# Series 360 Armature Actuated Brakes (Magnet Body Mounted)

*Shown with **optional** conduit box*

Reverse view showing adapter mounting plate orientation

Brake showing space heater and release indicator location

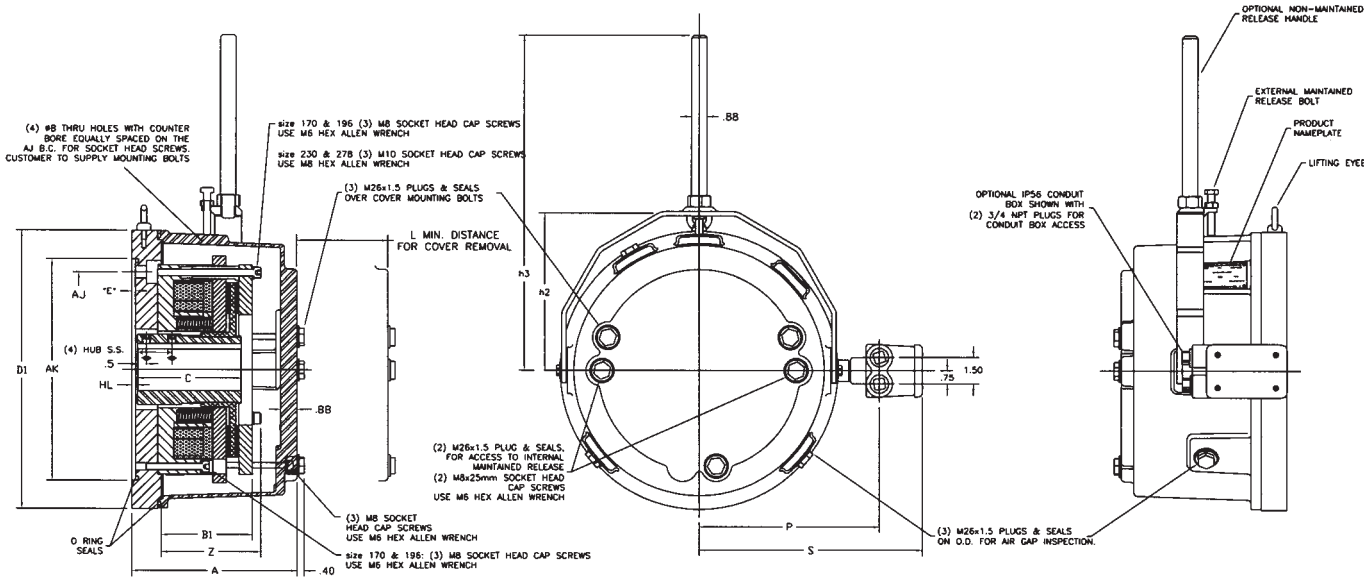
## Features

- *Universal mounting*
- *Internal maintained manual release*
- *IP56 enclosure*
- *ABS, CE, and CSA Certification*
- *Brake gaskets are captive (O-Ring), so parts are not lost during maintenance*
- *Stainless Steel nameplate (exterior)*
- *Modular brake assembly Install and remove brake without having to readjust air gaps*
- *Class H insulation*
- *Installation Instructions and Parts List: P/N 8-078-898-00*

## Standard Brake Options

- *AC Rectifier (see pages 86-89)*
- *Tach/encoder mounting*
- *Space Heater*
- *Electronic brake release indicator*
- *Contact Factory for Electronic Wear Indicator*
- *Thru-Shaft*
- *Optional external non-maintained/maintained manual release*
- *Optional IP56 or IP67 conduit box mounted on adapter plate. Wiring is not disturbed when brake housing is removed*

F1 Conduit Box location shown.
F2 location on left side facing brake housing.




