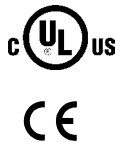


# Multispeed Starters

Versatile starters for any multispeed motor or application

Sprecher + Schuh multispeed starters can produce multiple constant speeds by specially arranging the windings of multispeed motors. Motors with two separate windings or one reconnectable winding can be used.

All Sprecher + Schuh multispeed starters feature our CAT7 and CAT6 motor starters. These compact starters offer intermediate sizes to better match specific motor requirements. This equates to generous wiring space and less wasted horsepower capacity. Advanced CEP7 solid state overload relays are used with starters. See Section "B" in this catalog for a full description of these excellent motor protection relays.



## Choose the right starter for your application

Multispeed motors fall into three types, all with differing torque characteristics. Selecting the proper type depends on the connected load.

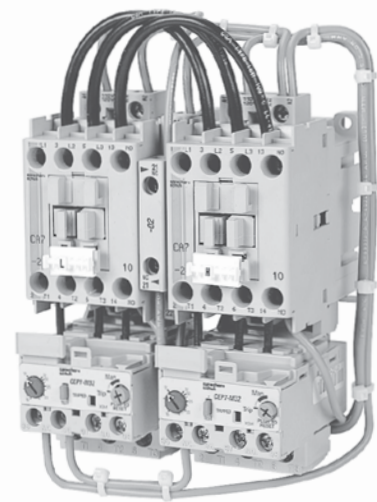
**Constant Torque** motors deliver the same torque at each speed, and horsepower varies directly with the speed. Typical applications include reciprocating pumps, conveyors, mills and mixers.

**Constant Horsepower** motors deliver the same horsepower at each speed and the torque varies inversely with the speed. Typical applications include machine tools such as drills, lathes, mills, punch presses and saws.

**Variable Torque** (variable horsepower) motors deliver a torque that varies directly with the speed and the horsepower varies directly with the square of the speed. Typical applications include centrifugal pumps, fans and blowers.

## Control options

The four common forms of control for multispeed starters are known as selective, compelling, progressive and decelerating. Standard multispeed starters are wired for selective control.



The other control options are available as factory modifications.

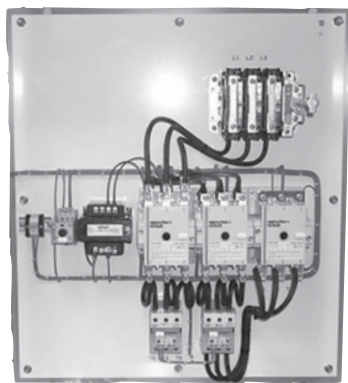
**Selective Control** permits starting the motor on any desired speed. To increase the speed of a running motor, press the desired speed button. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

**Compelling Control** requires that the motor always be started at the lowest speed. To reach higher speeds, the push buttons must be operated in the speed sequence. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

**Progressive Control** provides automatic, timed acceleration of the motor to the selected speed by energizing the windings progressively from the lowest to the desired speed. To change to a lower speed, the STOP button must be pressed before selecting a new speed.

**Decelerating Control** provides automatic time delay to a lower speed. This type of control allows the motor to decelerate from a high speed before automatically restarting the motor in a lower speed. Decelerating Control prevents damage to the motor or machine when high inertia loads are switched to a lower speed.

Contact your Sprecher + Schuh representative for more information.



Custom 2-speed, 1-winding combination starter with control transformer and deceleration relay, mounted in a Type-1 enclosure

