

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; 1¾, 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.

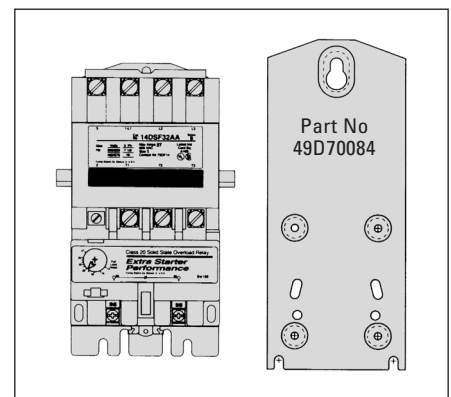
Field Modification Kits

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 1¾.
- 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 00–1¾ 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 |

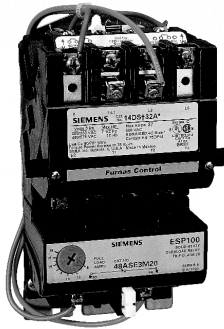
Size 5 & 6 Starters Additional Features

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

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.

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 \$
1/8	1/8	1/8	1/2	00	—	0.25–1	14BSA32A*	14BSA32B*	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0		
1/4	3/4	1 1/2	2	00	—	0.75–3	14BSB32A*	14BSB32B*	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0		
1 1/2	1 1/2	2	—	00	—	2.5–10	14BSD32A*	14BSD32B*	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0	Use Size 0		
1/8	1/8	1/8	1/2	0	—	0.25–1	14CSA32A*	14CSA32B*	14CSA32W*	14CSA32F*	14CSA32H*	14CSA32H*	14CSA32H*	14CSA32H*	14CSA32H*	14CSA32H*		
1/4	3/4	1 1/2	2	0	—	0.75–3	14CSB32A*	14CSB32B*	14CSB32W*	14CSB32F*	14CSB32H*	14CSB32H*	14CSB32H*	14CSB32H*	14CSB32H*	14CSB32H*		
2	2	5	5	0	—	2.5–10	14CSD32A*	14CSD32B*	14CSD32W*	14CSD32F*	14CSD32H*	14CSD32H*	14CSD32H*	14CSD32H*	14CSD32H*	14CSD32H*		
3	3	—	—	0	—	9–18	14CSE32A*	14CSE32B*	14CSE32W*	14CSE32F*	14CSE32H*	14CSE32H*	14CSE32H*	14CSE32H*	14CSE32H*	14CSE32H*		
1/8	1/8	1/8	1/2	1	—	0.25–1	14DSA32A*	14DSA32B*	14DSA32W*	14DSA32F*	14DSA32H*	14DSA32H*	14DSA32H*	14DSA32H*	14DSA32H*	14DSA32H*		
1/4	3/4	1 1/2	2	1	—	0.75–3	14DSB32A*	14DSB32B*	14DSB32W*	14DSB32F*	14DSB32H*	14DSB32H*	14DSB32H*	14DSB32H*	14DSB32H*	14DSB32H*		
2	2	5	5	1	—	2.5–10	14DSD32A*	14DSD32B*	14DSD32W*	14DSD32F*	14DSD32H*	14DSD32H*	14DSD32H*	14DSD32H*	14DSD32H*	14DSD32H*		
3	3	10	10	1	—	9–18	14DSE32A*	14DSE32B*	14DSE32W*	14DSE32F*	14DSE32H*	14DSE32H*	14DSE32H*	14DSE32H*	14DSE32H*	14DSE32H*		
7 1/2	7 1/2	—	—	1	—	13–27	14DSF32A*	14DSF32B*	14DSF32W*	14DSF32F*	14DSF32H*	14DSF32H*	14DSF32H*	14DSF32H*	14DSF32H*	14DSF32H*		
—	—	15	15	—	1 1/4	13–27	14ESF32A*	14ESF32B*	14ESF32W*	14ESF32F*	14ESF32H*	14ESF32H*	14ESF32H*	14ESF32H*	14ESF32H*	14ESF32H*		
10	10	—	—	—	1 1/4	20–40	14ESG32A*	14ESG32B*	14ESG32W*	14ESG32F*	14ESG32H*	14ESG32H*	14ESG32H*	14ESG32H*	14ESG32H*	14ESG32H*		
—	—	15	20	2	—	13–27	14FSF32A*	14FSF32B*	14FSF32W*	14FSF32F*	14FSF32H*	14FSF32H*	14FSF32H*	14FSF32H*	14FSF32H*	14FSF32H*		
10	15	25	25	2	—	22–45	14FSH32A*	14FSH32B*	14FSH32W*	14FSH32F*	14FSH32H*	14FSH32H*	14FSH32H*	14FSH32H*	14FSH32H*	14FSH32H*		
—	—	30	30	—	2 1/2	22–45	14GSH32A*	14GSH32B*	14GSH32W*	14GSH32F*	14GSH32H*	14GSH32H*	14GSH32H*	14GSH32H*	14GSH32H*	14GSH32H*		
15	20	—	—	—	2 1/2	30–60	14GSJ32A*	14GSJ32B*	14GSJ32W*	14GSJ32F*	14GSJ32H*	14GSJ32H*	14GSJ32H*	14GSJ32H*	14GSJ32H*	14GSJ32H*		
—	—	30	40	3	—	30–60	14HSJ32A*	14HSJ32B*	14HSJ32W*	14HSJ32F*	14HSJ32H*	14HSJ32H*	14HSJ32H*	14HSJ32H*	14HSJ32H*	14HSJ32H*		
25	30	50	50	3	—	45–90	14HSK32A*	14HSK32B*	14HSK32W*	14HSK32F*	14HSK32H*	14HSK32H*	14HSK32H*	14HSK32H*	14HSK32H*	14HSK32H*		
30	40	75	75	—	3 1/2	57–115	14ISL32A*	14ISL32B*	14ISL32W*	14ISL32F*	14ISL32H*	14ISL32H*	14ISL32H*	14ISL32H*	14ISL32H*	14ISL32H*		
40	50	100	100	4	—	67–135	14JTM32A*	14JTM32B*	14JTM32W*	14JTM32F*	14JTM32H*	14JTM32H*	14JTM32H*	14JTM32H*	14JTM32H*	14JTM32H*		
75	100	200	200	5	—	55–250	14LPJ32A*	14LPJ32B*	14LPJ32E ^④	—	14LPJ32H*	14LPJ32H*	14LPJ32H*	14LPJ32H*	14LPJ32H*	14LPJ32H*		
150	200	400	400	6	—	200–540	14MPX32A*	14MPX32B*	14MPX32E ^④	—	14MPX32H*	14MPX32H*	14MPX32H*	14MPX32H*	14MPX32H*	14MPX32H*		
—	300	600	600	7	—	420–820	Contact Sales Office											
—	450	900	900	8	—	420–1220	Contact Sales Office											