## Dimensional Data Sizes 170 through 278

| Size | | Model | NEMA Frame | Torque | | ØB | AJ | AK | Mount Bolt | D1 | E | B1 | Z | L | h2 | h3 | S | P | A | HL Hub Location | C Hub Length | S.S. Location |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | lb-ft | *Nm* | | | | | | | | | | | | | | | | | |
| 6 | 170 | 36X-6 | 182-256TC | 35 | 47 | .53 | 7.25 | 8.50 | 1/2"-13 | 10.38 | .185 | 3.57 | 3.94 | 3.8 | 6.00 | 16.1 | 9.54 | 7.09 | 6.70 | .19 | 4.64 | 1.63 |
| 6 | 170 | 36X-6 | 182-256TC | 60 | *80* | | 7.25 | 8.50 | | 10.38 | .185 | | | | | | 9.54 | 7.09 | 6.70 | | | |
| 6 | 170 | 36X-6 | 284-286TC | 60 | *80* | | 9.00 | 10.50 | | 10.76 | .190 | | | | | | 10.25 | 7.81 | 6.90 | | | |
| 7 | 196 | 36X-7 | 182-256TC | 110 | *149* | .53 | 7.25 | 8.50 | 1/2"-13 | 11.81 | .185 | 3.72 | 4.12 | 4.3 | 6.70 | 16.6 | 10.25 | 7.81 | 6.90 | .19 | 4.70 | 1.75 |
| 7 | 196 | 36X-7 | 284-286TC | 110 | *149* | .53 | 9.00 | 10.50 | | | | | | | | | | | | | | |
| 8 | 230 | 36X-8 | 284-286TC | 180 | *240* | .53 | 9.00 | 10.50 | 1/2"-13 | 13.63 | .190 | 4.45 | 4.94 | 5.2 | 8.25 | 17.9 | 11.19 | 10.94 | 8.27 | .19 | 5.20 | 2.12 |
| 8 | 230 | 36X-8 | 324TC-405TSC | 180 | *240* | .69 | 11.00 | 12.50 | 5/8"-18 | | | | | | | | | | | | | |
| 9 | 278 | 36X-9 | 324TC-405TSC | 300 | *400* | .69 | 11.00 | 12.50 | 5/8"-18 | 15.68 | .190 | 5.12 | 5.60 | 5.8 | 9.20 | 18.8 | 12.19 | 11.94 | 9.69 | .19 | 5.82 | 2.12 |
| 9 | 278 | 36X-9 | 444-445TC | 300 | *400* | .69 | 14.00 | 16.00 | | 16.56 | | | | | | | 12.63 | 12.38 | | | | |

Note: Dimensions for estimating purposes only.

***Component Materials* for 361-X Series:**
- Adapter plate - steel (zinc phosphate, prime & paint)
- Splined hub - steel (zinc plate)
- Armature - steel (normalized)
- Pressure Plate - steel (normalized)
- Magnet body - steel (zinc plated)
- Housing - ductile iron (primed & painted):
- Hardware - steel (corrosion resistant plated or stainless)

# Armature Actuated Brakes (AAB) Torque Selection

BACK TO PRODUCT PAGE

Select the proper torque rating based on horsepower and rpm (speed at the clutch or brake) using the *Torque Selection Chart* below. Based on 1.4 service factor.

For other service factors and speeds, use the formulas shown below.

### Formula for TABLE 1

$$T = \frac{63{,}025 \times P}{N} \times SF$$

T = Static torque, lb-in.

P = Horsepower, hp

N = Shaft speed at brake, rpm

SF = Service Factor

63,025 = Constant

### Formula for TABLE 2

$$T = \frac{5{,}252 \times P}{N} \times SF$$

T = Static torque, lb-ft.

P = Horsepower, hp

N = Shaft speed at brake, rpm

SF = Service Factor

5,252 = Constant

**Caution:** Do not use Table 1 to select brakes for overhauling or high inertial loads, or where a stop in specified time or distance is required. For these applications the total inertia of the load and power transmission system must be determined to make a brake selection. Refer to sections on torque and thermal ratings and determination.

**NOTE: Series 310 and 311 for holding applications only.**

## TABLE 1

**Series 320, 321, 322 Static Torque in lb-in. *(Nm)***

| Motor hp | rpm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 600 | 800 | 1000 | 1200 | 1500 | 1800 | 2000 | 2400 | 3000 | 3600 |
| | Static Torque lb-in *(Nm)* | | | | | | | | | |
| 1/20 | 18 *(2.03)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 3 *(.34)* | 3 *(.34)* | 3 *(.34)* | 3 *(.34)* | 3 *(.34)* | 3 *(.34)* |
| 1/12 | 18 *(2.03)* | 18 *(2.03)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 3 *(.34)* | 3 *(.34)* | 3 *(.34)* |
| 1/8 | 35 *(3.95)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* | 3 *(.34)* |
| 1/6 | 35 *(3.95)* | 35 *(3.95)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 7 *(.79)* | 7 *(.79)* | 7 *(.79)* |
| 1/4 | — | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 7 *(.79)* |
| 1/3 | — | — | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* | 18 *(2.03)* |
| 1/2 | — | — | — | — | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* | 18 *(2.03)* | 18 *(2.03)* |
| 3/4 | — | — | — | — | — | — | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* | 35 *(3.95)* |
| 1 | — | — | — | — | — | — | — | — | — | 35 *(3.95)* |

