

Heavy Duty Starters

Features and Benefits

General



Standard Features

Size 00–4 magnetic starters include the following standard features:

- Rugged Industrial Design
- Half Sizes for Cost and Space Savings
- Dual Voltage, Dual Frequency Coils
- Solid State or Ambient Compensated Bimetal Overload Protection
- Wide Range of Accessories
- Easy Coil Access
- Overload Test Feature
- Straight Thru Wiring
- Gravity Dropout
- Large Silver Cadmium Contacts

Application

Heavy Duty starters are designed for across the line starting of single phase and polyphase motors.

These controls are available in NEMA Sizes 00 through 8. In addition to the usual NEMA Starter Sizes, Siemens offers three exclusive Half Sizes; 1¼, 2½ and 3½. These integral sizes offer the same rugged, industrial construction as our NEMA Sizes and ensure efficient operating performance. Half Sizes provide a real cost savings by cutting down on over capacity when NEMA Sizes exceed the motor ratings. All Siemens Heavy Duty controls, including our popular Half Sizes comply with applicable NEMA and UL tests.

All starters are supplied with a NO holding interlock that in conjunction with an appropriate pilot device will provide low voltage protection or release.

NEMA starters are ideal for applications requiring dependability and durability. Typical applications include use with machine tools, air conditioning equipment, material handling equipment, compressors, hoists and various production and industrial equipment as well as in demanding automotive applications.

Starters are available as an open type or in NEMA 1, 12/3/3R, 4 (painted), 4/4X (stainless), 4X (fiberglass), and 7 & 9 enclosures.

Gravity Dropout

For added reliability, the gravity dropout of the armature and contacts is assisted by stainless steel springs which help provide quick, precise opening of the contacts.

45 Degree, Wedge Action Contacts

The 45 degree, wedge action contacts reduce tracking and provide faster arc quenching. The resulting self-cleaning and reduced contact bounce mean cooler operation and longer life for the large silver cadmium oxide contacts.

Terminal Design

Control terminals are self-rising pressure type.

Molded Coil

Magnetic coils are carefully wound and then sealed in epoxy. Encapsulation helps seal out moisture, promotes heat transfer and resists electrical, mechanical and thermal stresses.

Dual Voltage/Frequency Coil

Starters are available with dual voltage, dual frequency coils. They are designed to operate on either 50 or 60 Hertz.

Molded Stationary Contact Block

Thermoset materials resist arc tracking and the stresses of heat and severe impact.

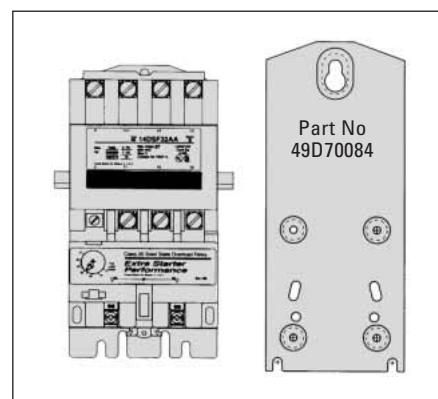
Field Modification Kits

All starters can be modified in the field with a complete range of accessories. These include pushbuttons, selector switches, pilot lights, auxiliary contacts and surge suppressors.

Auxiliary Equipment

- NEMA starters are available with built-in START-STOP push buttons for 3 wire control or a HAND-OFF-AUTO selector switch for 2 wire control.

- Field modifications such as auxiliary contacts, pilot lights, push buttons, selector switches, and fuse blocks are available to meet particular application requirements.
- Normally opened or normally closed auxiliary power pole kits are available for Sizes 00 through 1¼.
- Transformers can be ordered as either factory or field modifications. In some cases these may require a larger enclosure.
- A full line of replacement parts are available including contact kits, coils, and overload relays.