Contact Sales Office

Contact Sales Office

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 \$	Catalog No	Price \$	Catalog No	Price \$
1/8	1/8	0	0.75–3	14CSB12A*	14CSB12B*	14CSB12W*	14CSB12F*	14CSB12H*	14CSB12H*	14CSB12H*	14CSB12H*	14CSB12H*	14CSB12H*	14CSB12H*	14CSB12H*
1/4	1/4	0	2.5–10	14CSD12A*	14CSD12B*	14CSD12W*	14CSD12F*	14CSD12H*	14CSD12H*	14CSD12H*	14CSD12H*	14CSD12H*	14CSD12H*	14CSD12H*	14CSD12H*
1	2	0	5.0–16	14CSE12A*	14CSE12B*	14CSE12W*	14CSE12F*	14CSE12H*	14CSE12H*	14CSE12H*	14CSE12H*	14CSE12H*	14CSE12H*	14CSE12H*	14CSE12H*
1/8	1/8	1	0.75–3	14DSB12A*	14DSB12B*	14DSB12W*	14DSB12F*	14DSB12H*	14DSB12H*	14DSB12H*	14DSB12H*	14DSB12H*	14DSB12H*	14DSB12H*	14DSB12H*
1/4	1/4	1	2.5–10	14DSD12A*	14DSD12B*	14DSD12W*	14DSD12F*	14DSD12H*	14DSD12H*	14DSD12H*	14DSD12H*	14DSD12H*	14DSD12H*	14DSD12H*	14DSD12H*
1	2	1	5.0–16	14DSE12A*	14DSE12B*	14DSE12W*	14DSE12F*	14DSE12H*	14DSE12H*	14DSE12H*	14DSE12H*	14DSE12H*	14DSE12H*	14DSE12H*	14DSE12H*

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.

