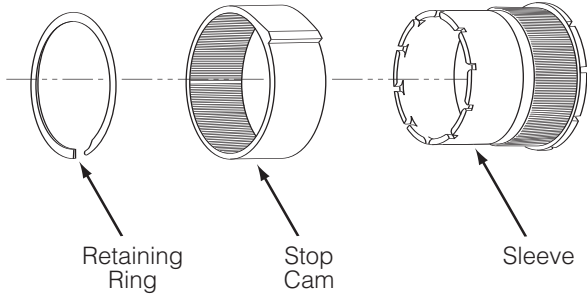


CB Stop Collar Adjustment

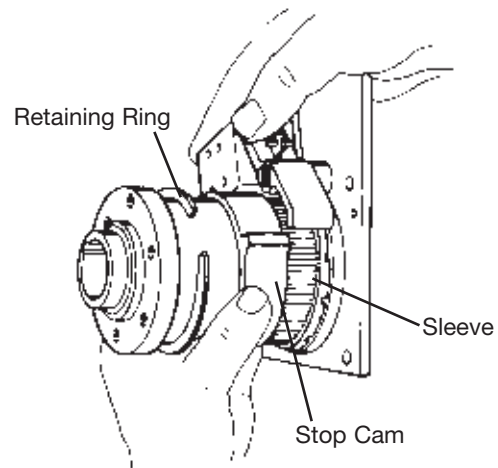
CB Stop Collar Adjustment

Each CB and Super CB Series unit has an incrementally adjustable collar, which allows for changes to the output orientation.



To adjust the stop collar output orientation:

- Wrap the brake spring down completely by rotating the output shaft in the driving direction until it cannot travel any further;
- Remove the retaining ring from its groove and slide it forward on the sleeve; then,
- Hold the actuator clear, while sliding the stop cam off the sleeve. Rotate the cam to the desired stop position, and slide it back onto the sleeve; and,
- Slide the retaining ring back into position.



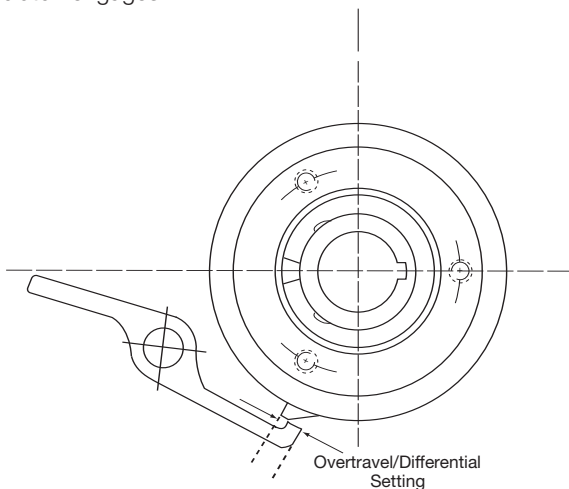
Adjustment Increments With Standard Stop Collars

CB-2	Infinitely Adjustable
CB-4	2.4° Adjustable
CB-5/Super CB-5	1.8° Adjustable
CB-6/Super CB-6	1.8° Adjustable
CB-8/Super CB-8	1.6° Adjustable

CB Spring Differential Setting

All CB and Super CB Series clutch/brakes are factory-set to the proper spring differential overtravel. If a spring must be replaced, prior to disassembly, make sure the two spring tang slots are marked to help ensure proper reassembly. (There should be punch marks from the factory on either side of the spring tang slots marking those used for the correct differential setting.) If the slots are unmarked and the unit has been disassembled, use the following procedure to reset the spring differential.

1. Remove the retaining ring from the input hub.
2. Rotate the clutch so the brake spring is fully wrapped down by rotating the output shaft in the driving direction until it cannot travel any farther.
3. With the brake fully engaged (per step 2), pull the input hub assembly out, and push the clutch spring out of its slot, allowing it to jump to wherever it comes to rest.
4. Unwrap the clutch spring and push it backwards into the nearest slot.
5. Push the input hub back into place, release the actuator, and rotate the clutch until the brake spring fully wraps down again.
6. With the brake fully engaged (wrapped down per step 2), hold the shaft with one hand and release the actuator. The stop collar will rotate forward as the brake is released and the clutch engages.



7. To calculate the overtravel, use a scale to measure the distance between the tip of the actuator, and the tip of the stop on the cam

The Amount of Acceptable Overtravel Varies with the Size of the Unit

CB-2	.09 to .19"
CB-4	.09 to .19"
CB-5/Super CB-5	.09 to .19"
CB-6/Super CB-6	.22 to .38"
CB-8/Super CB-8	.39 to .60"

8. If the overtravel measurement is within these specified limits, reinstall the retaining ring and the unit's overtravel is reset.
- 9 A. If the overtravel *exceeds* the specified limit, move the brake spring backwards one slot (against the direction of rotation) and repeat steps two through seven.
- B. If the overtravel *is less than* the specified limit, move the brake spring forward one slot (in the direction of rotation,) and repeat steps two through seven.