## TABLE 2

**Series 333/350/360 Static Torque in lb-ft. *(Nm)***

| Motor hp *(kw)* | rpm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 600 | 800 | 1000 | 1200 | 1500 | 1800 | 2000 | 2400 | 3000 | 3600 |
| | Static Torque lb-ft *(Nm)* | | | | | | | | | |
| 1/3 *(.25 )* | 6 *(8)* | 6 *(8)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* |
| 1/2 *(.37)* | 12 *(16)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* |
| 3/4 *(.55)* | 12 *(16)* | 12 *(16)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 3 *(4)* | 3 *(4)* | 3 *(4)* | 3 *(4)* |
| 1 *(.75)* | 25 *(34)* | 12 *(16)* | 12 *(16)* | 12 *(16)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 3 *(4)* |
| 1-1/2 *(1.1)* | 25 *(34)* | 25 *(34)* | 12 *(16)* | 12 *(16)* | 12 *(16)* | 12 *(16)* | 6 *(8)* | 6 *(8)* | 6 *(8)* | 6 *(8)* |
| 2 *(1.5)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 12 *(16)* | 12 *(16)* | 12 *(16)* | 6 *(8)* | 6 *(8)* | 6 *(8)* |
| 3 *(2.2)* | 45 *(60)* | 45 *(60)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 12 *(16)* | 12 *(16)* | 12 *(16)* | 12 *(16)* |
| 5 *(3.7)* | 60 *(80)* | 60 *(80)* | 45 *(60)* | 45 *(60)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 25 *(34)* | 12 *(16)* |
| 7-1/2 *(5.6)* | 110 *(150)* | 110 *(150)* | 60 *(80)* | 60 *(60)* | 45 *(60)* | 45 *(60)* | 45 *(60)* | 25 *(34)* | 25 *(34)* | 25 *(34)* |
| 10 *(7.5)* | 180 *(240)* | 110 *(150)* | 110 *(150)* | 110 *(150)* | 60 *(80)* | 45 *(60)* | 45 *(60)* | 45 *(60)* | 25 *(34)* | 25 *(34)* |
| 15 *(11.2)* | 300 *(400)* | 180 *(240)* | 110 *(150)* | 110 *(150)* | 110 *(150)* | 60 *(80)* | 60 *(80)* | 60 *(80)* | 45 *(60)* | 45 *(60)* |
| 20 *(14.9)* | 300 *(400)* | 180 *(240)* | 180 *(240)* | 180 *(240)* | 110 *(150)* | 110 *(150)* | 110 *(150)* | 60 *(80)* | 60 *(80)* | 60 *(80)* |
| 25 *(18.6)* | — | 300 *(400)* | 180 *(240)* | 180 *(240)* | 180 *(240)* | 110 *(150)* | * | * | * | * |
| 30 *(22.4)* | — | 300 *(400)* | 300 *(400)* | 300 *(400)* | 180 *(240)* | 180 *(240)* | * | * | * | * |
| 40 *(29.8)* | — | — | 300 *(400)* | 300 *(400)* | 300 *(400)* | 180 *(240)* | * | * | * | * |
| 50 *(37.3)* | — | — | — | — | 300 *(400)* | 300 *(400)* | * | * | * | * |
| 60 *(44.7)* | — | — | — | — | 300 *(400)* | 300 *(400)* | * | * | * | * |

* Exceeds maximum speed rating.

# Series 360 Continued

BACK TO PAGE 1

## Specifications/Unit Pricing (Discount Symbol R5)

| Size | NEMA Frame | Nominal Static Torque lb-ft | Nominal Static Torque Nm | Model Number | Thermal Capacity Hp-Sec/Min | Approx weight lbs. | List Price | External Maintained/Deadman Manual Release | Electronic Brake Release Indicator | Space Heater | Terminal Strip | IP-56 Conduit Box | IP-67 Conduit Box |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 170 | 182-256TC | 35 | *47* | 3-61-634H0 | 14 | 101 | $3,195.00 | $250.00 | $330.00 | $208.00 | $120.00 | $205.00 | $360.00 |
| 170 | 182-256TC | 60 | *80* | 3-61-644H0 | | | 3,395.00 | 250.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 170 | 284-286TC | 60 | *80* | 3-61-644J0 | | | 3,595.00 | 250.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 196 | 182-256TC | 75 | *102* | 3-61-734H0 | 20 | 120 | 4,266.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 196 | 182-256TC | 110 | *150* | 3-61-744H0 | | | 4,466.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 196 | 284-286TC | 110 | *150* | 3-61-744J0 | | | 4,665.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 230 | 284-286TC | 180 | *240* | 3-61-844J0 | 26 | 176 | 4,909.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 230 | 324TC/364-365TC | 180 | *240* | 3-61-844K0 | | | 5,209.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 278 | 324TC/364-365TC | 300 | *400* | 3-61-944K0 | 28 | 280 | 6,605.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |
| 278 | 444TC | 300 | *400* | 3-61-944L0 | | | 6,915.00 | 300.00 | 330.00 | 208.00 | 120.00 | 205.00 | 360.00 |

## Ordering Information

*Part number example:* 361- 7 4 4 J C O M E S

Group "3" Armature Acting Brake (Direct acting with a DC Coil)

Options **Table 3**

Voltages - **Table 2**

Hub bore and keyset - **Table 1**

| Mounting Design | |
|---|---|
| **Numeral** | **Design** |
| 6 | Magnet Body Mount |

| Numeral | Brake Cover Type |
|---|---|
| 1 | Ductile Iron |

| Numeral/ Alpha | Magnet Body Size | Torque lb-ft |
|---|---|---|
| 6 | 170 | 60 |
| 7 | 196 | 110 |
| 8 | 230 | 180 |
| 9 | 278 | 300 |

| | Torque/Modification |
|---|---|
| 3 | Reduced Torque |
| 4 | Standard Torque |

| Numeral | Enclosure |
|---|---|
| 4 | IP56 Enclosure (standard) |
| E | IP56 conduit box with terminal strip* |
| G | IP56 conduit box* |
| H | IP67 conduit box* with terminal strip |
| M | IP67 conduit box* |

