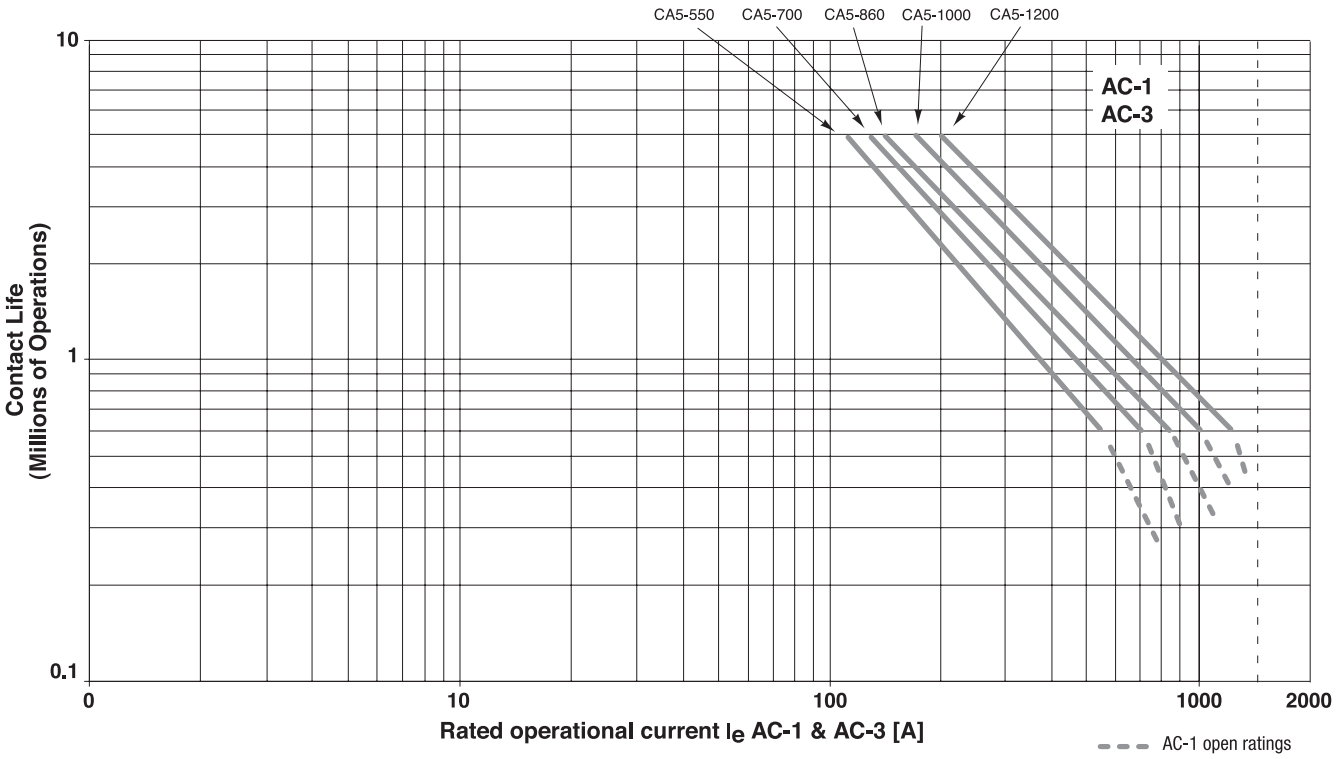
## Life-Load Curves

AC-1
AC-3




**AC-1 - Non or slightly inductive loads, resistive furnaces; $U_e$=380...460 VAC**
**AC-3 - Switching squirrel-cage induction motors during starting; $U_e$=380...460 VAC**

***INSTRUCTIONS ON "HOW TO READ" LIFE CURVES CAN BE FOUND ON PAGE A7***

***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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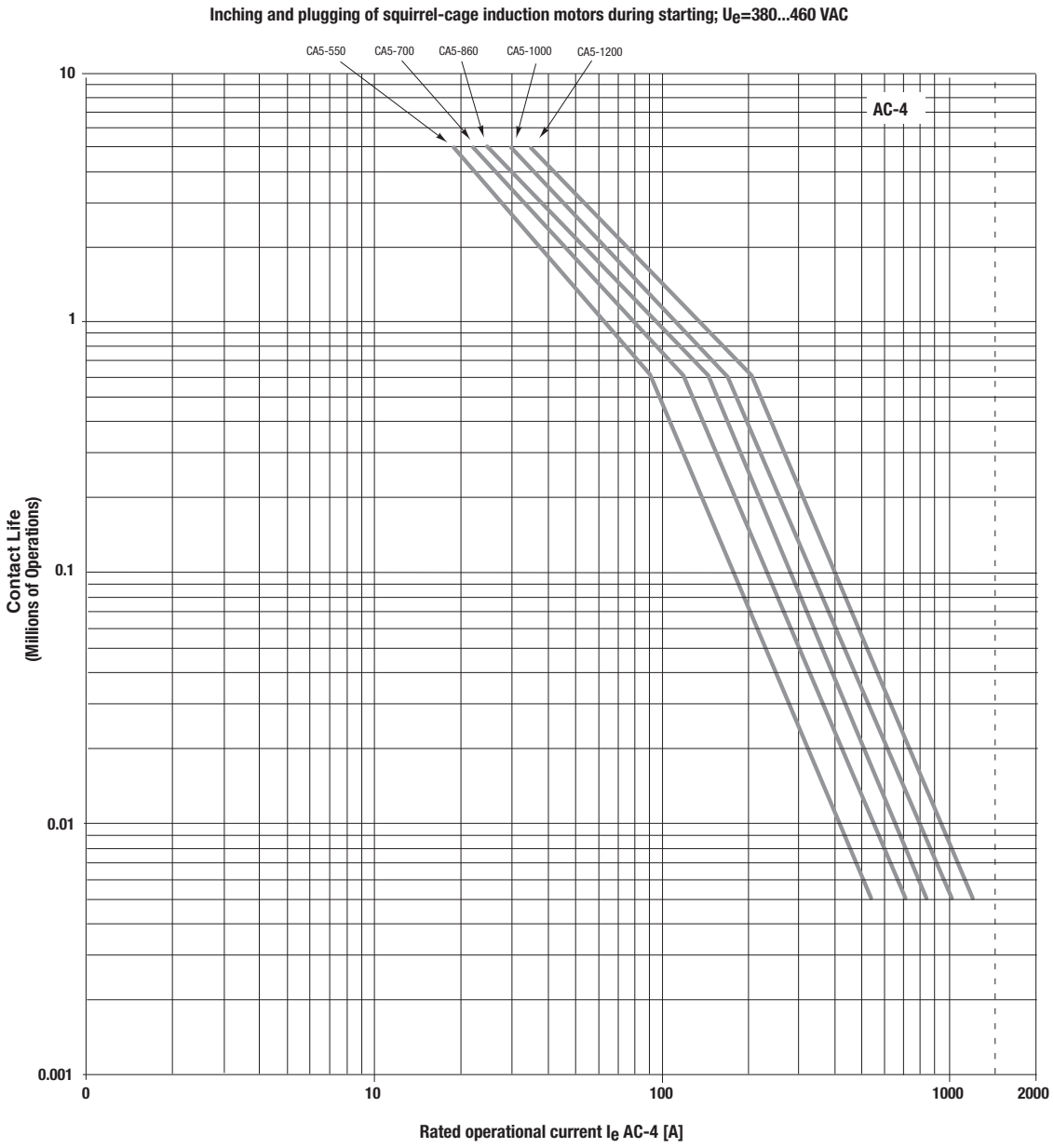
## Life-Load Curves