If Spring Replacement Is Not Required

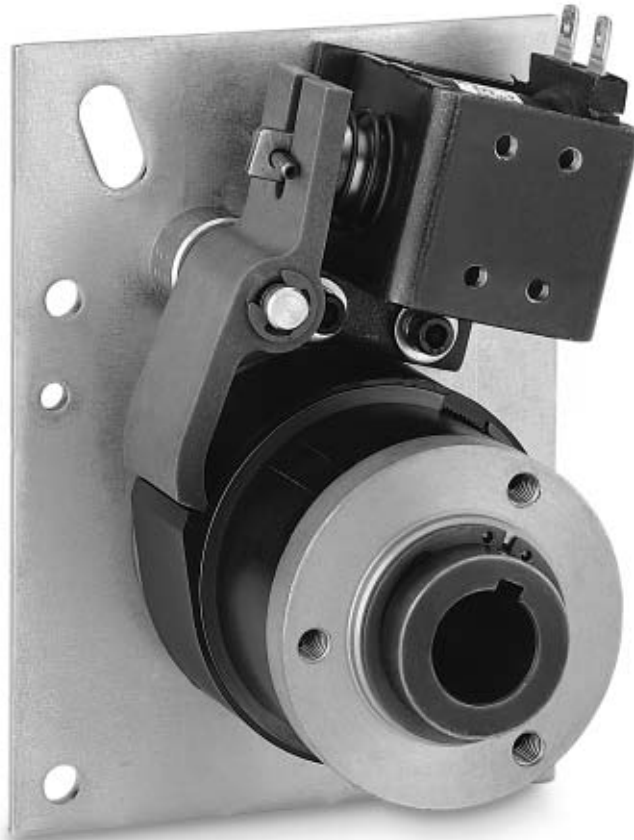
If the unit is disassembled and the drive and/or brake springs do not need to be replaced, proceed as follows:

- Reposition the drive and brake springs into their original positions onto the output shaft assembly.
- Reassemble the clutch, and position the spring tangs of the drive and brake springs in the factory marked locations on the control collar assembly (on the control collar, the designated tang slots are indicated with punch marks on either side of each slot).
- After the unit is completely reassembled, the differential setting should match that of the original factory setting.

CB Series Clutch/Brakes

Combination Clutch/Brake Packages

CB Series clutch/brake combinations are designed for applications requiring a continuous rotational input being converted into starting and stopping a load. To start motion, the solenoid is pulsed, moving the actuator arm away from the control collar. This allows the clutch spring to wrap (wind) down onto the output assembly while the brake spring is unwinding, allowing the output to drive. Motion is stopped when the actuator returns to its rest position and the control collar rotates, stopping against the actuator. This forces the clutch spring to unwind releasing the input from the output and wraps the brake spring down, stopping the output. Anti-back and anti-overrun springs maintain position accuracy by eliminating any backward movement or bounce when stopped. The actual stopping position can be adjusted after installation by moving the splined cam of the control collar assembly.



The input hub is drilled and tapped to allow for mounting of sprockets, gears, sheaves, etc. The output is a hollow quill that mounts onto the customer's driven shaft. The backing plate is not mounting plate. It must be held in place by a loose fit pin to eliminate any side or radial loads from preloading the unit's bearings.

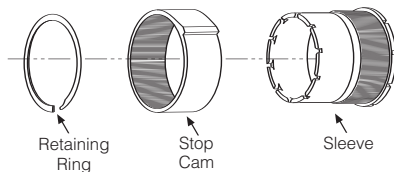
Features

- Stop Position Accuracy $\pm 1/2^\circ$
- Adjustable Output Stop Positions
- Standard Features
 - CW or CCW Rotation
 - Hub Input – Shaft Output
 - Anti-Overrun Output does not overrun Input
 - Anti-Back Output does not Backup
- 1, 2 and 4 stop collars for 360°, 180°, and 90° output increments standard
 - Special multi-stop collars also available (up to 24 stops)
- 115 VAC and 24 VDC Solenoids Standard
 - Other Voltages Available
- Dimensionally Interchangeable With Competitive Units
- 5 Standard Models
 - CB-2
 - CB-4
 - CB-5
 - CB-6
 - CB-8

Specifications	CB-2	CB-4	CB-5	CB-6	CB-8
Static Torque	25 lb.in. (2.825 N-m)	120 lb.in. (13.56 N-m)	250 lb.in. (28.25 N-m)	500 lb.in. (56.5 N-m)	2,500 lb.in. (282.5 N-m)
Maximum anti-overrun holding capability	10 lb.in. (1.13 N-m)	25 lb.in. (2.825 N-m)	45 lb.in. (5.085 N-m)	300 lb.in. (33.9 N-m)	600 lb.in. (67.8 N-m)
Maximum anti-back holding capability	10 lb.in. (2.034 N-m)	80 lb.in. (9.04 N-m)	160 lb.in. (18.08 N-m)	300 lb.in. (33.9 N-m)	600 lb.in. (67.8 N-m)
Inertia, rotating parts	.034 lb.in. ²	.064 lb.in. ²	.195 lb.in. ²	1.718 lb.in. ²	12.84 lb.in. ²
Maximum radial bearing load at maximum speed	7.5 lbs.	14 lbs.	32 lbs.	63 lbs.	300 lbs.
Maximum operating speed	1,800 RPM	1,200 RPM	750 RPM	500 RPM	300 RPM
Response time, voltage on at full speed	20 MS	24 MS	27 MS	45 MS	50 MS
Weight	1 lb.	2 lbs.	3 lbs.	7 lbs.	15 lbs.