Siemens Sizes 00–1¼ have as standard, universal mounting which fits the following:

- Cutler Hammer—Citation Series
- Freedom Series
- GE —300 Line
- Square D —Type S

The Starter with its existing back-plate mounts onto the piggyback mounting plate and is secured in place with three mounting screws. The piggyback mounting plate fits the following:

- Allen-Bradley —Bulletin 509
- Bulletin 709
- Westinghouse —Series A200

Size 5 & 6 Starters Additional Features

- Solid State Overload (3RB type) Standard
- Latest technology in arc quenching to extend contactor life
- Wide variety of enclosures in all starter configurations



Size 0-1 1/4
ESP100® Solid State Starter

ESP100® starters combine the rugged characteristics of a NEMA rated contactor with a solid state overload that provides phase loss protection. It offers the industrial user greater protection and added life for motors in heavy duty applications. The inherent benefits of the ESP100® ultimately result in a cost savings to the user.

ESP100® Solid State Overload Relays

These standard features of the ESP100® provide Extra Starter Performance.

- True phase loss protection; trips within 3 seconds.
- High accuracy trip curves; ± 2% repeat trip accuracy.
- Ease of use. Mount, wire, and set FLA.
- Overload is self protected against short circuits.
- Overload is self powered and requires no hard wiring or separate power source.
- Heaterless construction minimizes energy costs and the costs of cabinet ventilation or cooling.
- Class 20 protection is standard. Class 10 and 30 protection are available.
- Provides motor protection for 50/60 Hertz.

Half Size Starters

Half-Size starters feature all the rugged performance characteristics of our NEMA rated starter sizes, but are fractionally sized to more closely match your exact motor rating. As a result, significant economic savings are made possible without sacrificing the reliability you expect from a heavy duty starter.

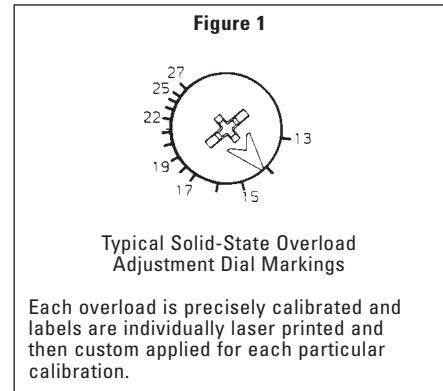
These additional starter sizes have the reserve capacity to handle occasional plugging and jogging applications without derating. Superior operating performance in heavy duty applications is assured by the large current carrying parts, not by derating the device.

Exclusive “half-sizes” save potentially hundreds, even thousands of dollars per project.

Using the table below, simply match the specific size starter to the horsepower rating of your motor. Every half-size starter saves you money—up to 31%.

All “half-sizes” comply to applicable NEMA and UL standards.

ESP100® FLA Adjustment Dial—Set the adjustment dial on the overload to the FLA of the motor.



Each overload is precisely calibrated and labels are individually laser printed and then custom applied for each particular calibration.

Savings for Siemens “Half-Size” Starters in NEMA 1 Enclosures, FVNR

Motor Size		Starter Size	Half Size	Price \$	“Half-Size” Savings Over Next Full Size
230V	460V				
7 1/2	10	1	—	351.	—
10	15	—	1 1/4	466.	31%
15	25	2	—	659.	—
20	30	—	2 1/2	867.	20%
30	50	3	—	1075.	—
40	75	—	3 1/2	2076.	13%
50	100	4	—	2384.	—

Heavy Duty Motor Starters

Solid State Overload with Manual Reset, Class 14

Selection



Ordering Information

- ▶ Replace the (*) with a letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- ▶ Technical Data see www.sea.siemens.com/controls.
- ▶ Field Modification Kits see pages 6/71.
- ▶ Factory Modifications see pages 6/83.
- ▶ Dimensions see pages 6/91 open and 6/104 enclosed.
- ▶ Wiring Diagrams see page 6/117.
- ▶ Replacement Parts see pages 6/135.
- ▶ Shipped as standard Class 20. For Class 10 or Class 30 see page 6/87.

Coil Table

60Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110–120/220–240 ^①	A
200–208	D
220–240	G
277	L
220–240/440–480 ^①	C
440–480	H
575–600	E

For other voltages and frequencies, see Factory Modifications page 6/83.