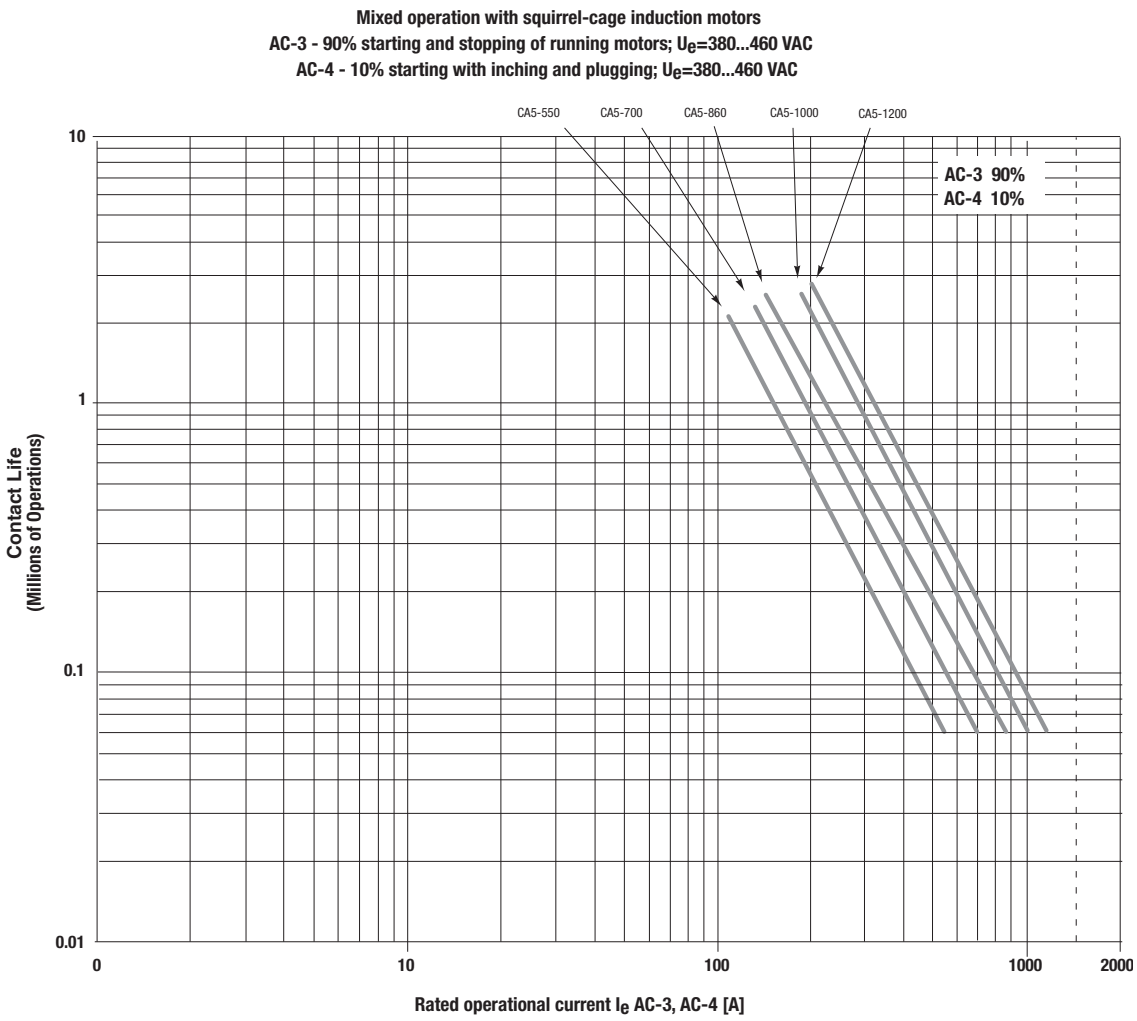
### AC-4




***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

## Life-Load Curves

**AC-3 (90%), AC-4 (10%)**




## Contact Life for Mixed Utilization Categories AC-3 and AC-4

In many applications, the utilization category cannot be defined as either purely AC-3 or AC-4. In those applications, the electrical life of the contactor can be estimated with the following equation:

$$L_{mixed} = L_{ac3} / [1+P_{ac4} \times (L_{ac3}/L_{ac4}-1)]$$, where:

$L_{mixed}$ Approximate contact life in operations for a mixed AC-3/AC-4 utilization category application.

$L_{ac3}$ Approximate contact life in operations for a pure AC-3 utilization category (from the AC-3 life-load curve).

$L_{ac4}$ Approximate contact life in operations for a pure AC-4 utilization category (from the AC-4 life-load curve).

$P_{ac4}$ Percentage of AC-4 operations

***NOTE:*** The life-load curves shown here are based on Sprecher+Schuh tests according to the requirements defined in IEC 947-4-1. Since contact life in any given application is dependent on environmental conditions and duty cycle, actual application contact life may vary from that indicated by the curves shown here.

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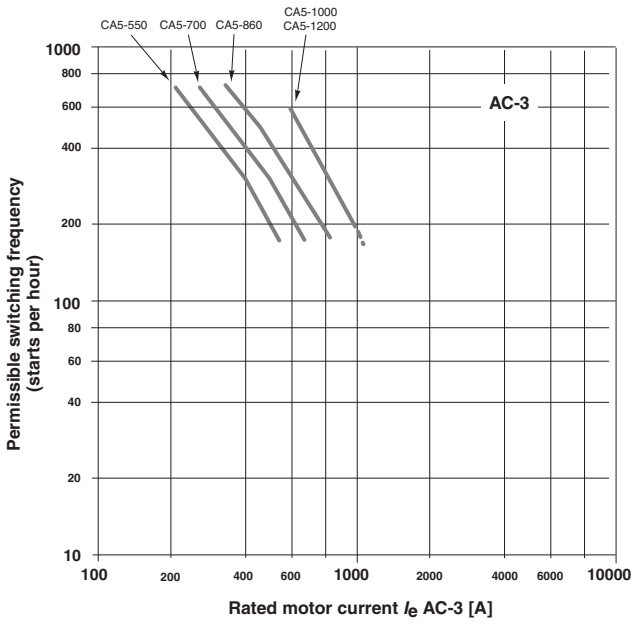
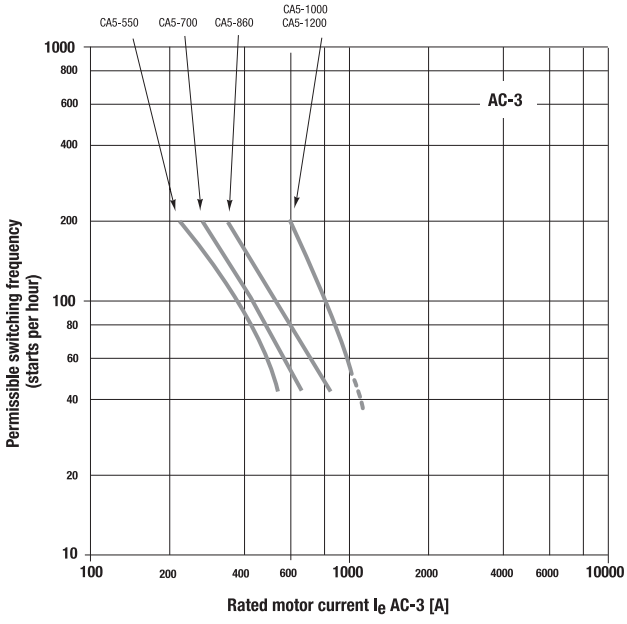
## Operating Rate Curves