See page 32 for Minimum Inertia Requirements.
See page 8 for Mounting Examples.

Control Collars



These clutch/brakes (except CB-2) offer unique splined stop collars which can be adjusted radially in fine increments. This feature allows the user to reposition the output to comply with specified shaft and keyway placements. Standard stop collar positioning increments are shown below for all models:

CB-2	Infinitely Adjustable
CB-4	2.4° Adjustable
CB-5	1.8° Adjustable
CB-6	1.8° Adjustable
CB-8	1.6° Adjustable

Optional Multiple Stop Collars



A one, two or four stop collar is standard on CB Series clutch/brakes. A variety of stop collar configurations, up to 24 stops maximum, are available. Consult Warner Electric Technical Support at 800-825-9050 for complete information.

Basic Selection

See pages 6–7 for basic product selection guidelines.

For complete Application Engineering information see pages 32–34.

How to Order

Order by part number (see chart on dimensions page) or specify as follows.

Specify:

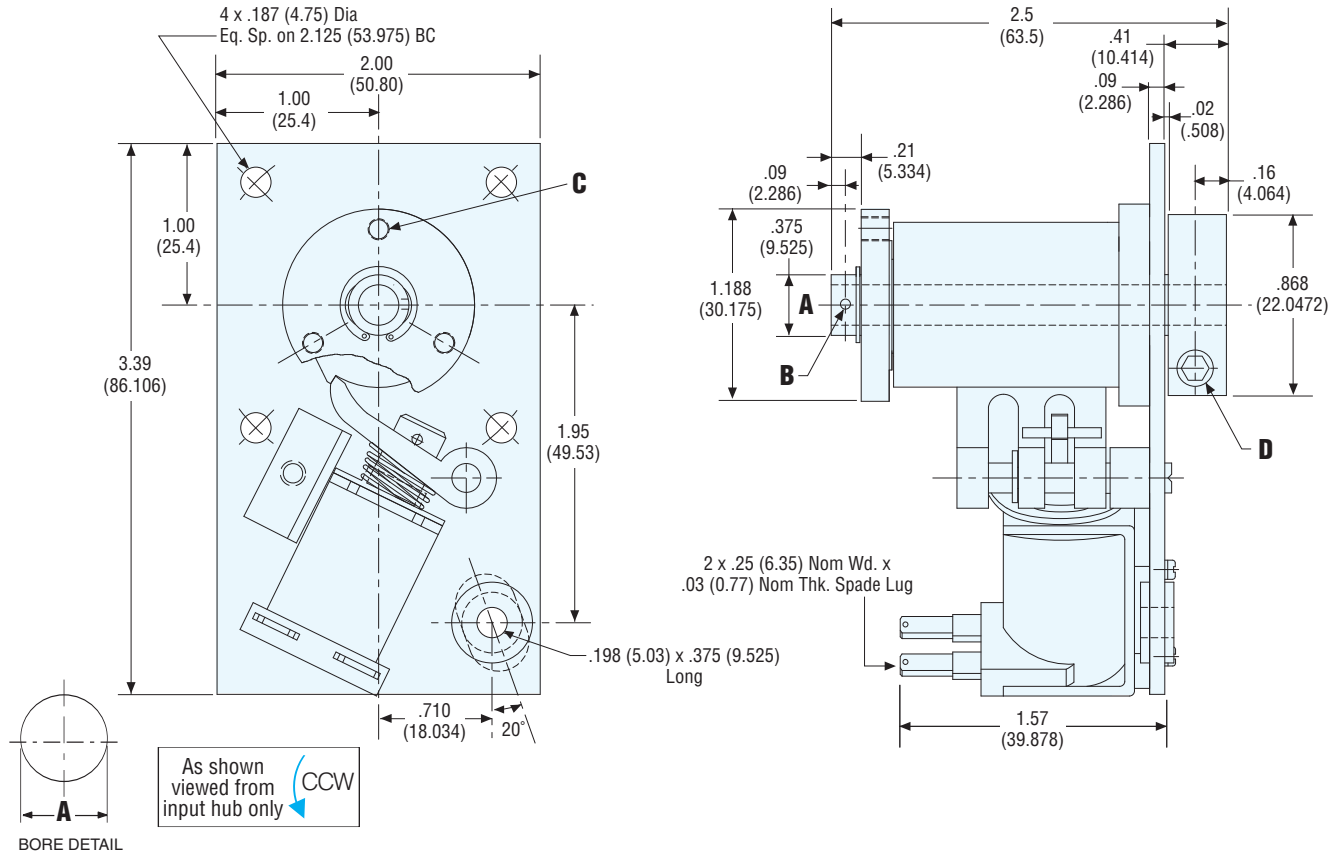
- Series CB
English
Metric
- Size: CB-2, CB-4, CB-5, CB-6, CB-8
- Direction of rotation:
CW Clockwise
CCW Counterclockwise
- Coil voltage:
115 AC or 24 DC are standard
12 DC or 90 DC are options
- Bore size:
CB-2 = 1/4"
CB-4 = 3/8"
CB-5 = 1/2"
CB-6 = 3/4" or 1"
CB-8 = 1 1/4" or 1 1/2" standard
1" or 1 3/8" special order
- Stop collar:
1, 2 or 4 stops standard
Other stop collars are available as specials