*Specify F1 or F2 location for conduit box modification

| Additional Options | |
|---|---|
| Standard Brake | 0 |
| Space Heater 115 | 1 |
| Space Heater 230 | 2 |
| Space Heater 460 | 3 |
| Brake release indicator Switch NO/NC | 4 |
| Brake release indicator NO/NC Space Heater 115 | 5 |
| Brake release indicator NO/NC Space Heater 230 | 6 |
| Brake release indicator NO/NC Space Heater 460 | 7 |
| Wear indicator NO NO | A |
| Wear indicator NO/NC Space Heater 115 | B |
| Wear indicator NO/NC Space Heater 230 | C |
| Wear indicator NO/NC Space Heater 460 | D |

| Mounting/Size | |
|---|---|
| NEMA 180/210/250 C-face | H |
| NEMA 280 C-face | J |
| NEMA 320/400 C-face | K |
| NEMA 440 C-face Mt* | L |
| NEMA 500 C-face Mt* | M |
| IEC 132 C-face Mt* | S |
| IEC 160 C-face Mt* | T |
| IEC 132 D-face Mt* | U |
| IEC 160 D-face Mt* | V |
| IEC 180 D-face Mt* | W |
| IEC 200 D-face Mt* | X |
| IEC 225 D-face Mt* | Y |

*Contact factory for pricing on these mounting options

### Table 1 - Hub Bores

**NOTE: See page 97 for recommended minimum bore sizes by torque**

| Character to insert | Bore | Keyway Size* Width (in.) | Keyway Size* Depth (in.) | Bores Available Unit Size 170 | 196 | 230 | 278 |
|---|---|---|---|---|---|---|---|
| 0E | 1.125 | 1/4 | 1/8 | X | | | |
| 0F | 1.250 | 1/4 | 1/8 | X | | | |
| 0G | 1.375 | 5/16 | 5/32 | X | X | | |
| 0M | 1.500 | 3/8 | 3/16 | X | X | | |
| 0H | 1.625 | 3/8 | 3/16 | X | X | X | |
| 0I | 1.750 | 3/8 | 3/16 | | X | X | |
| 0J | 1.875 | 1/2 | 1/4 | | X | X | X |
| 0L | 2.000 | 1/2 | 1/4 | | | X | X |
| 0N | 2.125 | 1/2 | 1/4 | | | | X |
| 0R | 2.375 | 5/8 | 5/16 | | | | X |
| ***Metric*** | ***Bore*** | ***Width*** | ***Depth*** | ***170*** | ***196*** | ***230*** | ***278*** |
| *30* | *30* | *8* | *3.3* | X | X | | |
| *35* | *35* | *10* | *3.3* | X | X | X | |
| *38* | *38* | *10* | *3.3* | X | X | X | |
| *40* | *40* | *12* | *3.3* | X | X | X | X |
| *42* | *42* | *12* | *3.3* | | X | X | |
| *45* | *45* | *14* | *3.8* | | X | X | X |
| *48* | *48* | *14* | *3.8* | | X | X | X |
| *50* | *50* | *14* | *3.8* | | | X | X |
| *55* | *55* | *16* | *4.3* | | | | X |
| *60* | *60* | *18* | *4.4* | | | | X |

*Standard U.S. keyseats made to ANSI B17.1 standard. Metric keyseats to DIN 6885/1 p9.

### Table 2 - Coil Voltage

| Character to Insert | Coil Voltage | Current Rating 6 (170) | 7 (196) | 8 (230) | 9 (278) |
|---|---|---|---|---|---|
| E | 24 Vdc | 2.80 | 4.27 | 3.85 | 3.85 |
| J | 90 Vdc | .70 | 1.05 | 1.19 | 1.19 |
| K | 103 Vdc | .80 | .96 | 1.08 | 1.08 |
| L | 180 Vdc | .36 | .54 | .61 | .61 |
| M | 205 Vdc | .41 | .49 | .56 | .56 |
| S | 258 Vdc | .33 | .34 | .40 | .44 |
| B | 414/432 Vdc | .22 | .26 | .28 | .28 |

Other voltages available - consult factory

For AC rectifiers see pages 86-89

### Table 3 - Additional Options

| | |
|---|---|
| No Manual Release | A |
| Maintained Release | R |
| External Non-Maintained (deadman) and Maintained Manual Release | S |

***NOTE:*** *Final part number may change due to specifications or options selected or other product design considerations. A number such as a 2, 3, 4 etc., in the 12th position is used to designate a unique brake (custom) and can only be assigned by Stearns Design Engineering Department.*

Modifications are available - see AAB Modification Section.