### AC-3

**Starting and stopping of running motors**
Starting time $t_A$ = 0.25 s
Relative time energized 40%

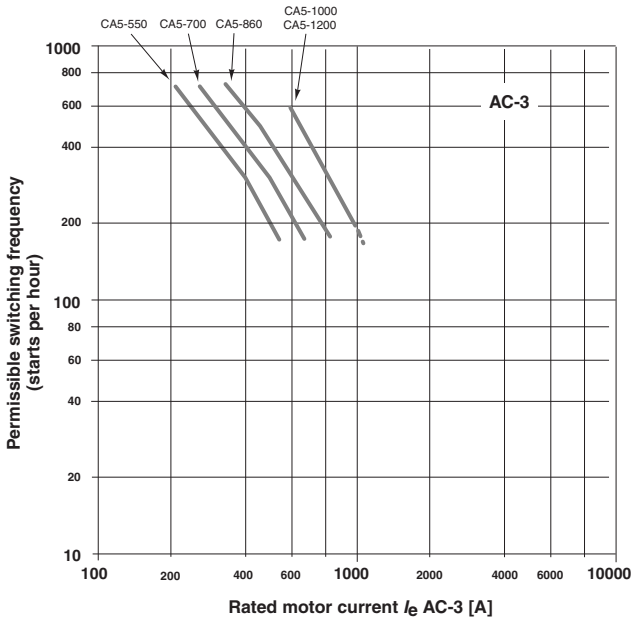



Starting time $t_A$ = 1 s

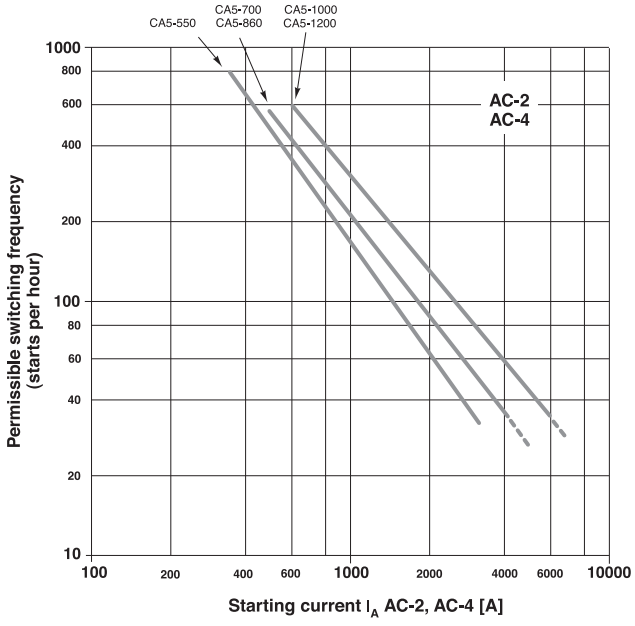



### AC-2/AC-4

**Starting and stopping of running motors**
Starting time $t_A$ = 0.25 s
Relative time energized 40%

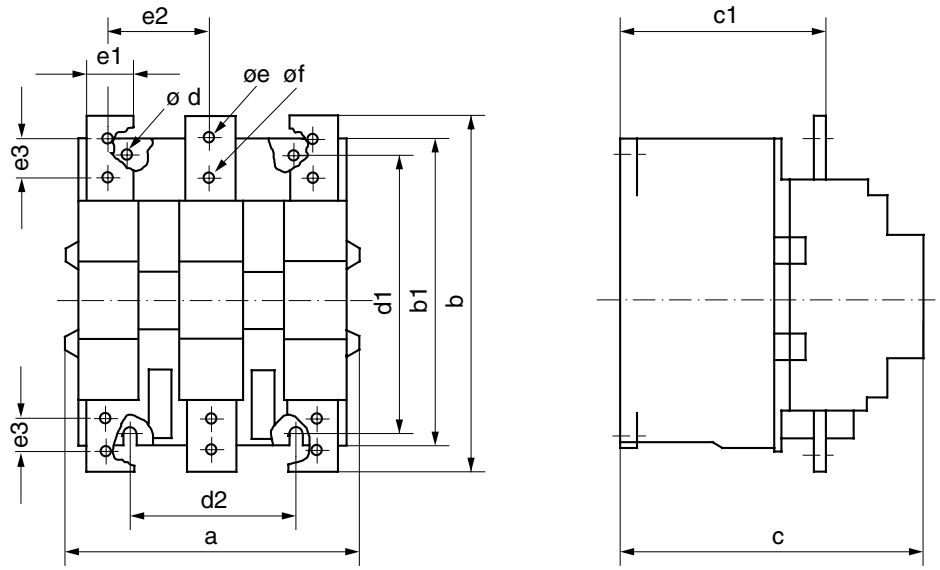



**Switching motors during running (AC2, AC4)**
Time energized $t_{ED}$ = 0.25 s (<$t_A$)



## Series CA5 & Series CAU5 (Contactors & Reversing Contactors)

Dimensions are in millimeters (inches). Dimensions not intended for manufacturing purposes.

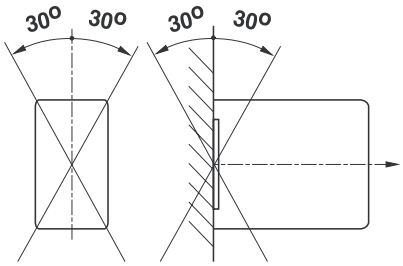



| Type | a | b | b1 | c | c1 | ød | d1 | d2 | øe | øf | e1 | e2 | e3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CA5-550 | 220 (8-21/32) | 258 (10-5/32) | 228 (8-31/32) | 225 (8-7/8) | 164 (6-7/16) | 9 (3/8) | 220 (8-21/32) | 110 (4-5/8) | 13 (17/32) | - | 40 (1-19/32) | 79 (3-1/8) | - |
| CA5-700 | 280 (11-1/32) | 307 (12-3/32) | 277 (10-29/32) | 291 (11-15/32) | 203 (8) | 11 (7/16) | 280 (11-1/32) | 175 (6-7/8) | 13 (17/32) | - | 50 (1-31/32) | 101 (4) | - |
| CA5-860 | 280 (11-1/32) | 361 (14-7/32) | 325 (12-25/32) | 291 (11-15/32) | 203 (8) | 11 (7/16) | 280 (11-1/32) | 175 (6-7/8) | 15 (19/32) | 11 (7/16) | 50 (1-31/32) | 101 (4) | 32 (1-17/64) |
| CA5-1000 | 334 (13-5/32) | 490 (19-9/32) | 434 (17-1/16) | 345 (13-9/16) | 231 (9/32) | 13 (25/64) | 380 (14-31/32) | 120 (4-23/32) | 13 (25/64) | 13 (25/64) | 60 (2-3/8) | 100 (3-31/32) | 40 (1-9//16) |
| CA5-1200 | 334 (13-5/32) | 490 (19-9/32) | 434 (17-1/16) | 345 (13-9/16) | 231 (9/32) | 13 (25/64) | 380 (14-31/32) | 120 (4-23/32) | 13 (25/64) | 13 (25/64) | 60 (2-3/8) | 100 (3-31/32) | 40 (1-9//16) |

**Reversing Contactors & Accessories**

| Contactor with... | | Dimension [mm] | Dimension [inches] |
|---|---|---|---|
| - auxiliary contact block | | a | a |
| - reversing contactors with mechanical interlock | | | |
| next to each other | CA 5-550-/CA 5-550 | a+42+a | a+1-23/32+a |
| | CA 5-700, -860/ CA 5-700, -860 | a+32+a | a+1-1/4+a |
| | CA 5-1000, -1200/ CA 5-1000, -1200 | a+46+a | a+1-13/16+a |
| | CA 5-550/CA, 5-700, -860 | a+37+a | a+1-15/32+a |
| | CA 5-700, -860/ CA 5-1000, -1200 | a+73+a | a+2-7/8+a |
| above each other | CA 5-550-/CA 5-550 | b+56+b | b+2-3/16+b |
| | CA 5-700, -860/ CA 5-700, -860 | b+100...200+b | b+3-15/16...7-7/8+b |
| | CA 5-1000, -1200/ CA 5-1000, -1200 | b+230...280+b | b+9-1/16...11-1/32+b |
| | CA 5-550/CA, 5-700, -860 | b+100...200+b | b+3-15/16...7-7/8+b |
| | CA 5-700, -860/ CA 5-1000, -1200 | b+230...280+b | b+9-1/16...11-1/32+b |
| four main contacts | CA 5-550-/CA 5-700, -860 | a+68 | a+2-11/16 |
| | CA 5-1000, -1200 | a+76 | a+3 |
| latch | CA 5-550 | b+47 | b+1-7/8 |
| | CA 5-700 | b+64 | b+2-17/32 |
| | CA 5-860 | b+37 | b+1-15/32 |
| | CA 5-1000, -1200 | a+30 | a+1-3/16 |

**Mounting Position**

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## Notes

# Series CDP2 Definite Purpose Contactors

## High performance economical contactors for commercial applications up to 90A

Sprecher + Schuh's Definite Purpose contactors are ideal for commercial applications including air conditioning, refrigeration, resistive heating and many other installations where a low cost, high performance contactor is needed. These devices offer flexibility and are designed to meet or exceed electrical and mechanical requirements as defined by definite purpose contactor standards.

## Popular sizes for most applications

The CDP2 series consists of one, two, three and four pole contactors rated to 600V AC. Three pole devices range up to 90A, while the one and two pole models are rated to 40A. Four pole contactors are also available ranging from 25A to 40A.

## Flexibility and convenience make installation easy

CDP2 contactors are compact in size and offer three convenient methods of wire connection: quick connect terminals, screws or box lugs. Box lugs are standard on 40A and larger contactors. Other models come standard with combination quick connect terminals and screws that accept hex, slotted or phillips screwdrivers.