Example: CB-8, CCW, 115VAC, 1" bore, 4 stop collar.

CB	-8	CCW	115VAC	1"	4
1	2	3	4	5	6

CB-2 Clutch/Brake

Dimensions in. (mm)



Bore Sizes

	Bore A	Pin Hole B	Mtg. Holes C	Set Screws D
English in. (mm)	.2505-.253 (6.3627-6.4262)	.062 (1.5748)	3x #6-32 Eq. Sp. on .938 BC	#8 SHCS
Metric mm (in.)	6.0 H9 (.2362-.2374)	1.5 (.055-.062)	3x M4 x 0.7 Eq. Sp. on 23.83 BC	M4 x 0.7 SHCS

All dimensions are nominal unless otherwise noted.

CB-2 Part Numbers

Bore Size	Voltage	Rotation	Stops		
			1	2	4
0.25"	24 VDC	CW	302-17-001	302-17-002	302-17-003
		CCW	302-27-001	302-27-011	302-27-003
0.25"	115 VAC	CW	302-17-007	302-17-008	302-17-009
		CCW	302-27-007	302-27-008	302-27-009

These are the most commonly requested parts – other voltages (such as 12VDC and 90VDC), bores and stop collars are available.

Electrical Data (±10%)

Voltage	Current (amps)	Resistance (ohms)	Status
115 AC 60 Hz	.10*	825	Standard
24 DC	.23	104	Standard
12 DC	.46	26	Option
90 DC	.06	1510	Option

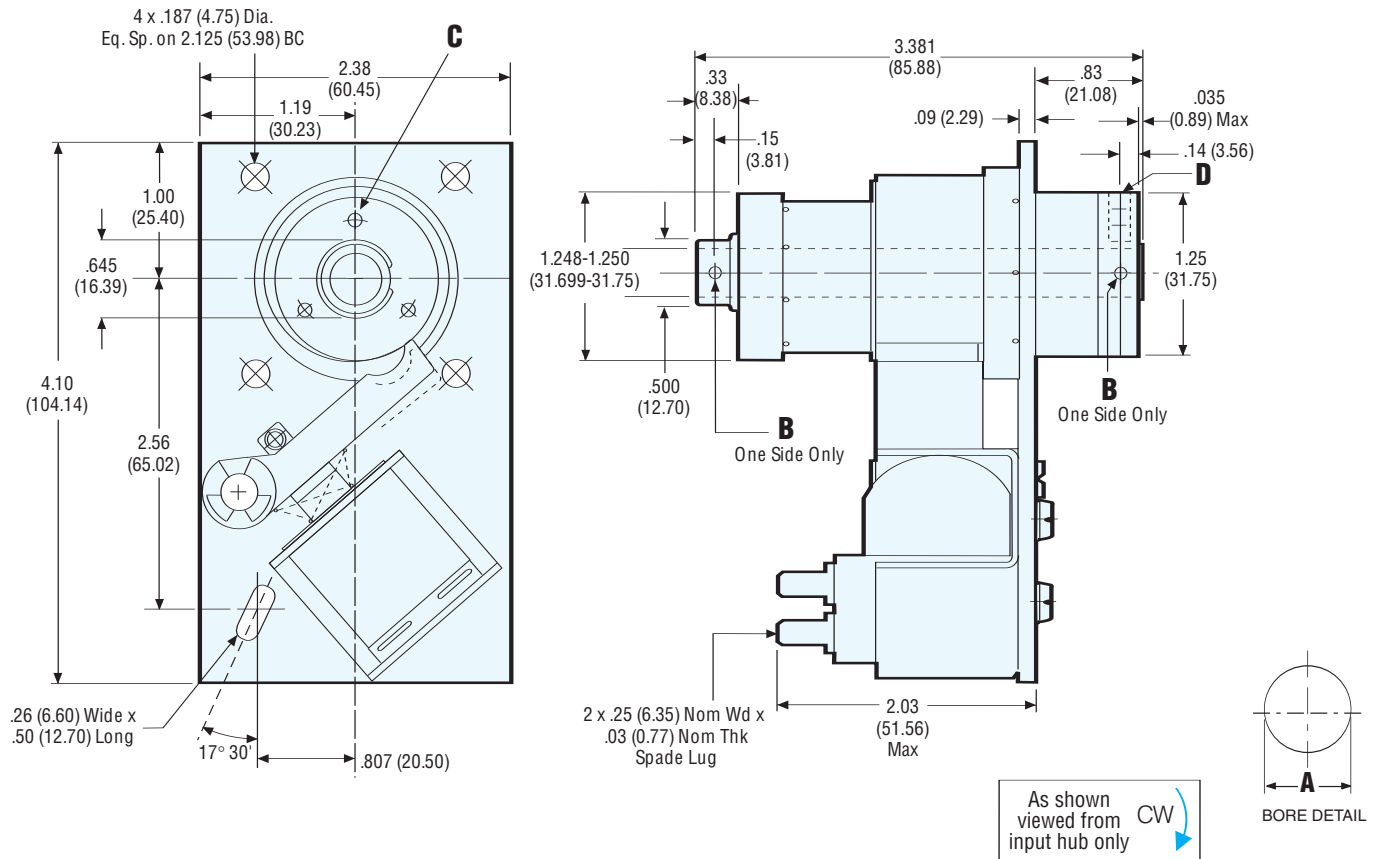
(Coils are rated for continuous duty)

