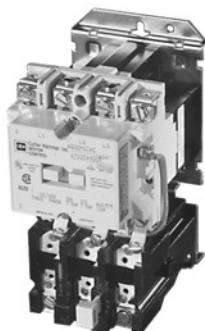


### Starters — Non-reversing and Reversing

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Size 1 Starter

#### Product Description — Sizes 00 – 4

##### Application

Magnetic starters are used for full-voltage, across-the-line starting and stopping of squirrel cage motors. They can be operated locally or remotely by manual or automatic pilot devices.

#### NEMA Sizes 00 – 4; Three-Phase, 1-1/2 – 100 hp

These Cutler-Hammer® Starters from Eaton's electrical business use Class A201 contactors as described on **Page 2**. Contactor features are enhanced through the ability to provide positive motor protection in the form of several types of overload relays. See **Pages 28 – 36**.

#### Type B Overload Relay, Manual Reset Only

Supplied as standard on Class A200 and A900 starters (two-speed). The bi-metallic overload relay offers ambient compensation and trip-to-test feature (relay contact status check) as standard. In addition, an isolated normally-open contact is available in kit form for customer mounting. Type B overload relays are manual reset only.

#### Type A Overload Relay, Manual or Automatic Reset

This is an optional overload relay, offering the capability of field conversion to automatic reset. It is available as an ambient compensated or non-compensated type.

#### Non-reversing Starters

Non-reversing starters are supplied as open devices. All starters are supplied with a normally-open holding circuit interlock.

Class A200 starters are available as UL listed or recognized components, as well as with CSA certification.

#### Reversing Starters

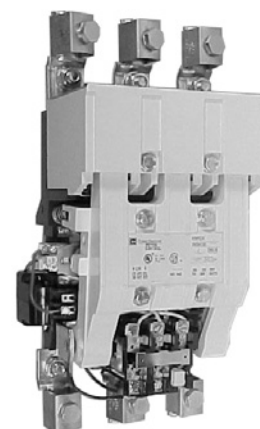
For reversing applications (Class A210), a starter and a contactor electrically and mechanically interlocked are supplied on a common baseplate. Reversing starters are used to start, stop and reverse AC squirrel cage motors and for primary control of reversing wound-rotor motors.

For plugging or inching, when operations exceed five times per minute, decreased horsepower ratings in accordance with NEMA Standard ICS 2-321 are recommended.

#### Two-Speed Starters, A900s

For across-the-line starting of two-speed constant hp, constant torque squirrel cage motors, two-speed starters (Class A900) are available. These Cutler-Hammer starters consist of two starters, one for each motor speed, mechanically and electrically interlocked and wired for manual speed selection by means of pushbuttons. Auxiliary relays may be added to provide automatic acceleration or deceleration.

Starters for two-speed, two independent winding motors consist of two-, three- or four-pole starters electrically and mechanically interlocked. Starters for two-speed, single reconnectable winding motors consist of one three-pole and one five-pole starter mechanically and electrically interlocked.



Size 5 Starter

#### Product Description — Sizes 5 – 9

#### NEMA Sizes 5 – 9; Three-Phase 75 to 1600 hp

Non-reversing (Class A200), and reversing (Classes A210, A250) full voltage starters are used for across-the-line starting of squirrel cage induction motors. They are used with motors rated above 50 hp at 230V, and above 100 hp at 460 through 600V.

Sizes 5 and 6 Cutler-Hammer starters use Class A201 contactors as described on **Page 3**. In addition to standard motor starters, special application devices are available: Sizes 5 and 6 starters with integrally rectified AC to DC coils for applications where low voltage problems are prevalent are available.

Class A200 starters are UL listed and recognized and also carry CSA certification.

**Front Removable Parts** — All operating parts can be removed quickly and easily from the front. Straight-through wiring and conveniently located connection points for external wires and cables minimize installation time.

**Type B Block Type Thermal Overload Relay** — Dependable overload protection is assured by these snap-action, manual reset relays. Automatic reset Type A relays are available as an option.

Technical Data ..... **Pages 16 – 19**

**Types of Starters**

**Class A200, Sizes 5 and 6** — Non-reversing starters contain an AC magnetically-operated Size 5 or Size 6 line contactor and block Type B three-pole overload relay, along with three current transformers. A control relay whose contacts handle the coil current of the starter is provided with Size 6 starters.

**Class A200, Sizes 7, 8 and 9** — Non-reversing starters contain a DC operated line contactor, DC power supply, block Type B three-pole overload relay with three current transformers and a control relay.

**Class A960/A970/A980 Multi-Speed Starters:** Refer to **Page 15**.

**Features and Benefits****Sizes 00 – 4**

- **Straight-Through Wiring, Up-Front, Out-Front Terminals** for ease in installation.
- **Unique Accessory Mounting Cavities** reduce panel space requirements.
- **Snap-in Accessories** for application flexibility.
- **Vertical and Horizontal Interlocking** capability increases application flexibility.
- **Ambient Compensated Overload Relays** available as standard, offering superior motor protection in variable motor/controller environments.
- **Isolated Normally Open Relay Contact** available in kit mounting form on Type B Overload Relay.