**Two Separate Windings CAZTT7/CAZTT6 & CAZHT7/CAZHT6**

Maximum Horsepower Three Phase				Open Type	Type 1 (M1) General Purpose	D I M	M12 (M3) Industrial Dusttight	D I M	Type 4 (M4) Watertight	D I M	Type 4X (F4) Watertight Corr Resist Non-metallic	D I M					
200V	230V	460V	575V	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price	Catalog No.	Price				
<b>Constant or Variable Torque - CAZTT</b>																	
				CAZTT		CAZTT		CAZTT		CAZTT		CAZTT					
2	2	5	7 1/2	7-9-*◆	584	7-9-*◆-GO	835	M	7-9-*◆-DO	877	M	7-9-*◆-WO	918	N	7-9-*◆-CO	877	U1
3	3	7 1/2	10	7-12-*◆	626	7-12-*◆-GO	877	M	7-12-*◆-DO	918	M	7-12-*◆-WO	960	N	7-12-*◆-CO	918	U1
5	5	10	15	7-16-*◆	668	7-16-*◆-GO	918	M	7-16-*◆-DO	960	M	7-16-*◆-WO	1002	N	7-16-*◆-CO	960	U1
5	7 1/2	15	15	7-23-*◆	751	7-23-*◆-GO	1002	M	7-23-*◆-DO	1044	M	7-23-*◆-WO	1085	N	7-23-*◆-CO	1044	U1
7 1/2	10	20	25	7-30-*◆	918	7-30-*◆-GO	1169	M	7-30-*◆-DO	1211	M	7-30-*◆-WO	1236	O	7-30-*◆-CO	1194	U1
10	10	25	30	7-37-*◆	1085	7-37-*◆-GO	1336	M	7-37-*◆-DO	1378	M	7-37-*◆-WO	1328	O	7-37-*◆-CO	1286	U1
10	15	30	30	7-43-*◆	1252	7-43-*◆-GO	1586	M	7-43-*◆-DO	1670	M	7-43-*◆-WO	1753	O	7-43-*◆-CO	1712	U1
15	20	40	50	7-60-*◆	1503	7-60-*◆-GO	2004	C	7-60-*◆-DO	2087	O	7-60-*◆-WO	2129	O	7-60-*◆-CO	2129	V1
20	25	50	60	7-72-*◆	1670	7-72-*◆-GO	2146	C	7-72-*◆-DO	2229	O	7-72-*◆-WO	2254	O	7-72-*◆-CO	2254	V1
25	30	60	60	7-85-*◆	1837	7-85-*◆-GO	2313	C	7-85-*◆-DO	2396	O	7-85-*◆-WO	2421	O	7-85-*◆-CO	2421	V1
30	30	75	75	7-97-*◆	1957	7-97-*◆-GO	2433	C	7-97-*◆-DO	2516	O	7-97-*◆-WO	2541	O	7-97-*◆-CO	2541	V1
40	40	75	100	6-115-*◆	3841	6-115-*◆-GO	4843	E2	6-115-*◆-DO	5344	R2	6-115-*◆-WO	5427	R2	6-115-*◆-CO	5177	W2
40	50	100	125	6-140-*◆	4676	6-140-*◆-GO	5511	G	6-140-*◆-DO	6012	T	6-140-*◆-WO	6179	T	6-140-*◆-CO	6930	X1
<b>Constant Horsepower - CAZHT</b>																	
				CAZHT		CAZHT		CAZHT		CAZHT		CAZHT					
1 1/2	1 1/2	3	5	7-9-*◆	584	7-9-*◆-GO	835	M	7-9-*◆-DO	877	M	7-9-*◆-WO	918	N	7-9-*◆-CO	877	U1
2	2	5	7 1/2	7-12-*◆	626	7-12-*◆-GO	877	M	7-12-*◆-DO	918	M	7-12-*◆-WO	960	N	7-12-*◆-CO	918	U1
3	3	7 1/2	10	7-16-*◆	668	7-16-*◆-GO	918	M	7-16-*◆-DO	960	M	7-16-*◆-WO	1002	N	7-16-*◆-CO	960	U1
3	5	10	10	7-23-*◆	751	7-23-*◆-GO	1002	M	7-23-*◆-DO	1044	M	7-23-*◆-WO	1085	N	7-23-*◆-CO	1044	U1
5	7 1/2	15	20	7-30-*◆	918	7-30-*◆-GO	1169	M	7-30-*◆-DO	1211	M	7-30-*◆-WO	1236	O	7-30-*◆-CO	1194	U1
7 1/2	7 1/2	20	25	7-37-*◆	1085	7-37-*◆-GO	1336	M	7-37-*◆-DO	1378	M	7-37-*◆-WO	1328	O	7-37-*◆-CO	1286	U1
7 1/2	10	25	25	7-43-*◆	1252	7-43-*◆-GO	1586	M	7-43-*◆-DO	1670	M	7-43-*◆-WO	1753	N	7-43-*◆-CO	1712	U1
10	15	30	40	7-60-*◆	1503	7-60-*◆-GO	2004	C	7-60-*◆-DO	2087	O	7-60-*◆-WO	2129	O	7-60-*◆-CO	2129	V1
15	20	40	50	7-72-*◆	1670	7-72-*◆-GO	2146	C	7-72-*◆-DO	2229	O	7-72-*◆-WO	2254	O	7-72-*◆-CO	2254	V1
20	25	50	50	7-85-*◆	1837	7-85-*◆-GO	2313	C	7-85-*◆-DO	2396	O	7-85-*◆-WO	2421	O	7-85-*◆-CO	2421	V1
25	25	60	60	7-97-*◆	1957	7-97-*◆-GO	2433	C	7-97-*◆-DO	2516	O	7-97-*◆-WO	2541	O	7-97-*◆-CO	2541	V1
30	30	60	75	6-115-*◆	3850	6-115-*◆-GO	4843	E2	6-115-*◆-DO	5344	R2	6-115-*◆-WO	5427	R2	6-115-*◆-CO	5177	W2
30	40	75	100	6-140-*◆	4676	6-140-*◆-GO	5511	G	6-140-*◆-DO	6012	T	6-140-*◆-WO	6179	T	6-140-*◆-CO	6930	X1

Larger sizes available. Contact your Sprecher + Schuh representative.