*115 AC—In rush current .10 amps, Holding current .05 amps

Specifications

Static Torque	25 lb.in.
Maximum anti-overrun holding capability	10 lb.in.
Maximum anti-back holding capability	10 lb.in.
Inertia, rotating parts	.034 lb.in. ²
Maximum radial bearing load at maximum speed	7.5 lbs.
Maximum operating speed	1800 RPM
Response time, voltage on at full speed	20 MS
Weight	1 lb.

Dimensions in. (mm)



Bore Sizes

	Bore A	Pin Hole B	Mtg. Holes C	Set Screws D
English in. (mm)	.376-.378 (9.55-9.60)	.125 (3.175)	3x #6-32 Eq. Sp. on .938 BC	#8-32 x .188 Lg. Hex Skt. Set Screw
Metric mm (in.)	10.0 H9 (.3937-.3951)	3.0 (.117-.121)	3x M4 x 0.7 on 23.83 BC	M4 x 0.7 x 5.0 Lg. Hex Skt. Set Screw

All dimensions are nominal unless otherwise noted.

CB-4 Part Numbers

Bore Size	Voltage	Rotation	Stops		
			1	2	4
0.375"	24 VDC	CW	304-17-001	304-17-011	304-17-007
		CCW	304-27-001	304-27-007	304-27-026
0.375"	115 VAC	CW	304-17-003	304-17-008	304-17-018
		CCW	304-27-003	304-27-015	304-27-025

These are the most commonly requested parts – other voltages (such as 12VDC and 90VDC), bores and stop collars are available.

Electrical Data (±10%)

Voltage	Current (amps)	Resistance (ohms)	Status
115 AC 60 Hz	.10*	280	Standard
24 DC	.32	74	Standard
12 DC	.73	16.4	Option
90 DC	.10	936	Option

(Coils are rated for continuous duty)

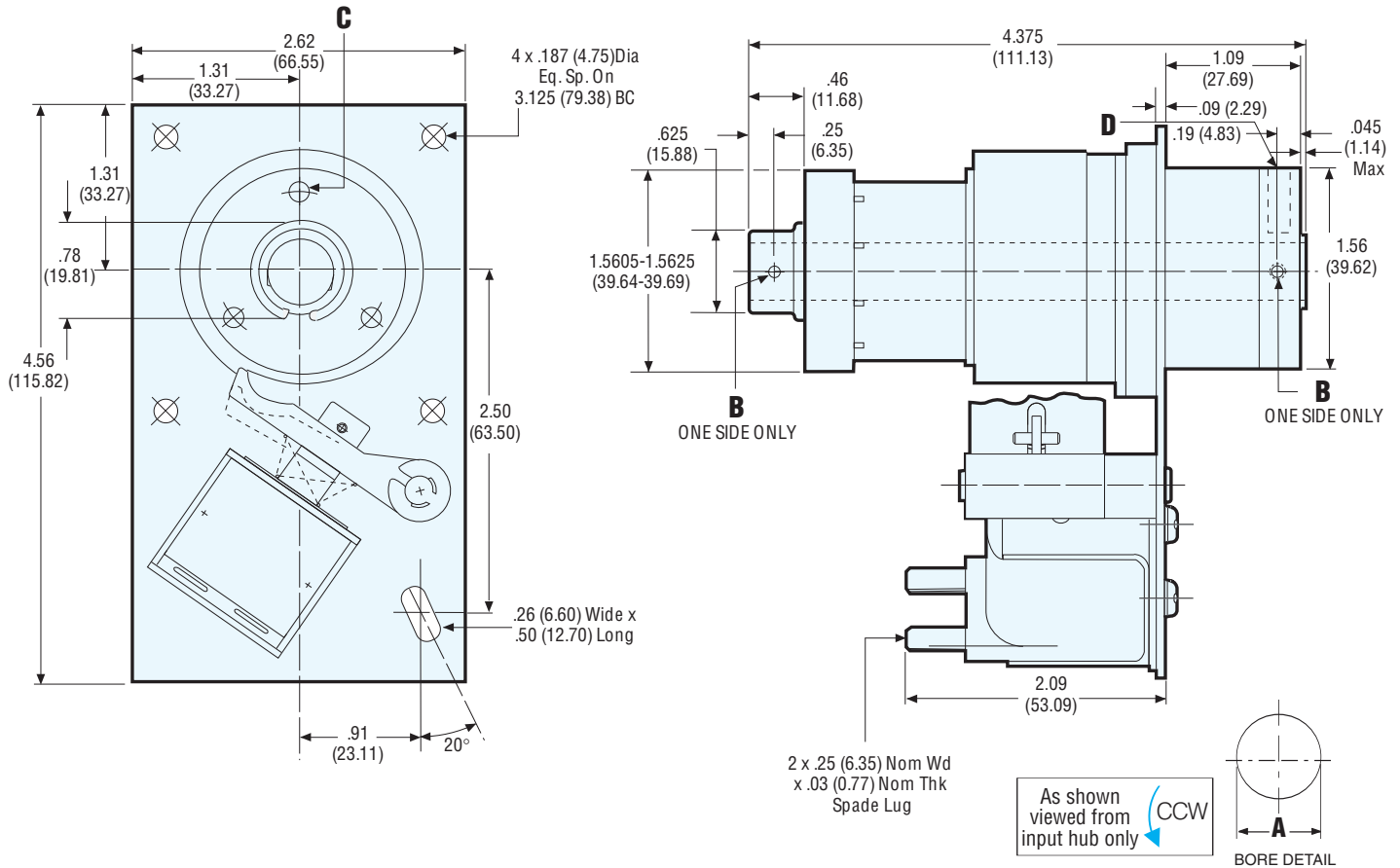
*115 AC—In rush current .22 amps, Holding current .09 amps