## Standard Features

- Universal mounting plate
- 25A & 30A have screw power terminals that will accept ring-tongue terminals
- 40A and larger have box power terminals
- Dual quick-connect power terminals on all sizes
- Dual quick-connect coil terminals on all sizes
- Double break power contact design with feed-thru wiring
- Class B (130°C) coil insulation
- Double E magnet assembly

## Optional Features

- SPDT auxiliary contacts optional on 3- and 4-pole contactors (max of two)
- Optional covers for 1- and 2-pole contactors
- Mechanical interlock for 3-pole contactors

**One Pole**

30A
40A

**Two Pole**

30A

**Two Pole**

40A


**Three Pole**

30A
40A
50A
60A
75A
90A


**Four Pole**

30A
40A

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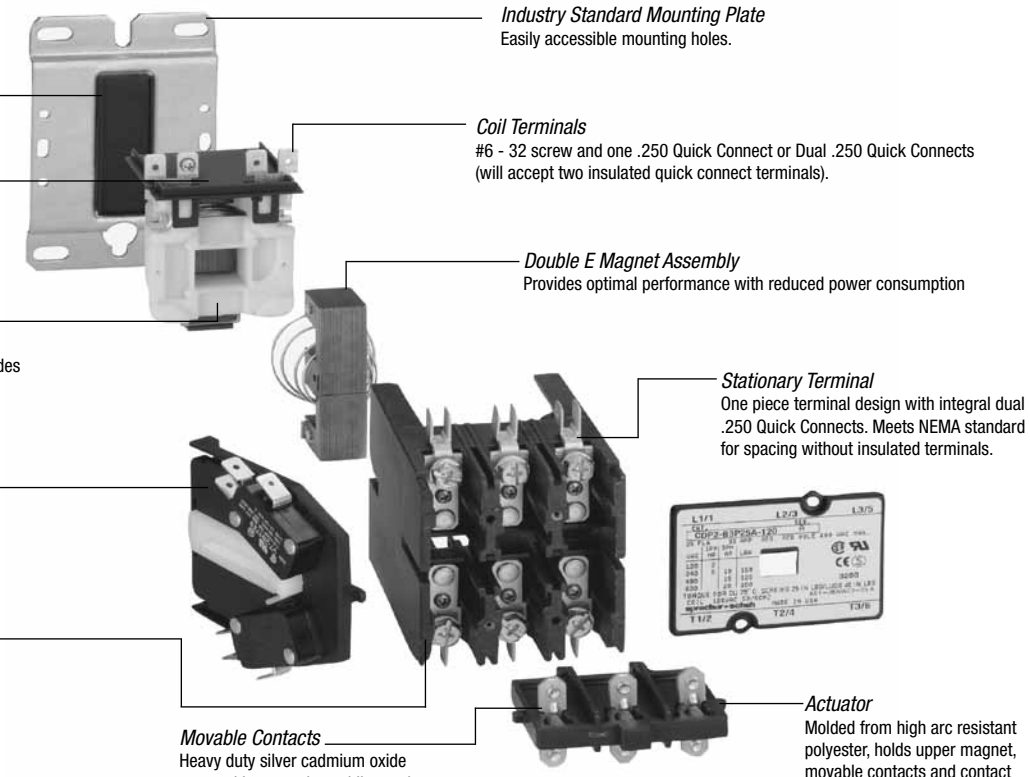
## Compare These Features



*Industry Standard Mounting Plate*
Easily accessible mounting holes.

*Built-in Shock Absorber*
Reduces contact bounce for longer life.

*Coil Terminals*
#6 - 32 screw and one .250 Quick Connect or Dual .250 Quick Connects (will accept two insulated quick connect terminals).

*Coil Dust Cover*
Keeps dust and dirt away from magnet and coil area.

*Double E Magnet Assembly*
Provides optimal performance with reduced power consumption

*Coil*
Class B (1300 C Insulation System) with wide range of voltages and 50/60 Hz ratings. Includes shading coil that reduces contact chatter.

*Stationary Terminal*
One piece terminal design with integral dual .250 Quick Connects. Meets NEMA standard for spacing without insulated terminals.

*Snap-on Auxiliary Contact*
(optional on 3 and 4 pole contactors)
One or two SPDT (shown) available. Also 1NO and 1NC with 600V AC rating.

*Base Assembly*
High arc resistant polyester holds stationary terminals, positions actuator and magnet/coil assembly.

*Movable Contacts*
Heavy duty silver cadmium oxide composition to resist welding and contact erosion for greater reliability

*Actuator*
Molded from high arc resistant polyester, holds upper magnet, movable contacts and contact springs position.

## Quick Selection Guide

**One and Two Pole Definite Purpose Contactors with AC Coil -** See page A152

| CDP2 ❶❷ | A | 1P | 30A | 24 |
|---|---|---|---|---|
| **Type** | **Frame Size** | **Poles** | **Amp Rating** | **Coil Voltage** |
| Definite | **A** = 30 & 40A | **1P** = 1 pole | 30A = 30 amps | **24** = 24 volts |
| Purpose | | **2P** = 2 pole | 40A = 40 amps | **120** = 120 volts |
| | | | | **220W** = 208-240 volts |
| | | | | **277** = 277 volts |

**Three Pole Definite Purpose Contactors with AC Coil-** See page A153

| CDP2 ❶❷❸ | B | 3P | 30A | 24 |
|---|---|---|---|---|
| **Type** | **Frame Size** | **Poles** | **Amp Rating** | **Coil Voltage** |
| Definite | **B** = 30 & 40A | **3P** = 3 poles | **30A** = 30 amps | **24** = 24 volts |
| Purpose | **C** = 50 & 60A | | **40A** = 40 amps | **120** = 120 volts |
| | **D** = 75 & 90A | | **50A** = 50 amps | **220W** = 208-240 volts |
| | | | **60A** = 60 amps | **277** = 277 volts |
| | | | **75A** = 75 amps | **480** = 480 volts |
| | | | **90A** = 90 amps | |

**Four Pole Definite Purpose Contactors with AC Coil -** See page A154

| CDP2 ❶❷❸ | E | 4P | 25A | 24 |
|---|---|---|---|---|
| **Type** | **Frame Size** | **Poles** | **Amp Rating** | **Coil Voltage** |
| Definite | **E** = 25...40A | **4P** = 4 poles | **25A** = 25 amps | **24** = 24 volts |
| Purpose | | | **30A** = 30 amps | **120** = 120 volts |
| | | | **40A** = 40 amps | **220W** = 208-240 volts |
| | | | | **277** = 277 volts |
| | | | | **480** = 480 volts |

❶ CDP prefix denotes First Generation products. CDP2 prefix denotes Second Generation products.
❷ Screw power terminals standard on 30A. Box lug power terminals standard for 40A and larger.
❸ Box lugs on 30A available with volume special order only.

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## One and Two Pole Definite Purpose Contactors with AC Coil (Open type only) ❹

| Full Load Amps | Poles | Locked Rotor Amps | | | Resistive Amps ❷ | Maximum H.P. 1Ø | | Catalog Number | Price Each | Std. Pkg. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 240V ❷ | 480V | 600V | | 120V | 240V ❷ | | | |
| 30 ❶ | 1 ❻ | 150 | 75 | 50 | 40 | 1 | 2 | **CDP2-A1P30A-✱** ❺ | **68** | 50 |
| 30 ❶ | 2 | 150 | 125 | 100 | 40 | 2 | 3 | **CDP2-A2P30A-✱** ❺ | **84** | 50 |
| 40 | 1 ❻ | 200 | 150 | 120 | 50 | 2 | 3 | **CDP2-A1P40A-✱** ❸ | **84** | 50 |
| 40 | 2 | 200 | 150 | 120 | 50 | 2 | 3 | **CDP2-A2P40A-✱** ❸ | **99** | 50 |

*Series CDP2 1-pole contactor*

*Series CDP2 2-pole contactor (with optional cover)*

## Accessories

| Accessory | Description | For use with... | Catalog Number | Price |
|---|---|---|---|---|
|  | **Contactor Cover**- Prevents foreign particles from entering contactor. Covers current carrying parts. | CDP2-A1P30A...<br>CDP2-A2P30A... | **CDP2-A1P-C** ❼<br>**CDP2-A2P-C** | **8**<br>**10** |

## AC Coil Codes

| AC Coil Code | Voltage Range 60 Hz |
|---|---|
| **24** | 24V |
| **120** | 120V |
| **220W** | 208V / 240V |
| **277** | 277V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ 25A contactors only available by special order. Contact your Sprecher +Schuh representative.
❷ 240V rating also applies to 277V applications.
❸ Box Power Lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❹ 1 and 2 Pole, 25 and 30A contactors supplied without cover. See Accessories for cover options.
❺ Screw Power Terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.
❻ 1-Pole (1-pole plus) contactors include a shunt for termination and feed-thru of neutral.
❼ 40 Amp contactors are supplied with cover as standard.