③ Enclosure is NEMA Type 4 (painted steel).

Class	Size	Model	ESP 100® Current Range ^⑤	Enclosure Size	Enclosure Type	Breaker HP Code® Horsepower Rating 200, 230, 460, 575
17 — Combination Starter (Non Fusible, Fusible)	C — 0	P — Thermal size 00-4, Solid state sizes 5 & 6	Three Phase A — .25-1 B — .75-3 D — 2.5-10 E — 9-18 F — 13-27 G — 20-40 H — 22-45 J — 30-60 K — 45-90 L — 57-115 M — 67-135 U — 55-250 X — 200-540 Y — 420-820 Z — 420-1220	92 — Standard Width 82 — Extra Wide	B — NEMA 1 F — NEMA 4X Fiberglass H — NEMA 7/9/3/4, bolted (Class 18 & 26 only) N — NEMA 12 Field convertible to 3/3R/4 W — NEMA 4/4X Stainless Steel	A — 1/2, 1/2, 1, 1 B — 1, 1, 3, 3 C — 3, 3, 5, 5 D — 3, 3, 7 1/2, 7 1/2 E — 7 1/2, 7 1/2, 10, 10 F — —, —, 15, 15 G — 10, 10, —, — H — 7 1/2, 10, 20, 20 J — 10, 15, 25, 25 K — —, —, 30, 30 L — 15, 20, —, — M — —, —, 30, 30 N — 25, 30, 50, 50 P — 30, 40, 75, 75 R — 40, 50, 100, 100
18 — Combination Starter (Circuit Breaker)	D — 1					
25 — Reversing Combination Starter (Non Fusible, Fusible)	E — 1 3/4					
26 — Reversing Combination Starter (Circuit Breaker)	F — 2					
	G — 2 1/2					
	H — 3					
	I — 3 1/2					
	J — 4					
	L — 5					
	M — 6					

Class	Size	Model	ESP 100® Current Range ^⑤	Pilot Control Circuit	Power Poles/Enclosure Size	Enclosure Type	Coil
14 — Across the Line NEMA Motor Starter	B — 00	P — Thermal size 00-3 1/2, Solid state sizes 5 & 6	Three Phase A — .25-1 B — .75-3 D — 2.5-10 E — 9-18 F — 13-27 G — 20-40 H — 22-45 J — 30-60 K — 45-90 L — 57-115 M — 67-135 U — 55-250 X — 200-540 Y — 420-820 Z — 420-1220	2 — suitable for 3 wire control (NO aux. contact incl.)	1 — 2 power poles, 1 phase 3 — 3 power poles, 3 phase 82 — 3 power poles, 3 phase, extra wide enclosure	A — Open B — NEMA 1 F — NEMA 4X Fiberglass H — NEMA 7/9/3/4 bolted O — NEMA 12 Field convertible to 3/3R/4 W — NEMA 4/4X Stainless Steel	A ^③ — 110-120V/220-240V@60Hz 110V/190-220V@50Hz C ^③ — 220-240V/440-480V@60Hz 190-220V/380-440V@50Hz D — 200-208V@60Hz E — 550-600V@60Hz 550V@50Hz F — 120V@60Hz 110V@50Hz G — 220-240V@60Hz 190-220V@50Hz H — 440-480V@60Hz 380-440V@50Hz J ^④ — 24V@60Hz 24V@50Hz L — 277V@60Hz 240V@50Hz
22 — Reversing NEMA Motor Starter	C — 0	G — Thermal size 4	Single Phase ^① A — .25-1 B — .75-3 D — 2.5-10 E — 5-16				
40 — Across the Line NEMA Magnetic Contactor	D — 1	S — ESP100 size 00-3 1/2					
43 — Reversing NEMA Magnetic Contactor	E — 1 3/4 & 1P	T — ESP100 size 4					
	F — 2						
	G — 2 1/2						
	H — 3						
	I — 3 1/2						
	J — 4						
	L — 5						
	M — 6						