Open Type & Standard Width Enclosure, 3 Phase, 3 Pole

Max Hp				NEMA Size	Half Size	Overload Amp Range	Enclosure											
200 Volts	230 Volts	460 Volts	575 Volts				Open Type		NEMA 1 General Purpose		NEMA 4/4X Stainless ^② Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 4X Fiberglass Watertight, Dusttight Corrosion Resistant		NEMA 7 & 9 NEMA 3 & 4 Div 1 and Div 2 Class I Groups C & D Class II Groups E, F & G Bolted Enclosures Indoor/Outdoor Use		NEMA 12 NEMA 3/3R ^③ Industrial Use Weatherproof	
							Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$
1/2	1/2	1/2	1/2	00	—	0.25–1	14BSA32A*	243.	14BSA32B*	258.	Use Size 0	—	Use Size 0	—	Use Size 0	—	Use Size 0	—
3/4	3/4	1 1/2	2	00	—	0.75–3	14BSB32A*	243.	14BSB32B*	258.	Use Size 0	—	Use Size 0	—	Use Size 0	—	Use Size 0	—
1 1/2	1 1/2	2	—	00	—	2.5–10	14BSD32A*	243.	14BSD32B*	258.	Use Size 0	—	Use Size 0	—	Use Size 0	—	Use Size 0	—
1/2	1/2	1/2	1/2	0	—	0.25–1	14CSA32A*	297.	14CSA32B*	312.	14CSA32W*	582.	14CSA32F*	640.	14CSA32H*	1283.	14CSA320*	404.
3/4	3/4	1 1/2	2	0	—	0.75–3	14CSB32A*	297.	14CSB32B*	312.	14CSB32W*	582.	14CSB32F*	640.	14CSB32H*	1283.	14CSB320*	404.
2	2	5	5	0	—	2.5–10	14CSD32A*	297.	14CSD32B*	312.	14CSD32W*	582.	14CSD32F*	640.	14CSD32H*	1283.	14CSD320*	404.
3	3	—	—	0	—	9–18	14CSE32A*	297.	14CSE32B*	312.	14CSE32W*	582.	14CSE32F*	640.	14CSE32H*	1283.	14CSE320*	404.
1/2	1/2	1/2	1/2	1	—	0.25–1	14DSA32A*	335.	14DSA32B*	351.	14DSA32W*	628.	14DSA32F*	691.	14DSA32H*	1321.	14DSA320*	443.
3/4	3/4	1 1/2	2	1	—	0.75–3	14DSB32A*	335.	14DSB32B*	351.	14DSB32W*	628.	14DSB32F*	691.	14DSB32H*	1321.	14DSB320*	443.
2	2	5	5	1	—	2.5–10	14DSD32A*	335.	14DSD32B*	351.	14DSD32W*	628.	14DSD32F*	691.	14DSD32H*	1321.	14DSD320*	443.
3	3	10	10	1	—	9–18	14DSE32A*	335.	14DSE32B*	351.	14DSE32W*	628.	14DSE32F*	691.	14DSE32H*	1321.	14DSE320*	443.
7 1/2	7 1/2	—	—	1	—	13–27	14DSF32A*	335.	14DSF32B*	351.	14DSF32W*	628.	14DSF32F*	691.	14DSF32H*	1321.	14DSF320*	443.
—	—	15	15	—	1/4	13–27	14ESF32A*	451.	14ESF32B*	466.	14ESF32W*	743.	14ESF32F*	817.	14ESF32H*	1437.	14ESF320*	559.
10	10	—	—	—	1/4	20–40	14ESG32A*	451.	14ESG32B*	466.	14ESG32W*	743.	14ESG32F*	817.	14ESG32H*	1437.	14ESG320*	559.
—	—	15	20	2	—	13–27	14FSF32A*	582.	14FSF32B*	659.	14FSF32W*	1213.	14FSF32F*	1334.	14FSF32H*	1814.	14FSF320*	828.
10	15	25	25	2	—	22–45	14FSH32A*	582.	14FSH32B*	659.	14FSH32W*	1213.	14FSH32F*	1334.	14FSH32H*	1814.	14FSH320*	828.
—	—	30	30	—	2 1/2	22–45	14GSH32A*	751.	14GSH32B*	867.	14GSH32W*	1537.	14GSH32F*	1691.	14GSH32H*	2261.	14GSH320*	1052.
15	20	—	—	—	2 1/2	30–60	14GSJ32A*	751.	14GSJ32B*	867.	14GSJ32W*	1537.	14GSJ32F*	1691.	14GSJ32H*	2261.	14GSJ320*	1052.
—	—	30	40	3	—	30–60	14HSJ32A*	921.	14HSJ32B*	1075.	14HSJ32W*	1861.	14HSJ32F*	2047.	14HSJ32H*	3243.	14HSJ320*	1275.
25	30	50	50	3	—	45–90	14HSK32A*	921.	14HSK32B*	1075.	14HSK32W*	1861.	14HSK32F*	2047.	14HSK32H*	3243.	14HSK320*	1275.
30	40	75	75	—	3 1/2	57–115	14ISL32A*	1753.	14ISL32B*	2076.	14ISL32W*	3417.	14ISL32F*	3759.	14ISL32H*	4041.	14ISL320*	2739.
40	50	100	100	4	—	67–135	14JTM32A*	2061.	14JTM32B*	2384.	14JTM32W*	3725.	14JTM32F*	4098.	14JTM32H*	4349.	14JTM320*	3047.
75	100	200	200	5	—	55–250	14LPU32A*	4984.	14LPU32B*	5578.	14LPU32E* ^④	7273.	—	—	14LPU32H*	10077.	14LPU320*	7273.
150	200	400	400	6	—	200–540	14MPX32A*	11803.	14MPX32B*	15655.	14MPX32E* ^④	19507.	—	—	—	—	14MPX320*	17735.
—	300	600	600	7	—	420–820	14NTY32A*	17480.	14NTY32B*	21332.	14NTY32E* ^④	25184.	—	—	—	—	14NTY320*	23412.
—	450	900	900	8	—	420–1220	14PTZ32A*	26132.	14PTZ32B*	29984.	14PTZ32E* ^④	33836.	—	—	—	—	14PTZ320*	32064.