P/N 8-078-898-00
effective 03/10/10

**Stearns®** *Armature Actuated Brakes*

# Installation, Service and Parts List for 36X Series Armature Actuated Brakes

## Important

Please read these instructions carefully before installing, operating, or servicing your Stearns brake. Failure to comply with these instructions could cause injury to personnel and/or damage to property if the brake is installed or operated incorrectly. For definition of limited warranty/liability, contact Rexnord Industries, LLC, Stearns Division, 5150 S. International Dr., Cudahy, Wisconsin 53110, (414) 272-1100.

OEM's and subsystem suppliers, please forward these instructions with your components to the final user.

## Caution

1. Servicing shall be in compliance with applicable local safety codes including Occupational Safety and Health Act (OSHA). All wiring and electrical connections must comply with the National Electric Code (NEC) and local electric codes in effect.
2. To prevent an electrical hazard, disconnect power source before working on the brake. If power disconnect point is out of sight, lock disconnect in the *off* position and tag to prevent accidental application of power to system.
3. To avoid damage to internal power supply, hipot testing should not exceed 1500 volts for one second. Brake coil leads must be connected together.
4. Heat developed during normal operation (135°C) of the brake may be hot enough to be painful or cause injury. Be careful when touching exterior surfaces. Allow sufficient time for the brake to cool before servicing.
5. After usage, the brake will contain burnt and degraded friction material dust. This dust should be removed before servicing or adjusting the brake.

   DO NOT blow off dust using an air hose. It is important to avoid dispersing dust into the air or inhaling it, as this may be dangerous to your health.

   a) Wear a filtered mask or a respirator while removing dust.

   b) Use a vacuum cleaner or a soft brush to remove dust from the brake. When brushing, avoid causing the dust to become airborne. Collect the dust in a container, such as a bag, which can be sealed off.

6. Maximum continuous operating ambient temperature for these brakes should not exceed 40°C (104° F).

## I. Installation

**Note 1:** Position of hub should allow full engagement of friction disc without interfering with the movement of the armature. **Motor shaft end float should not exceed .020". Shaft runout should be within .002" TIR. Motor mounting surface should be flat and perpendicular to within .004" of motor shaft.**

**Note 2:** Keep grease and oil from contacting friction surfaces.

**Note 3:** Hub should be a tight sliding fit. **For shrink fit hub, consult factory.**

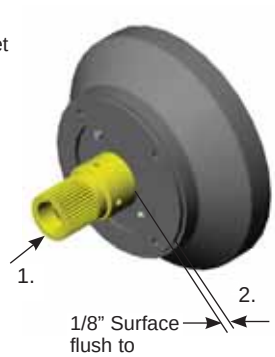
## I. Installation

### Step 1

1. Position hub and key on motor shaft (set screw end toward motor).
2. Locate hub 1/8" (±1/16") outward from the register face.
3. Tighten set screws per Table A.

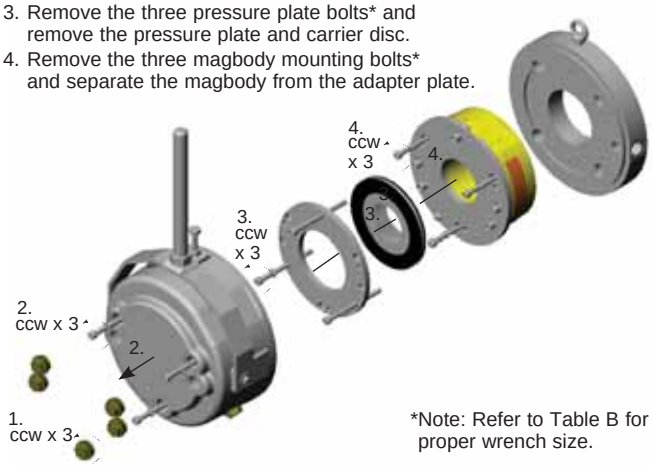
**Table A**

| Brake Model | Bolt Circle | Bolt Torque | | Hex Wrench |
|---|---|---|---|---|
| | | *Metric* | English | |
| **36X-6** | 7.25<br>9.00 | *32.5Nm* | 23lb-ft | 3/16" |
| **36X-7** | 7.25<br>9.00 | *32.5Nm* | 23lb-ft | 3/16" |
| **36X-8** | 9.00<br>11.00 | *32.5Nm* | 23lb-ft | 3/16" |
| **36X-9** | 11.00<br>14.00 | *76.5Nm* | 52lb-ft | 1/4" |




### Step 2

1. Remove the three access plugs using a 22mm wrench.
2. Remove the three housing bolts using a 6mm hex wrench, and lift the housing from the brake.
3. Remove the three pressure plate bolts* and remove the pressure plate and carrier disc.
4. Remove the three magbody mounting bolts* and separate the magbody from the adapter plate.