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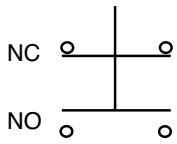
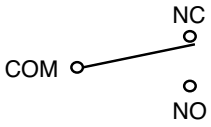
## Three Pole Definite Purpose Contactors with AC Coil (Open Type only)

| Full Load Amps | Locked Rotor Amps | | | Resistive Amps ❷ | Maximum Horsepower ❷ | | | | | | | Catalog Number | Price Each | Std. Pkg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1Ø | | | 3Ø | | | | | | |
| | 240V ❷ | 480V | 600V | | 120V | 200 | 240V | 200V | 240V | 480V | 600V | | | |
| 30 ❶ | 180 | 150 | 120 | 40 | 2 | ~ | 5 | 10 | 10 | 15 | 20 | **CDP2-B3P30A-✱ ❹** | **107** | 25 |
| 40 | 240 | 200 | 160 | 50 | 3 | ~ | 7-1/2 | 10 | 10 | 20 | 25 | **CDP2-B3P40A-✱ ❸** | **131** | 25 |
| 50 | 300 | 250 | 200 | 65 | 3 | 7-1/2 | 10 | 15 | 15 | 25 | 25 | **CDP2-C3P50A-✱** | **239** | 15 |
| 60 | 360 | 300 | 240 | 75 | 5 | 7-1/2 | 10 | 25 | 25 | 30 | 30 | **CDP2-C3P60A-✱** | **277** | 15 |
| 75 | 450 | 375 | 300 | 93 | 5 | 10 | 15 | 20 | 25 | 40 | 40 | **CDP2-D3P75A-✱** | **362** | 1 |
| 90 | 540 | 450 | 360 | 120 | 7-1/2 | 15 | 20 | 25 | 30 | 50 | 50 | **CDP2-D3P90A-✱** | **499** | 1 |

*Series CDP2 3-pole contactor*

## Auxiliary Contacts for 3 Pole Contactors

| Auxiliary | Description | Circuit Diagram | Catalog Number | Price |
|---|---|---|---|---|
|  | **Two pole Auxiliary Contact Block (1-NO / 1-NC)** - Side mount with quick connect stabs<br>for 25...40A, 3 pole contactors<br>for 50...90A, 3 pole contactors |  | **CDP2-BE-11 ❻**<br>**CDP2-CD-11 ❺** | **41** |
|  | **One pole Auxiliary Contact Block (SPDT)** - Side mount with quick connect stabs<br>for 25...40A, 3 or 4 pole contactors |  | **CDP2-BE-1SPDT ❺** | **35** |

## AC Coil Codes

| AC Coil Code | Voltage Range 60 Hz |
|---|---|
| **24** | 24V |
| **120** | 120V |
| **220W** | 208V / 240V |
| **277** | 277V |
| **480** | 480V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ 25A contactors available by special order. Contact your Sprecher + Schuh representative.
❷ 240V rating also applies to 277V applications.
❸ Box lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❹ Screw power terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.
❺ Meets NEMA Standard B600. See page A9.1 for technical details.
❻ Meets NEMA Standard B600 EXCEPT has 10 A continuous current rating.

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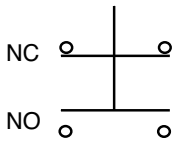
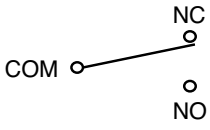
## Four Pole Definite Purpose Contactors With AC Coil (Open Type only)

| Full Load Amps | Locked Rotor Amps | | | Resistive Amps ❷ | Maximum Horsepower ❷ | | | | | Catalog Number | Price Each | Std. Pkg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1Ø | | 3Ø | | | | | |
| | 240V ❷ | 480V | 600V | | 120V | 240V | 200V | 240V | 480V | | | |
| 30 ❶ | 180 | 150 | 120 | 40 | 2 | 5 | 10 | 10 | 15 | **CDP2-E4P30A-✱** ❹ | **142** | 20 |
| 40 | 240 | 200 | 160 | 50 | 3 | 7-1/2 | 10 | 10 | 20 | **CDP2-E4P40A-✱** ❸ | **164** | 20 |

*Series CDP2 4-pole contactor*

## Auxiliary Contacts for 4 Pole Contactors

| Auxiliary | Description | Circuit Diagram | Catalog Number | Price |
|---|---|---|---|---|
|  | **Two pole Auxiliary Contact Block (1-NO / 1-NC)** - Side mount with quick connect stabs for all 4 pole contactors |   | **CDP2-BE-11** | **41** |
| | **One pole Auxiliary Contact Block (SPDT)** - Side mount with quick connect stabs for all 4 pole contactors |   | **CDP2-BE-1SPDT** | **35** |

## A.C. Coil Codes

| AC Coil Code | Voltage Range 60 Hz |
|---|---|
| **24** | 24V |
| **120** | 120V |
| **220W** | 208V / 240V |
| **277** | 277V |
| **480** | 480V |

## *Ordering Instructions*

| Specify Catalog Number | |
|---|---|
| Replace (✱) with Coil Code | **See Coil Codes on this page** |

❶ 25A contactors available by special order. Contact your Sprecher + Schuh representative.
❷ 240V rating also apples to 277V applications.
❸ Box Power Lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
❹ Screw per terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.

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## Accessories

| Auxiliary | Description | For use with... | Catalog Number | Price |
|---|---|---|---|---|
|  | **DIN-rail Adaptor** - Attaches to the universal mounting plate of 1-, 2-, 3- and 4-pole contactors 25...40 Amps. | CDP2-A1P…B3P<br>CDP2-E4P | **CDP2-DRA** | **13** |
|  | **Mechanical Interlock** - Can be combined with electrical interlocks on 3-pole and 4-pole contactors as required. | CDP2-B3P<br>CDP2-E4P | **CDP2-MK1** | **19** |

## Technical Data

### Short-Circuit Coordination

| | | 25-30A 1+2-Pole | 40A 1+2-Pole | 25-30A 3-Pole | 40A 3-Pole | 50-90A 3-Pole | 25-30A 4-Pole | 40A 4-Pole |
|---|---|---|---|---|---|---|---|---|
| **Standard Short Circuit Rating** | [kA] | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **High Current Short Circuit Rating** | | | | | | | | |
| Class J-fuses | | | | | | | | |
| Available fault current | [kA] | 100 | 100 | 100 | 100 | ❶ | 100 | 100 |
| cUL Max. fuse (600V) | [A] | 60 | 100 | 60 | 100 | ❶ | 50 | 100 |
| Enclosure Minimum | [in³] | 96 | 96 | 144 | 144 | ❶ | 144 | 144 |
| Molded Case Circuit Breaker | | | | | | | | |
| Available fault current | [kA] | 100 | 100 | 100 | 100 | ❶ | 100 | 100 |
| cUL Max. breaker (480V) | [A] | 80 | 80 | 80 | 100 | ❶ | 80 | 100 |
| Enclosure Minimum | [in³] | 144 | 144 | 144 | 144 | ❶ | 144 | 144 |

### Service Life

| | | | | | | |
|---|---|---|---|---|---|---|
| **Mechanical** (operations) | 1,000,000 | 1,000,000 | 1,000,000 | 500,000 | 1,000,000 | 1,000,000 |
| **Electrical** (operations) | 250,000 | 250,000 | 250,000 | 250,000 | 250,000 | 250,000 |

### Data for Surge Suppression Selection

| 120 VAC Coils | Resistor | Capacitor |
|---|---|---|
| 1 Pole | 680 ohms | 0.47 n*f* |
| 2 Pole | 330 ohms | 0.47 n*f* |
| 3P 30/40 Amp | 220 ohms | 0.47 n*f* |
| 4P 30 Amp | 220 ohms | 0.47 n*f* |
| 3P 50/60 Amp | 150 ohms | 0.47 n*f* |
| 3P 75/90 Amp | 68 ohms | 0.47 u*f* |

| Snubber ❷ |
|---|
| RCS1M-6 |
| RCS1K-6 |
| RCS1A-6 |
| RCS1A-6 |
| RCS1H-6 |
| RCS1E-6 |

❶ UL testing not complete at the time of printing of this catalog.
❷ Recommended snubbers from RK Electric