Open Type & Standard Width Enclosure, Single Phase, 2 Pole^③

Max Hp		NEMA Size	Overload Amp Range	Enclosure											
115 Volts	208/230 Volts			Open Type		NEMA 1 General Purpose		NEMA 4/4X Stainless ^② Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 4X Fiberglass Watertight, Dusttight Corrosion Resistant		NEMA 7 & 9 NEMA 3 & 4 Div 1 and Div 2 Class I Groups C & D Class II Groups E, F & G Bolted Enclosures Indoor/Outdoor Use		NEMA 12 NEMA 3/3R ^③ Industrial Use Weatherproof	
				Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$	Catalog No	Price \$
1/2	1/4	0	0.75–3	14CSB12A*	247.	14CSB12B*	262.	14CSB12W*	532.	14CSB12F*	585.	14CSB12H*	1233.	14CSB120*	354.
3/4	1/2	0	2.5–10	14CSD12A*	247.	14CSD12B*	262.	14CSD12W*	532.	14CSD12F*	585.	14CSD12H*	1233.	14CSD120*	354.
1	2	0	5.0–16	14CSE12A*	247.	14CSE12B*	262.	14CSE12W*	532.	14CSE12F*	585.	14CSE12H*	1233.	14CSE120*	354.
1/2	1/4	1	0.75–3	14DSB12A*	285.	14DSB12B*	300.	14DSB12W*	578.	14DSB12F*	636.	14DSB12H*	1271.	14DSB120*	393.
3/4	1/2	1	2.5–10	14DSD12A*	285.	14DSD12B*	300.	14DSD12W*	578.	14DSD12F*	636.	14DSD12H*	1271.	14DSD120*	393.
1	2	1	5.0–16	14DSE12A*	285.	14DSE12B*	300.	14DSE12W*	578.	14DSE12F*	636.	14DSE12H*	1271.	14DSE120*	393.

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors. All Starter Sizes carry one maximum Hp rating. For higher Hp single phase motors, use 3 phase starters, wire and set per diagram on page 6/117.

- ① Dual voltage coils not available in size 5–8 starters.
- ② For conduit hubs and conversion instructions, see page 6/77.
- ③ Coils D, F, or G will be wired for Incoming Voltage. J coil will be wired for separate source.

④ Enclosure is NEMA Type 4 (painted steel).