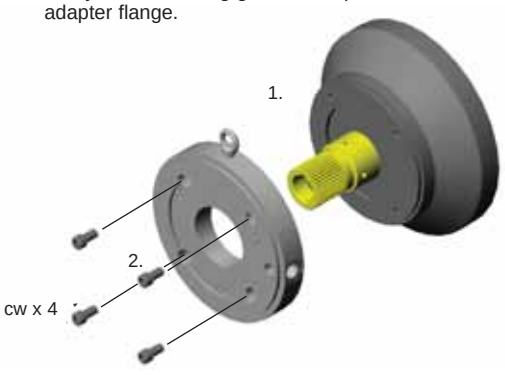



*Note: Refer to Table B for proper wrench size.

### Step 3

1. Position adapter plate on motor register.
2. Bolt adapter plate to motor register with four mounting bolts. (Not provided) (1/2-13 x 1.25" for 7.25 and 9.00" BC and 5/8-11 x 1.25" for 11.00" BC. and 14.00" BC.) Tighten to manufacturers specification using 3/8" hex wrench for 7.25" and 9.00 BC mounting. Use 1/2" hex wrench for 11.00" BC and 14.00" BC. mounting.

**Note:** Verify that the O-ring gasket is in place on the motor side of the adapter flange.




*Installation procedure continued on reverse side.*

## Installation continued

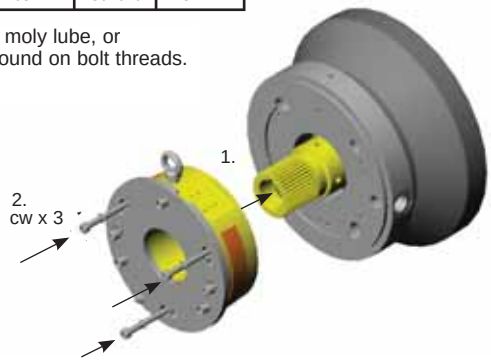
### Step 4

1. Position armature/magbody assembly over hub and on to the adapter.
2. Tighten socket head cap screws per **Table B**.

**Table B**

| Brake Model | Bolt Circle | Bolt Torque | | Hex Wrench |
|---|---|---|---|---|
| | | *Metric* | English | |
| **36X-6** | 170 | *38Nm* | 28 lb-ft | *6mm* |
| **36X-7** | 196 | *38Nm* | 28 lb-ft | *6mm* |
| **36X-8** | 230 | *68Nm* | 50 lb-ft | *8mm* |
| **36X-9** | 278 | *68Nm* | 50 lb-ft | *8mm* |

**Note:** Apply dry moly lube, or anti-seize compound on bolt threads.




### Step 5

1. Slide carrier disc onto the splined hub, with flat side of disc outward from motor.
2. Position pressure plate over carrier disc.
3. Tighten socket head cap screws per Table C.

**Note 1:** Apply dry moly lube, or anti-seize compound on bolt threads.

**Note 2:** Verify air-gap as shown in Table D.

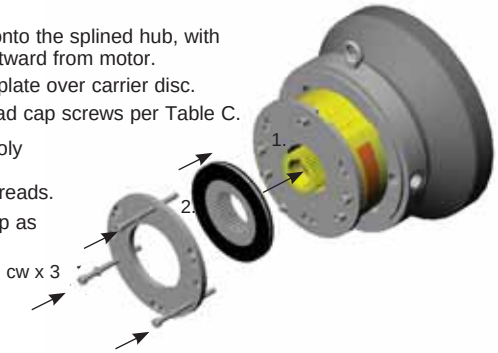



**Table C**

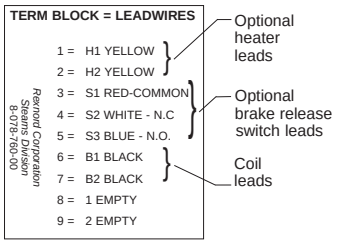
| Brake Model | Bolt Circle | Bolt Torque | | Hex Wrench |
|---|---|---|---|---|
| | | *Metric* | English | |
| **36X-6** | 170 | *19Nm* | 14 lb-ft | *6mm* |
| **36X-7** | 196 | *38Nm* | 28 lb-ft | *6mm* |
| **36X-8** | 230 | *68Nm* | 50 lb-ft | *8mm* |
| **36X-9** | 278 | *68Nm* | 50 lb-ft | *8mm* |

**Note:** Apply dry moly lube, or anti-seize compound on bolt threads.

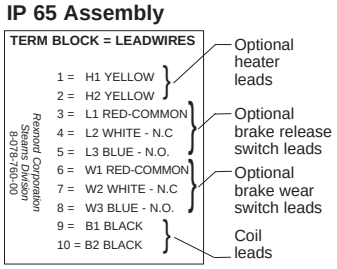
### Step 6 Leadwire Connection Optional Conduit Box

1. Loosen NPT plug and four (4) cover plate screws from junction box and remove.
2. Route leadwires into junction box and connect conduit to box.
3. Connect wiring as shown for either the IP 56 or IP 65 conduit box assembly.
4. Replace junction box cover and tighten screws to seal.