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## General Specifications

| | | CDP2 25...40A, 1 & 2 pole | CDP2 25...40A, 3 pole | CDP2 50...60A, 3 pole | CDP2 75...90A, 3 pole | CDP2 25...40A, 4 pole |
|---|---|---|---|---|---|---|
| **Approvals** | | | | | | |
| UL | | UL508, Guide No. NLDX2-File No. E193035 | | | | |
| CSA | | C22.2 No. 14, Class; 321104-File No. 210566 (75A, 3 pole / C22.2 No. 14, Class: 122201 - File No. 210566) | | | | |
| CE / SEMKO | | Certified EN60947-4-1: 2000 and A1: 1995 (Except 75A & 90A, 3 pole) | | | | |
| IEC | | IEC 947-4-1 (Except 50A…90A, 3 pole) | | | | |
| CCC | | Registration # 2005010304145109 (Except 50…90A, 3 pole) | | | | |
| **Line and Load Terminals** | | #10 - 32 screw or box lug | #10 - 32 screw or box lug | Box lug | Box lug | #10 - 32 screw or box lug |
| **Wire Size (min/max)** | | | | | | |
| #10 - 32 screw (all 25A & 30A) | [AWG] | 16 - 8 ❶ | 16 - 8 ❶ | ~ | ~ | 16 - 8 ❶ |
| Box Lug (≥40A) | [AWG] | 14 - 4 Cu/Al | 14 - 4 Cu/Al | 14 - 2 Cu/Al | 14 - 1/0 Cu/Al | 14 - 4 Cu/Al |
| **Recommended Tightening Torque** | | | | | | |
| #10 - 32 screw (all 25A & 30A devices) | | 22 lbs-in | 22 lbs-in | ~ | ~ | 22 lbs-in |
| Box Lug (40A devices only) | | 40 lbs-in | 40 lbs-in | 50 lbs-in | 50 lbs-in | 40 lbs-in |
| **Quick Connects** | | | | | | |
| Coil Terminals | | Dual .250 QC (2) | Quad. .250 QC (2) | #6-32 screw 7 .250 QC (2) | #6-32 screw 7 .250 QC (2) | Dual .250 QC (2) |
| Power Terminals | | 1 pole: Quad .250 QC<br>2 pole: Quad .250 QC | Dual .250 QC (2) | Dual .250 QC (2) | Dual .250 QC (2) | Dual .250 QC (2) |
| **Arc Cover** | | Optional | Standard | Standard | Standard | Standard |
| **Insulation System** | | | | 130°C Class B | | |
| **Temperature Range** | [°C] | | | -40°C to +65°C | | |
| | [°F] | | | -40°F to +150°F | | |
| **Weight** | | 1 pole 0.5 lb<br>2 pole: 0.6 lb | 1 lb | 2 lbs | 4 lbs | 1.5 lbs. |

| **UL/CSA Ratings for 25A special order contactors** | | | **1 Pole** | **2 Pole** | **3 Pole** |
|---|---|---|---|---|---|
| Locked Rotor Amps | 240/277 V | [A] | 150 | 150 | 150 |
| | 480V | [A] | 125 | 125 | 125 |
| | 600V | [A] | 100 | 100 | 100 |
| Resistive Amps | | [A] | 35 | 35 | 35 |
| Max. HP | 1∅ 120 V | [HP] | 2 | 2 | 2 |
| | 1∅ 240 V | [HP] | 3 | 3 | 3 |
| | 3∅ 200 V | [HP] | ~ | ~ | 7.5 |
| | 3∅ 230 V | [HP] | ~ | ~ | 7.5 |
| | 3∅ 460 V | [HP] | ~ | ~ | 10 |
| | 3∅ 575 V | [HP] | ~ | ~ | 10 |

## Coil Data

| **1 Pole Contactors (25...40A)** | | **24V Coils** | **120V Coils** | **220W Coils** | **277V Coils** | **480V Coils** |
|---|---|---|---|---|---|---|
| Normal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | ~ |
| Pickup voltage (Max.) | [V] | 18 | 88 | 177 | 221 | ~ |
| Drop-out/Voltage Range | [V] | 6...15 | 20...70 | 40...140 | 50...165 | ~ |
| Nominal Inrush | | | | | | ~ |
| 50 Hz | [VA] | 22.5 | 22.5 | 22.5 | 22.5 | ~ |
| 60Hz | [VA] | 20 | 20 | 20 | 20 | ~ |
| Nominal Seal-in | | | | | | ~ |
| 50 Hz | [VA] | 7 | 7 | 7 | 7 | ~ |
| 60 Hz | [VA] | 5.25 | 5.25 | 5.25 | 5.25 | ~ |
| Nominal DC Resistance | | 16.5 | 420 | 1850 | 2650 | ~ |
| **2 Pole Contactors (25...40A)** | | | | | | ~ |
| Normal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | ~ |
| Pickup voltage (Max.) | [V] | 18 | 88 | 177 | 221 | ~ |
| Drop-out Voltage Range | [V] | 6...15 | 20...70 | 40...140 | 50...165 | ~ |
| Nominal Inrush | | | | | | ~ |
| 50 Hz | [VA] | 37 | 37 | 37 | 37 | ~ |
| 60Hz | [VA] | 35 | 35 | 35 | 35 | ~ |
| Nominal Seal-in | | | | | | ~ |
| 50 Hz | [VA] | 8 | 8 | 8 | 8 | ~ |
| 60 Hz | [VA] | 7 | 7 | 7 | 7 | ~ |
| Nominal DC Resistance | | 11 | 250 | 1000 | 1600 | ~ |

❶ Stranding must be split for #8 wire.

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## Coil Data *(continued)*

| | | 50/60 Hz 24V Coils | 110 - 50 Hz 120 - 60 Hz 120V Coils | 220 - 50 Hz 208/240 - 60 Hz 220W Coils | 277 - 60 Hz 277V Coils | 440 - 50 Hz 480 - 60 Hz 480V Coils |
|---|---|---|---|---|---|---|
| **3 Pole Contactors (25...40A)** | | | | | | |
| Nominal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | 480 |
| Pickup Voltage (Max.) | [V] | 18 | 88 | 177 | 220 | 384 |
| Drop-out Voltage Range | [V] | 6...15 | 20...70 | 40...140 | 60...185 | 150...270 |
| Nominal Inrush | | | | | | |
| 50 Hz | [VA] | 60 | 60 | 60 | 60 | 65 |
| 60Hz | [VA] | 53 | 53 | 53 | 53 | 53 |
| Nominal Seal-in | | | | | | |
| 50 Hz | [VA] | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 |
| 60 Hz | [VA] | 6 | 6 | 6 | 6 | 6 |
| Nominal DC Resistance | [Ω] | 7 | 180 | 720 | 950 | 3100 |
| **3 Pole Contactors (50...60A)** | | | | | | |
| Nominal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | 480 |
| Pickup Voltage (Max.) | [V] | 18 | 93 | 177 | 235 | 374 |
| Drop-out Voltage Range | [V] | 6...15 | 20...70 | 40...135 | 50...180 | 120...286 |
| Nominal Inrush | | | | | | |
| 50 Hz | [VA] | 104 | 102 | 114 | ~ | 98 |
| 60Hz | [VA] | 96 | 112 | 125 | 108 | 108 |
| Nominal Seal-in | | | | | | |
| 50 Hz | [VA] | 12 | 10 | 12 | ~ | 10 |
| 60 Hz | [VA] | 10 | 10 | 12 | 10 | 10 |
| Nominal DC Resistance | [Ω] | 4 | 52 | 282 | 453 | 1390 |
| **3 Pole Contactors (75...90A)** | | | | | | |
| Nominal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | 480 |
| Pickup Voltage (Max.) | [V] | 18 | 88 | 177 | 220 | 384 |
| Drop-out Voltage Range | [V] | 6...15 | 20...70 | 40...110 | 65...185 | 150...270 |
| Nominal Inrush | [Ω] | | | | | |
| 50 Hz | [VA] | 220 | 206 | 260 | ~ | 206 |
| 60Hz | [VA] | 190 | 210 | 260 | 202 | 208 |
| Nominal Seal-in | | | | | | |
| 50 Hz | [VA] | 21 | 16 | 25 | ~ | 17 |
| 60 Hz | [VA] | 16 | 16 | 25 | 17 | 17 |
| Nominal DC Resistance | [Ω] | .66 | 15.8 | 50 | 93 | 258 |
| **4 Pole Contactors (25...40A)** | | | | | | |
| Nominal Coil Voltage | [V] | 24 | 120 | 208 / 240 | 277 | 480 |
| Pickup voltage (Max.) | [V] | 19.2 | 93 | 177 | 220 | 384 |
| Drop-out Voltage Range | [V] | 6...15 | 20...70 | 40...140 | 50...185 | 15...270 |
| Nominal Inrush | | | | | | |
| 50 Hz | [VA] | 62 | 62 | 62 | 62 | 67 |
| 60 Hz | [VA] | 59 | 59 | 59 | 59 | 60 |
| Nominal Seal-in | | | | | | |
| 50 Hz | [VA] | 9 | 9 | 9 | 9 | 9 |
| 60 Hz | [VA] | 7 | 7 | 7 | 7 | 7 |
| Nominal DC Resistance | [Ω] | 6 | 150 | 600 | 750 | 2400 |