Class	Size	Model	ESP 100® Current Range ^⑤	Type	Line Volts	Enclosure Type	Coil	Disconnect Type ^④
36 — Non Combination Reduced Voltage Starter	C — 0 D — 1 E — 1 3/4 F — 2 G — 2 1/2	S — ESP100 size 0-4 T — ESP100 size 5-6		T — Auto XFMR P — Part Wind. O — Wye Delta Open Trans. C — Wye Delta Closed Trans.	2 — 230 3 — 380 4 — 460 5 — 575 6 — 200/208	A — Open B — NEMA 1 W — NEMA 4/4X Stainless Steel O — NEMA 12	D — 24V@60Hz E — 24V@50Hz F — 277V@60Hz G — 240V@50Hz H —	D — Non Fused Disc. F — Fusible Disc. P — MCP
37 — Combination Reduced Voltage Starter	H — 3 I — 3 1/2 J — 4 L — 5 M — 6 N — 7 P — 8							

①Single phase ESP100 available on Class 14 Starters only.

②Not used on Class 17, 25 or with ESP100 versions.
③Not available on sizes 5-8.

④For Class 37 only.
⑤Position used for ESP100 only.
⑥Not available on sizes 7 and 8.

Ordering Information

- Prices shown are additions to standard equipment prices as listed in the catalog and are not to be used as separate selling prices. All modifications will consist of Siemens standard components as available. Standard equipment dimensions and enclosure construction may not apply when certain modifications and special features are added.
- Catalog Number Suffixes indicate numbers or letters added to the end of a catalog number. Example: 14DP32BA becomes 14DP32BAA1.

Additional Auxiliary Contacts

Class	NO Contacts	NC Contacts	Catalog No Suffix	Controller Size — Price \$		
				00–1¾	2–4	5–6
14,17,18,40	—	1	G01			
	—	2	G02			
	1	—	G10			
	1	1	G11			
	1	2	G12			
	2	—	G20			
	2	1	G21			
	2	2	G22			
	2	3	G23			
	3	1	G31			
22,25,26,43 & 30,32 (2-winding)	3	2	G32			
	3	3	G33			
	4	—	G40			
	4	1	G41			
	4	2	G42			
	4	4	G44			
	5	—	G50			
	5	1	G51			
	5	3	G53			
	6	—	G60			
30,32 (1-winding)	6	2	G62			
	7	1	G71			
	8	—	G80			
	—	2	G02 ^①			
	2	—	G20 ^①			
	2	2	G22 ^①			
	4	0	G40 ^①			
	4	4	G44 ^①			
	6	2	G62 ^①			
	8	0	G80 ^①			
LE	0	2	G02 ^①			
	2	—	G20 ^①			
	2	2	G22 ^①			
	4	—	G40 ^①			
	4	4	G44 ^①			
	6	2	G62 ^①			
LE	8	—	G80 ^①			
	1	1	G11		20 amp only	20 amp only

Overload Options

Class 14, 17, 18, 22, 25, 26, 30, 32							
Description	Trip Class	Phase	Contacts	Catalog No Suffix	Controller Size—Price \$		
					00–2½	3–4	5,6
Ambient Compensated Bimetal	Class 10 or 20 (K or E heaters)	3 Phase	NO & NC, SPDT	91	NC	—	—
		1 Phase	NC	81	NC	—	—
ESP100 3RB10 (Sz 5-6)	Class 10 Class 30	3 Phase	NC	51	NC	NC	NC
			NC	53	NC	NC	—

^① Auxiliary contacts will be added evenly across contactors. (i.e. Class 22, G02 suffix will add 2 NC contacts (one per contactor).)