**5-08-0050-00**
**IP 56 Assembly**




**5-08-0051-00**
**IP 65 Assembly**

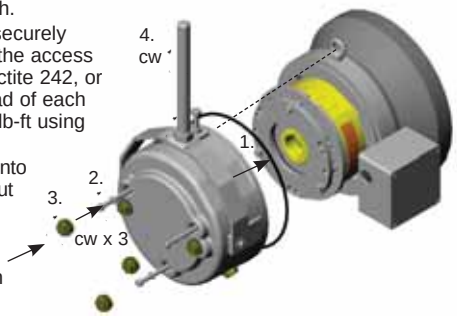



**CAUTION: Be sure all internal wiring is clear of housing flange before replacing housing.**

## Installation continued

### Step 7

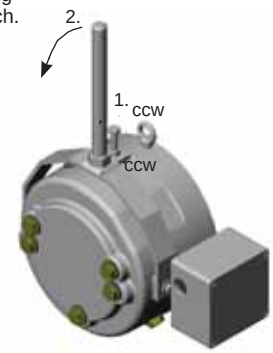
1. Slide housing over brake, align the manual release handle with the lifting lug position on the adapter plate. Verify that the O-ring gasket is in position in the housing.
2. Insert the three housing bolts and tighten to 11 lb-ft with a 6mm hex wrench.
3. Ensure that gasket is securely located on the face of the access plug. Add a drop of Loctite 242, or equivalent, to the thread of each plug and tighten to 28 lb-ft using a 22mm wrench.
4. Thread release handle into place and tighten jam nut with a 30mm wrench. Insert and tighten the stabilizing bolt against the housing, and tighten the jam nut using a 13mm wrench.




## IIA Manual Release Operation (Deadman)

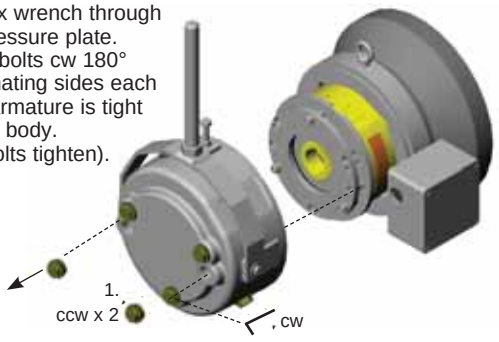
1. Loosen jam nut 1/2 turn, and stabilizing bolt one full turn, using a 13mm wrench.
2. Pull back on manual release handle.

Retighten stabilizing bolt and jam nut when finished.



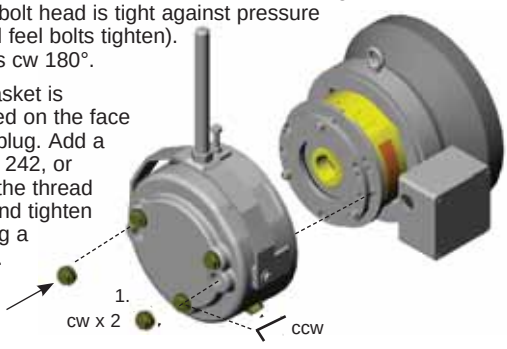

## II Manual Release Engagement (Maintained)

1. Remove two manual release access plugs using a 22mm wrench.
2. Insert 6 mm hex wrench through housing and pressure plate. Rotate release bolts cw 180° at a time, alternating sides each half turn, until armature is tight against magnet body. (You will feel bolts tighten).

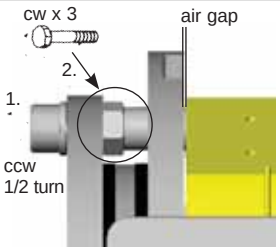



## II Manual Release Disengagement (Maintained)

1. Insert 6mm hex wrench through housing and pressure plate. Rotate release bolts ccw 180° at a time, alternating sides each half turn, until bolt head is tight against pressure plate. (You will feel bolts tighten). Then turn bolts cw 180°.
2. Ensure that gasket is securely located on the face of the access plug. Add a drop of Loctite 242, or equivalent, to the thread of each plug and tighten to 28 lb-ft using a 22mm wrench.



## IV. Air Gap Setting and Wear Adjust




Air gap is factory set per Table D. Set air gap is measured at the adjusting bolts, between the armature and magbody.

**Table D - Minimum Air Gap**

| Brake Model | Bolt Circle | Air Gap without Brake Release | Air Gap with Brake Release Indicator Switch |
|---|---|---|---|
| 36X-6<br>36X-7<br>36X-8 | 170<br>196<br>230 | *.406-.508mm*<br>.016-.020”<br>*.457-.559mm* | *.508-.610mm*<br>.020-.024”<br>*.508-.610mm* |
| 36X-9 | 278 | .018-.022” | .020-.024” |

Normal friction disc wear will cause air gap to increase from original setting (Table D). Air gap should be readjusted when gap reaches dimension shown in Table E.