## Auxiliary Contacts

**2 Pole (NO/NC)** - Single Circuit Contact Rating

| Voltage Rating | | 120 | 240 | 480 | 600 |
|---|---|---|---|---|---|
| Amperes | Break | 3.0 | 1.5 | 0.75 | 0.6 |
| | Make | 30 | 15 | 7.5 | 6 |
| | Continuous | 10 | 10 | 10 | 10 |

**SPDT**

10A, 1/3 HP, 125 or 250V AC;
1/2A, 125 V DC;
1/4A, 250V DC;
4A, 120V AC on Lamp Load

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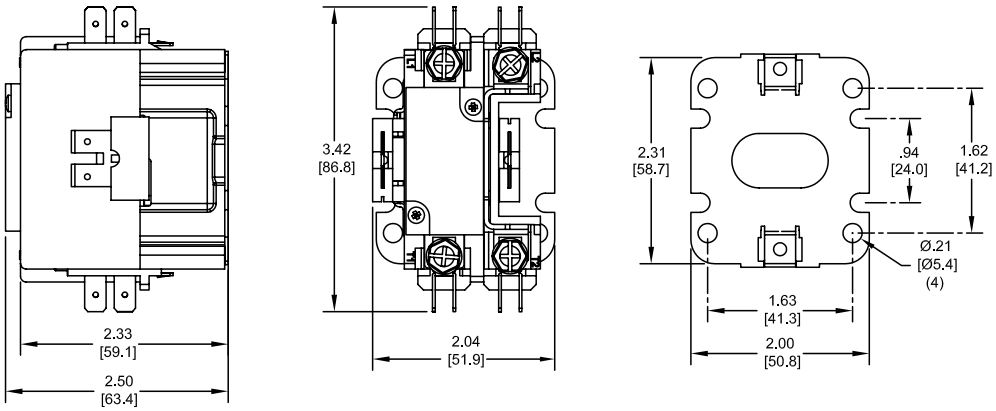
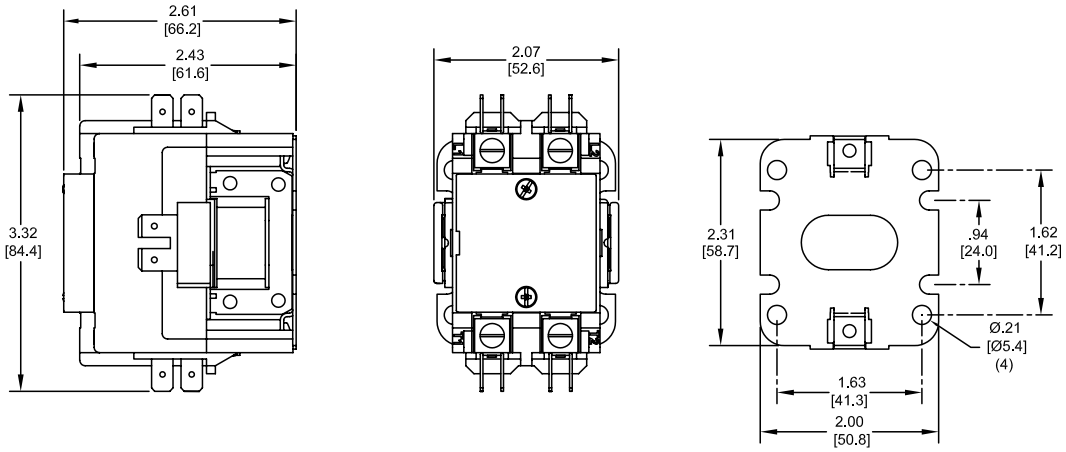
## CDP2 25...40A, 1 & 2 Pole

Dimensions are in inches (millimeters). Dimensions not intended for manufacturing purposes.