**NOTE:** Catalog numbers, list Prices and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C86 and follow the instructions for modifying catalog numbers and list Prices.

**Ordering Instructions**

Specify Catalog Number	
Replace (*) with Coil Code	See page C86
Replace (◆) with O/L Relay for each speed	See pages C87-C88
Factory Modifications available	See pages C89-C92

- ① Dimensional information starts on page C108.
- ② For M3 outdoor applications, replace "D" in catalog number with an "R". Price remains the same, dimensions may change. Example: CAZTT7-23-\*◆-DO becomes CAZTT7-23-\*◆-RO.
- ③ All standard multispeed starters are wired for selective control. For compelling, progressive or automatic acceleration control, see Factory Modifications.

#### One Reconnectable Winding CAETT7/CAETT6 & CAEHT7/CAEHT6

Maximum Horsepower Three Phase				Open Type	Type 1 (M1) General Purpose	D I M	M12 (M3) Industrial Dusttight	D I M	Type 4 (M4) Watertight	D I M	Type 4X (F4) Watertight Corr Resist Non-metallic	D I M	
200V	230V	460V	575V	Catalog No.	Price	Catalog No.	Price ①	Catalog No.	Price ①	Catalog No.	Price ①	Catalog No.	Price ①
<b>Constant or Variable Torque - CAETT ③</b>													
				CAETT		CAETT		CAETT		CAETT		CAETT	
2	2	5	7 1/2	7-9*-◆	718	7-9*-◆-GO	1111 C	7-9*-◆-DO	1136 O	7-9*-◆-WO	1152 O	7-9*-◆-CO	1319 V1
3	3	7 1/2	10	7-12*-◆	835	7-12*-◆-GO	1227 C	7-12*-◆-DO	1252 O	7-12*-◆-WO	1269 O	7-12*-◆-CO	1436 V1
5	5	10	15	7-16*-◆	902	7-16*-◆-GO	1294 C	7-16*-◆-DO	1319 O	7-16*-◆-WO	1336 O	7-16*-◆-CO	1503 V1
5	7 1/2	15	15	7-23*-◆	952	7-23*-◆-GO	1336 C	7-23*-◆-DO	1361 O	7-23*-◆-WO	1386 O	7-23*-◆-CO	1553 V1
7 1/2	10	20	25	7-30*-◆	1169	7-30*-◆-GO	1561 C	7-30*-◆-DO	1586 O	7-30*-◆-WO	1603 O	7-30*-◆-CO	1770 V1
10	10	25	30	7-37*-◆	1294	7-37*-◆-GO	1670 C	7-37*-◆-DO	1753 O	7-37*-◆-WO	1770 O	7-37*-◆-CO	1937 V1
10	15	30	30	7-43*-◆	1503	7-43*-◆-GO	1920 C	7-43*-◆-DO	2004 O	7-43*-◆-WO	2021 O	7-43*-◆-CO	2188 V1
15	20	40	50	7-60*-◆	1837	7-60*-◆-GO	2338 D	7-60*-◆-DO	2755 O	7-60*-◆-WO	2922 O	7-60*-◆-CO	2755 W1
20	25	50	60	7-72*-◆	2004	7-72*-◆-GO	2505 D	7-72*-◆-DO	2922 Q	7-72*-◆-WO	3089 Q	7-72*-◆-CO	2922 W1
25	30	60	60	7-85*-◆	2171	7-85*-◆-GO	2672 D	7-85*-◆-DO	3089 Q	7-85*-◆-WO	3256 Q	7-85*-◆-CO	3089 W1
30	30	75	75	7-97*-◆	2291	7-97*-◆-GO	2792 D	7-97*-◆-DO	3209 Q	7-97*-◆-WO	3376 Q	7-97*-◆-CO	3209 W1
40	40	75	100	6-115*-◆	4175	6-115*-◆-GO	5845 G	6-115*-◆-DO	6262 T	6-115*-◆-WO	6722 T	6-115*-◆-CO	8183 A2
40	50	100	125	6-140*-◆	5093	6-140*-◆-GO	6513 G	6-140*-◆-DO	6930 T	6-140*-◆-WO	7348 T	6-140*-◆-CO	8809 A2
<b>Constant Horsepower - CAEHT ③</b>													
				CAEHT		CAEHT		CAEHT		CAEHT		CAEHT	
1 1/2	1 1/2	3	5	7-9*-◆	718	7-9*-◆-GO	1111 C	7-9*-◆-DO	1136 O	7-9*-◆-WO	1152 O	7-9*-◆-CO	1319 V1
2	2	5	7 1/2	7-12*-◆	835	7-12*-◆-GO	1227 C	7-12*-◆-DO	1252 O	7-12*-◆-WO	1269 O	7-12*-◆-CO	1436 V1
3	3	7 1/2	10	7-16*-◆	902	7-16*-◆-GO	1294 C	7-16*-◆-DO	1319 O	7-16*-◆-WO	1336 O	7-16*-◆-CO	1503 V1
3	5	10	10	7-23*-◆	952	7-23*-◆-GO	1336 C	7-23*-◆-DO	1361 O	7-23*-◆-WO	1386 O	7-23*-◆-CO	1553 V1
5	7 1/2	15	20	7-30*-◆	1169	7-30*-◆-GO	1561 C	7-30*-◆-DO	1586 O	7-30*-◆-WO	1603 O	7-30*-◆-CO	1770 V1
7 1/2	7 1/2	20	25	7-37*-◆	1294	7-37*-◆-GO	1670 C	7-37*-◆-DO	1753 O	7-37*-◆-WO	1770 O	7-37*-◆-CO	1937 V1
7 1/2	10	25	25	7-43*-◆	1503	7-43*-◆-GO	1920 C	7-43*-◆-DO	2004 O	7-43*-◆-WO	2021 O	7-43*-◆-CO	2188 V1
10	15	30	40	7-60*-◆	1837	7-60*-◆-GO	2338 D	7-60*-◆-DO	2755 O	7-60*-◆-WO	2922 O	7-60*-◆-CO	2755 W1
15	20	40	50	7-72*-◆	2004	7-72*-◆-GO	2505 D	7-72*-◆-DO	2922 Q	7-72*-◆-WO	3049 Q	7-72*-◆-CO	2922 W1
20	25	50	50	7-85*-◆	2171	7-85*-◆-GO	2672 D	7-85*-◆-DO	3089 Q	7-85*-◆-WO	3256 Q	7-85*-◆-CO	3089 W1
25	25	60	60	7-97*-◆	2291	7-97*-◆-GO	2792 D	7-97*-◆-DO	3209 Q	7-97*-◆-WO	3376 Q	7-97*-◆-CO	3209 W1
30	30	60	75	6-115*-◆	4175	6-115*-◆-GO	5845 G	6-115*-◆-DO	6262 T	6-115*-◆-WO	6722 T	6-115*-◆-CO	8183 A2
30	40	75	100	6-140*-◆	5093	6-140*-◆-GO	6513 G	6-140*-◆-DO	6930 T	6-140*-◆-WO	7348 T	6-140*-◆-CO	8809 A2