Specifications

Static Torque	120 lb.in.
Maximum anti-overnun holding capability	25 lb.in.
Maximum anti-back holding capability	80 lb.in.
Inertia, rotating parts	.064 lb.in. ²
Maximum radial bearing load at maximum speed	14 lbs.
Maximum operating speed	1,200 RPM
Response time, voltage on at full speed	24 MS
Weight	2 lbs.

CB-5 Clutch/Brake

Dimensions in. (mm)



Bore Sizes

	Bore A	Pin Hole B	Mtg. Holes C	Set Screws D	
English	in. (mm)	.5005-.5025 (12.712-12.764)	.125 (3.175)	3x #10-32 UNF-2B Eq. Sp. on 1.25 BC	#8-32 x .25 Skt. Set Screw
Metric	mm (in.)	12.0 H9 (.4724-.4741)	3.0 (.117-.121)	3x M5 x 0.8 on 31.75 BC	

All dimensions are nominal unless otherwise noted.

CB-5 Part Numbers

Bore Size	Voltage	Rotation	Stops		
			1	2	4
0.5"	24 VDC	CW	305-17-001	305-17-002	305-17-003
		CCW	305-27-001	305-27-002	305-27-003
0.5"	115 VAC	CW	305-17-007	305-17-008	305-17-009
		CCW	305-27-007	305-27-008	305-27-009

These are the most commonly requested parts – other voltages (such as 12VDC and 90VDC), bores and stop collars are available.

Electrical Data (±10%)

Voltage	Current (amps)	Resistance (ohms)	Status
115 AC 60 Hz	.10*	280	Standard
24 DC	.32	74	Standard
12 DC	.73	16.4	Option
90 DC	.10	936	Option