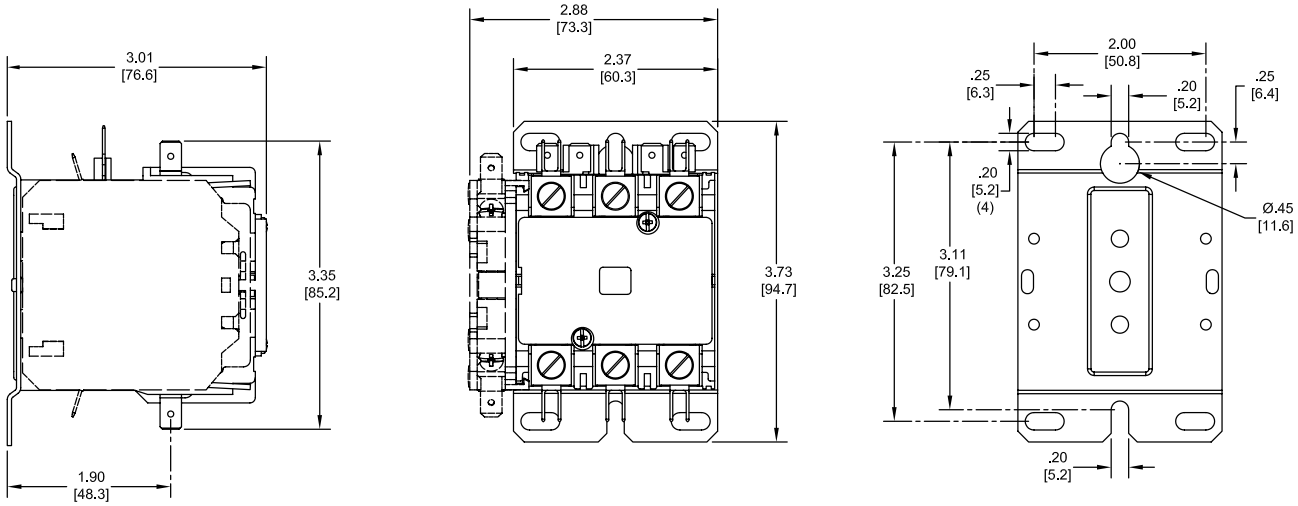
1-Pole




2-Pole



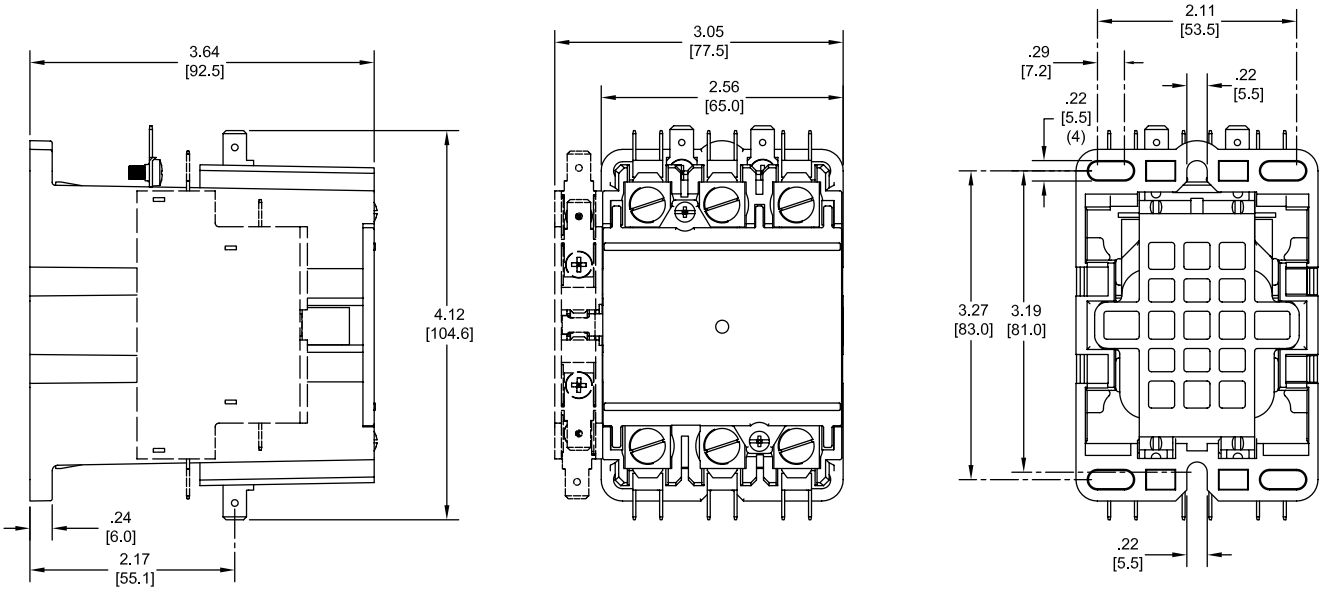

## CDP2 25...40A, 3 Pole with Auxiliary



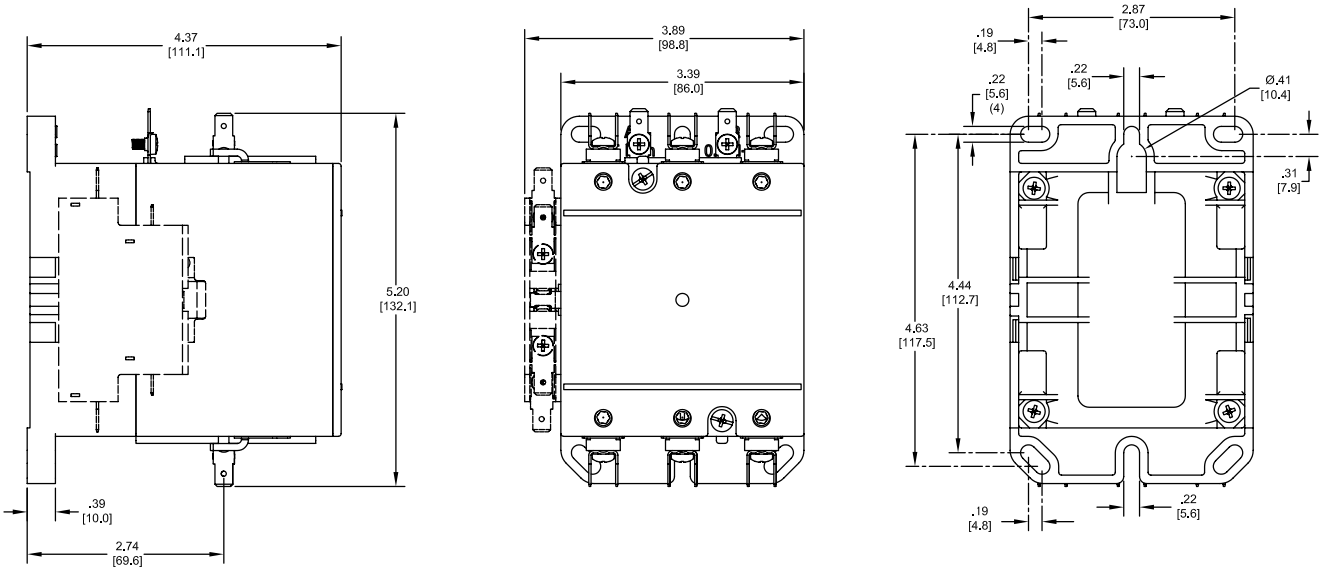

SSNA9000

## CDP2 50...60A, 3 Pole with Auxiliary

Dimensions are in inches (millimeters). Dimensions not intended for manufacturing purposes.



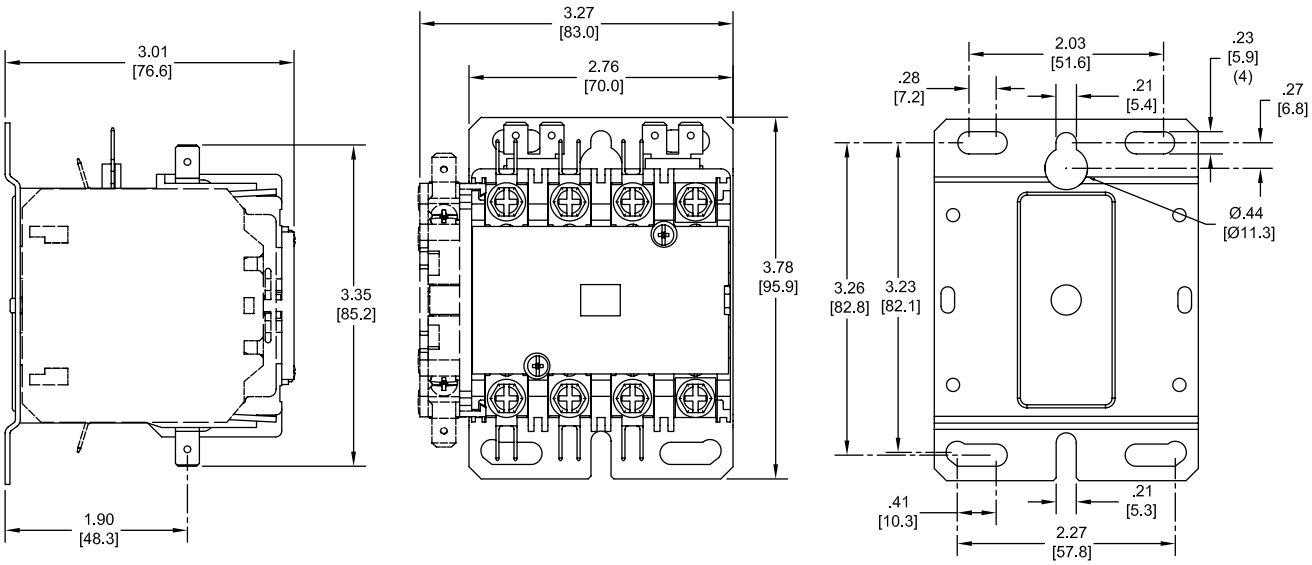

## CDP2 75...90A, 3 Pole with Auxiliary



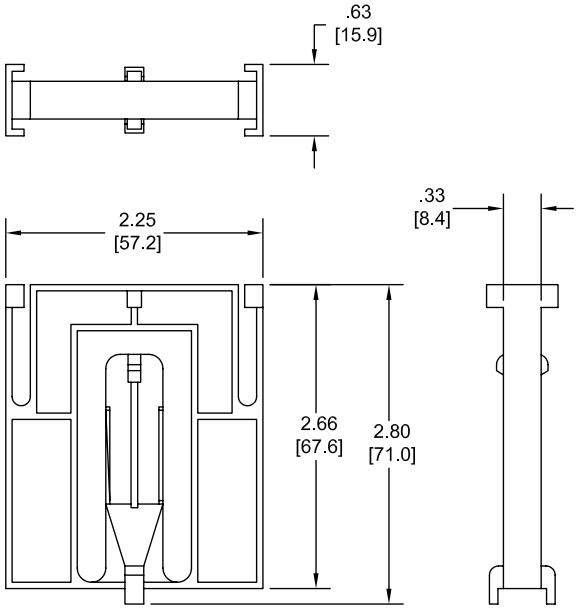

SSNA9000

## CDP2 25...40A, 4 Pole with Auxiliary

Dimensions are in inches (millimeters). Dimensions not intended for manufacturing purposes.

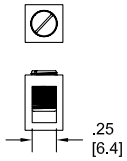



## CDP2-MK1 Mechanical Interlock

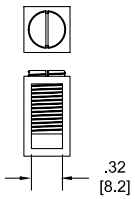



## Terminations

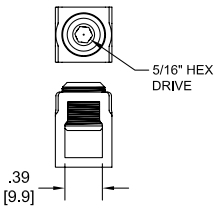
25 & 30 AMP
COMBINATION
PHILLIPS, SLOTTED
AND 5/16 HEX
WASHER HEAD




40 AMP FLA
LUG 14-4
Cu/Al AWG




50 & 60 AMP
FLA LUG 14-2
Cu/Al AWG




75 & 90 AMP
FLA LUG
14-1/0 Cu

SSNA9000