Larger sizes available. Contact your Sprecher + Schuh representative.

**NOTE:** Catalog numbers, list Prices and enclosure dimensions reflect contactors with AC coils. For DC coils, select Coil Code from the DC Coil Code table on page C86 and follow the instructions for modifying catalog numbers and list Prices.

#### Ordering Instructions

Specify Catalog Number	
Replace (*) with Coil Code	See page C86
Replace (◆) with O/L Relay	See pages C87-C88
Factory Modifications available	See pages C89-C92

- ① Dimensional information starts on page C108.
- ② For M3 outdoor applications, replace "D" in catalog number with an "R". Price remains the same, dimensions may change.  
Example: CAETT7-23\*-◆-DO becomes CAETT7-23\*-◆-RO.
- ③ All standard multispeed starters are wired for selective control. For compelling, progressive or automatic acceleration control, see Factory Modifications.

**Combination Multi-Speed Starter Adder Chart ❶**

Circuit Breaker or Disconnect Switch	Enclosure Type	Price (Add to base multi-speed starter list price)				
		7-9 7-12 7-16	7-23 7-30	7-37 7-43	7-60 7-72 7-85 7-97	6-115 (-EI) 6-140 (-EI)
Thermal Magnetic Circuit Breaker	M1	945	945	1152	1253	2291
	M4/F4	1347	1347	1662	2298	3337
	M12 (M3)	958	958	1206	1347	3095
Non Fusible Disconnect	M1	630	630	804	1018	2114
	M4/F4	1032	1032	1313	2064	2506
	M12 (M3)	643	643	858	1112	2265
Fusible Disconnect - 30 Amp	M1	737	737	~	~	~
	M4/F4	1139	1139	~	~	~
	M12 (M3)	750	750	~	~	~
Fusible Disconnect - 60 Amp	M1	~	~	858	~	~
	M4/F4	~	~	1367	~	~
	M12 (M3)	~	~	911	~	~
Fusible Disconnect - 100 Amp	M1	~	~	~	1099	~
	M4/F4	~	~	~	2144	~
	M12 (M3)	~	~	~	1193	~
Fusible Disconnect - 200 Amp	M1	~	~	~	1367	1702
	M4/F4	~	~	~	2412	2747
	M12 (M3)	~	~	~	1461	2506

❶ Refer to page C9 for information on modifying standard multispeed catalog number to combination type.