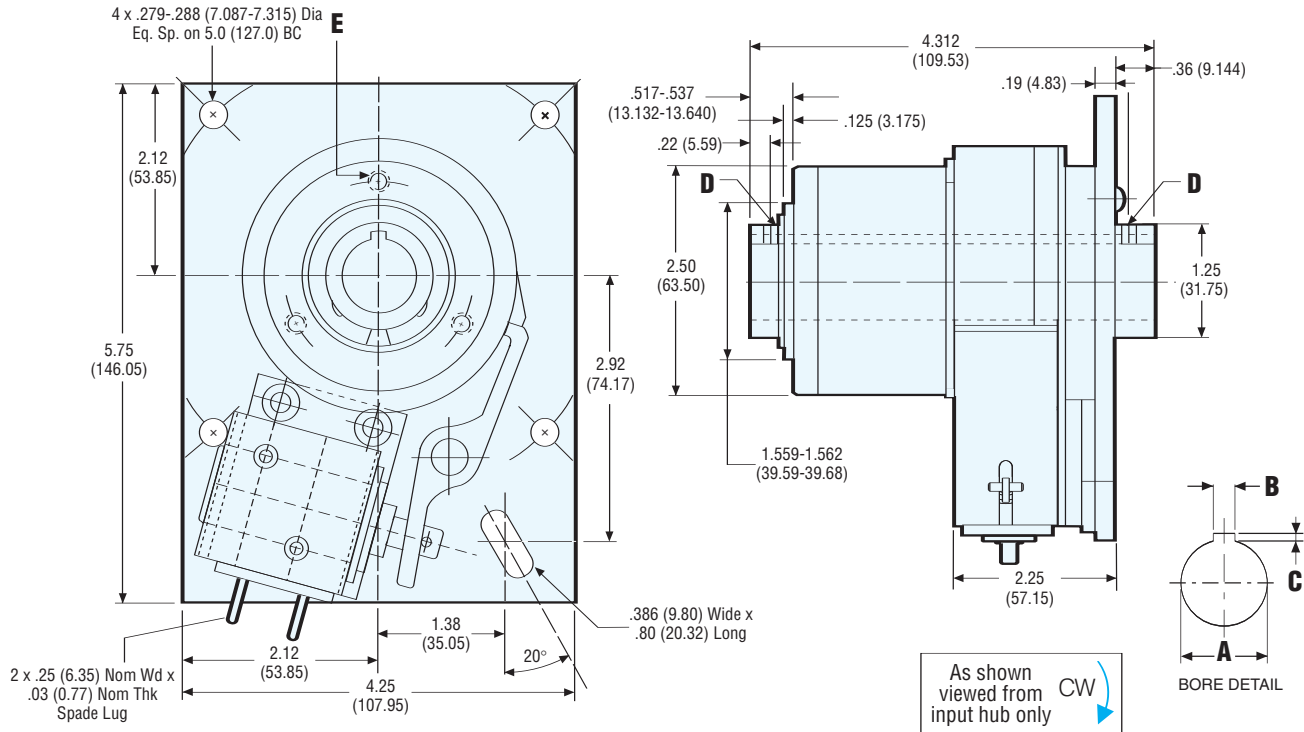
(Coils are rated for continuous duty)

*115 AC—In rush current .22 amps, Holding current .09 amps

Specifications

Static Torque	250 lb.in.
Maximum anti-overrun holding capability	45 lb.in.
Maximum anti-back holding capability	160 lb.in.
Inertia, rotating parts	.195 lb.in. ²
Maximum radial bearing load at maximum speed	32 lbs.
Maximum operating speed	750 RPM
Response time, voltage on at full speed	27 MS
Weight	3 lbs.

Dimensions in. (mm)



Bore & Keyway Sizes

	Bore A	Keyway Width B	Keyway Depth C	Set Screws/Pin Hole D	Mtg. Holes E
English in.	.7505-.7525	.1875	.09375	2x #10-32 UNF-2B	3x #1/4-20 UNC-2B
(mm)	(19.062-19.114)	(4.7625)	(2.381)	2x .187 Hole (4.7498)	Eq. Sp. on 2.062 BC 3x #1/4-20 UNC-2B Eq. Sp. on 2.062 BC
Metric mm	20.0 H9	6.0	2.8	2x M5 x 0.8 x 5.0	3x M6 x 1.0 on
(in.)	(.7874-.7894)	(.2362)	(.1102)	Lg. Hex Soc. Set Screw	52.38 BC
	25.0 H9	—	—	2x 5.0 Hole (.191-.203)	3x M6 x 1.0 on 52.38 BC
	(.9842-.9862)	—	—		

All dimensions are nominal unless otherwise noted.

CB-6 Part Numbers

Bore Size	Voltage	Rotation	Stops		
			1	2	4
0.75"	24 VDC	CW	306-17-051	306-17-074	306-17-162
		CCW	306-27-029	306-27-046	306-27-134
0.75"	115 VAC	CW	306-17-053	306-17-060	306-17-073
		CCW	306-27-031	306-27-039	306-27-045
1.0"	24 VDC	CW	306-17-057	306-17-061	306-17-031
		CCW	306-27-032	306-27-147	306-27-150
1.0"	115 VAC	CW	306-17-059	306-17-062	306-17-075
		CCW	306-27-034	306-27-044	306-27-037

These are the most commonly requested parts – other voltages (such as 12VDC and 90VDC), bores and stop collars are available.

Electrical Data (±10%)

Voltage	Current (amps)	Resistance (ohms)	Status
115 AC 60 Hz	.33*	53.5	Standard
24 DC	.60	39.9	Standard
12 DC	1.15	10.4	Option
90 DC	.15	598	Option

(Coils are rated for continuous duty)