**Sizes 5 – 9**

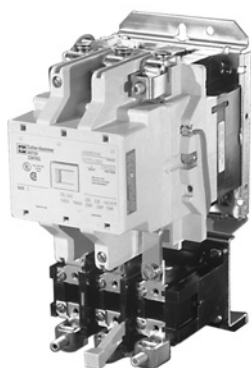
- **Rectified AC/DC Coils** available to reduce premature drop-out or “kiss” problems due to inherent low voltage conditions.
- **Clapper Design** armature assembly pivots on needle bearings resulting in quick, smooth opening and closing of the magnet.
- **Stainless Steel Kick-Out Spring** assures quick, positive drop-out time.
- **Front Removable Parts** all current carrying parts front removable for easy inspection and maintenance.

**Instructional Leaflets**

16958	Sizes 00 – 1, 3-Pole Motor Controller
16956	Sizes 00 – 1, 2-Pole, Single-Phase Motor Controller
16959	Size 2, 3-Pole Motor Controller
16957	Size 2, 2-Pole, Single-Phase Motor Controller
15465C	Sizes 3 and 4J Motor Controller
17000C	Size 4, Model K Motor Controller
17054C	Size 5 Motor Controller
17055C	Size 6 Motor Controller

January 2006

## Starters — Non-reversing and Reversing



Size 3 Starter

Product Selection —  
Non-reversing, Sizes 00 – 9

## When Ordering Specify

Order by Catalog Number from **Table 13** or **Table 14**, plus Suffix for coil voltages, verifying usage of appropriate sizes.

## Heaters

Enter heaters as separate item by listing Catalog Number from tables, **Pages 35 – 36**, as required per starter.

Table 13. Non-reversing Starters Selection — 2 Poles <sup>②</sup>

Size	Amps	Max. UL Horsepower						Open
		1-Phase		3-Phase				Catalog Number ①
		115V	230V	208V	240V	480V	600V	

## Sizes 00 – 2

00	9	1/3	—	1-1/2	1-1/2	2	2	A200MABR
0	18	1	—	3	3	5	5	A200M0BR
1	27	2	—	7-1/2	7-1/2	10	10	A200M1BR
1-1/2	36	3	—	—	—	—	—	A200MDBR
2	45	7-12	—	10	15	25	25	A200M2BR

<sup>①</sup> For ambient compensated overload relay with auto-reset, add Suffix D.

<sup>②</sup> Single-phase with one single-pole overload relay.

Table 14. Non-reversing Starters Selection — 3 Poles

Size	Amps	Max. UL Horsepower						Open
		1-Phase		3-Phase				Catalog Number <sup>③</sup>
		115V	230V	208V	240V	480V	600V	

## Sizes 00 – 6

00	9	1/3	—	1-1/2	1-1/2	2	2	A200MAC_
0	18	1	—	3	3	5	5	A200M0C_
1	27	2	—	7-1/2	7-1/2	10	10	A200M1C_
2	45	7-12	—	10	15	25	25	A200M2C_
3	90	—	—	25	30	50	50	A200M3C_
4	135	—	—	40	50	100	100	A200M4C_
5	270	—	—	75	100	200	200	A200M5C_
6	540	—	—	150	200	400	400	A200M6C_

## Sizes 7 – 9

7 <sup>④</sup>	810	—	—	200	300	600	600	A200M7C_
8 <sup>④</sup>	1215	—	—	400	450	900	900	A200M8C_
9 <sup>④</sup>	2250	—	—	—	800	1600	—	A200M9C_ <sup>⑤</sup>

<sup>③</sup> For ambient compensated overload relay with auto-reset, add Suffix D.

<sup>④</sup> Sizes 7 – 9 use rectifier with DC coil.

<sup>⑤</sup> For Size 9, only available coil voltage is 120V.

Table 15. Coils for Sizes 00 – 6

Coil Volts and Hz	Code Suffix
120/60 or 110/50	AC
200 – 208/60	B
240/60	W
480/60	X
600/60	E

Table 16. Coils for Sizes 7, 8 and 9 <sup>⑥</sup>

Coil Volts and Hz	Code Suffix
110 – 120/50 or 60	J
220 – 240/50 or 60	W
440 – 480/50 or 60	X
600/60	E

<sup>⑥</sup> For Size 9, only available coil voltage is 120V.

\*Please contact your local Eaton sales office.

Technical Data.....	Pages 16 – 19
Heaters .....	Pages 35 – 36
Other Coil Voltages .....	Page 19
Factory Modifications.....	Page 20
Modification Kits, Accessories.....	Pages 20 – 22
Dimensions.....	Page 11
Discount Symbol .....	1CD1