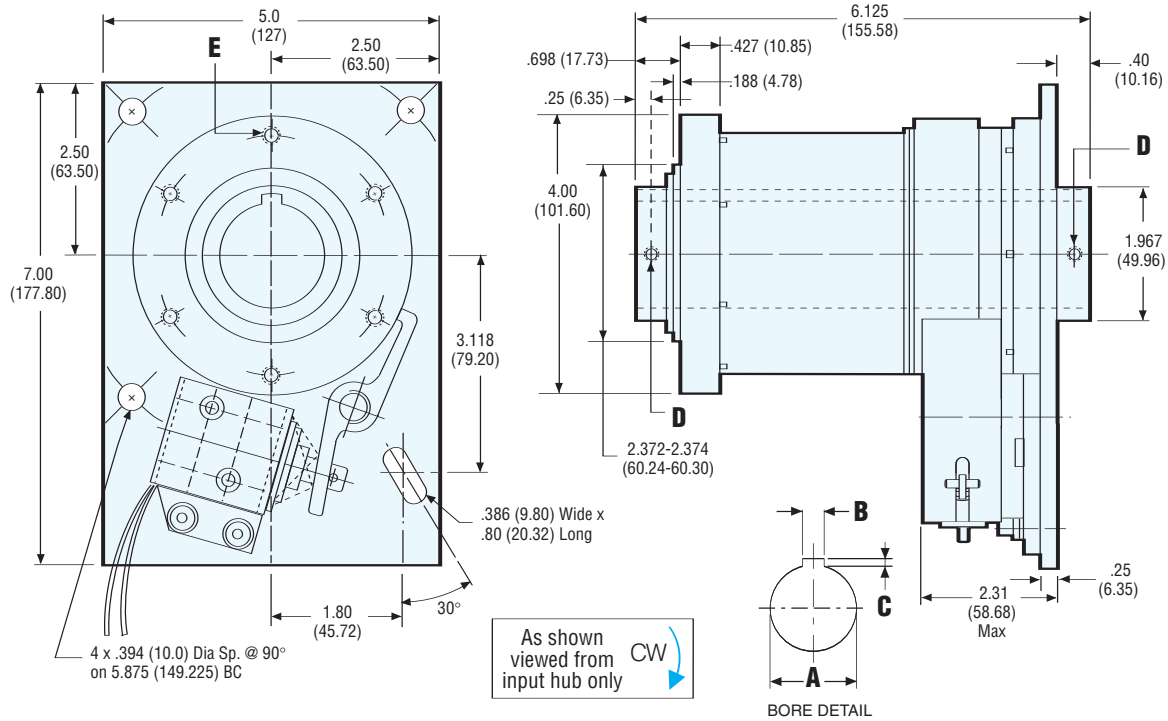
*115 AC—Inrush current .62 amps, Holding current .31 amps

Specifications

Static Torque	500 lb.in.
Maximum anti-overrun holding capability	300 lb.in.
Maximum anti-back holding capability	300 lb.in.
Inertia, rotating parts	1.718 lb.in. ²
Maximum radial bearing load at maximum speed	63 lbs.
Maximum operating speed	500 RPM
Response time, voltage on at full speed	45 MS
Weight	7 lbs.

CB-8 Clutch/Brake

Dimensions in. (mm)



Bore & Keyway Sizes

	Bore A	Keyway Width B	Keyway Depth C	Set Screws D	Mtg. Holes E
English	in.	1.2505-1.2525 (31.762-31.814)	.3125 (7.9375)	.15625 (3.9688)	2x #1/4-20 UNC-2B 6x 5/16-18 UNC-2B Eq. Sp. on 3.375 BC
	(mm)	1.5005-1.5025 (38.112-38.164)	.375 (9.525)	.125 (3.175)	2x #1/4-20 x UNC-2B 6x 5/16-18 UNC-2B Eq. Sp. on 3.375 BC
Metric	mm	35.0 H9 (1.3780-1.3804)	10.0 (.3937)	3.3 (.1299)	2x M6 x 1.0 x 10.0 Lg. Hex Soc. Set Screw 6x M8 x 1.25 on 85.73 BC
	(in.)	40.0 H9 (1.5784-1.5772)	—	—	2x M6 x 1.0 x 10.0 Lg. Hex Soc. Set Screw 6x M8 x 1.25 on 85.73 BC

All dimensions are nominal unless otherwise noted.

CB-8 Part Numbers

Bore Size	Voltage	Rotation	Stops		
			1	2	4
1.25"	24 VDC	CW	308-17-101	308-17-102	308-17-103
		CCW	308-27-101	308-27-102	308-27-103
1.25"	115 VAC	CW	308-17-107	308-17-108	308-17-109
		CCW	308-27-107	308-27-108	308-27-109
1.5"	24 VDC	CW	308-17-119	308-17-120	308-17-121
		CCW	308-27-119	308-27-120	308-27-121
1.5"	115 VAC	CW	308-17-125	308-17-126	308-17-127
		CCW	308-27-125	308-27-126	308-27-127

These are the most commonly requested parts – other voltages (such as 12VDC and 90VDC), bores and stop collars are available.

Electrical Data (±10%)

Voltage	Current (amps)	Resistance (ohms)	Status
115 AC 60 Hz	.33*	53.5	Standard
24 DC	.60	39.8	Standard
12 DC	1.15	10.4	Option
90 DC	.15	598	Option

(Coils are rated for continuous duty)

*115 AC—Inrush current .62 amps, Holding current .31 amps

Specifications

Static Torque	2,500 lb.in.
Maximum anti-overnrun holding capability	600 lb.in.
Maximum anti-back holding capability	600 lb.in.
Inertia, rotating parts	12,840 lb.in. ²
Maximum radial bearing load at maximum speed	300 lbs.
Maximum operating speed	300 RPM
Response time, voltage on at full speed	50 MS
Weight	15 lbs.