**Table E - Maximum Air Gap**

| Brake Model | Hex Wrench | Max Gap | |
|---|---|---|---|
| | | *Metric* | English |
| 36X-6 | 3/4” | *.89mm* | .039” |
| 36X-7 | 3/4” | *.89mm* | .035” |
| 36X-8 | 3/4” | *1.09mm* | .043” |
| 36X-9 | 3/4” | *1.40mm* | .055” |

**Table F - Disc Maximum Wear**

| Brake Model | Min. Thickness | |
|---|---|---|
| | *Metric* | English |
| 36X-6 | *8.74mm* | 0.344” |
| 36X-7 | *9.27mm* | 0.365” |
| 36X-8 | *11.68mm* | 0.460” |
| 36X-9 | *12.57mm* | 0.495” |

**Wear Adjustment**

1. Loosen six mounting bolts 1/2 turn.
2. Rotate three adjusting screws cw to achieve original gap (Table D). Also see Note: 1.
3. Retighten mounting bolts (Table B).
4. Recheck gap. Repeat procedure as necessary

**Note 1:** 90° cw rotation is approximately 0.010mm (.25mm”) for the 36X-6 size brake, and 0.15” (0.38mm) for the 36X-7, 36X-8 and 36X-9 size brake.

**Note 2:** Brake discs should be replaced when they reach the thickness shown in Table F. Normally this will occur after 4-5 adjustments.

## V. Coil Wiring

**Caution:** Brake wiring should only be carried out by qualified personnel.

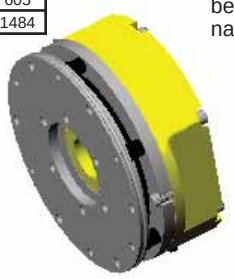
Stearns brake coils are wound for DC voltage input at ± 10% of nameplate rating. Coil resistances shown below are for references purposes. For applications where AC voltage is being rectified refer to AC control switching shown under Electrical Conditions.

**Table G**

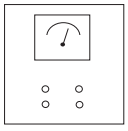
| Bolt Circle | 170 | 230 | 278 | 278 |
|---|---|---|---|---|
| Brake Model | 36X-6 | 36X-7 | 36X-8 | 36X-9 |
| Voltage Rating ↓ | Ohm (nominal value)* | | | |
| 24 | 8.56 | 7.28 | 5.62 | 5.11 |
| 90 | 129.3 | 110.3 | 85.4 | 77.9 |
| 103 | 129.3 | 138.2 | 107 | 97.7 |
| 180 | 499.7 | 426.8 | 330.7 | 302.6 |
| 205 | 499.7 | 534.6 | 414.3 | 379.3 |
| 258 | 783 | 669 | 650 | 605 |
| 414/432 | 1922 | 1726 | 1649 | 1484 |

* Resistance values at 20°C

—Coil voltage rating shown on nameplate Supply voltage must be within 10% of nameplate rating.



DC ± 10%



## Electrical Considerations

**Caution:** Electrical work should only be performed by qualified personnel.

**Note 1:** All 36X series brakes have DC wound coils designed to accept DC line voltage at ± 10% of nameplate rating.

**Note 2:** When using a rectifier for AC line input, use table H to determine the proper DC coil rating requirement.

**Table H**

| Line Voltage (AC) | Rectifier Type | Recommended Coil Voltage Rating | Stearns Rectifier Part Number* | Rectifier Output Voltage |
|---|---|---|---|---|
| 100 | full | 90 | 412-0292-01K | 90 |
| 110 | full | 103 | 412-0292-01K | 99 |
| 115 | full | 103 | 412-0292-01K | 103 |
| 127 | full | 103 | 412-0292-01K | 115 |
| 208 | full | 180 | 412-0291-01K | 187 |
| 220 | full | 205 | 412-0291-01K | 198 |
| 230 | full | 205 | 412-0291-01K | 207 |
| 240 | full | 205 | 412-0291-01K | 216 |
| 220 | half | 103 | 412-0591-01K | 99 |
| 230 | half | 103 | 412-0591-01K | 103 |
| 240 | half | 103 | 412-0591-01K | 108 |
| 380/400 | half | 180 | 412-0591-01K | 171/180 |
| 415 | half | 180 | 412-0591-01K | 187 |
| 460 | half | 205 | 412-0591-01K | 207 |
| 575 | half | 260 | 412-0591-01K | 259 |

## AC Switching with Standard Rectifier

Switching on the AC line is the most common method of control when the rectifier is wired through the motor windings or motor contacts. However, brake engagement can take up to 5 times longer than DC switching. Switching on the AC line is not suitable for hoist and crane applications.

## Crane and Hoist Applications

For descending loads such as cranes and hoists or high inertia loads, the motor windings can develop regenerative voltage during deceleration which can delay the engagement of the brake when switching on the AC supply.

For these type of applications it is important to switch on the DC side of the rectifier or use a Quick Set device. Stearns rectifiers have a built in suppression circuit to protect the rectifier. However, it may still be necessary to protect the switching contacts with a separate suppression device. (see Figure 1 and Figure 2).

**Figure 1**

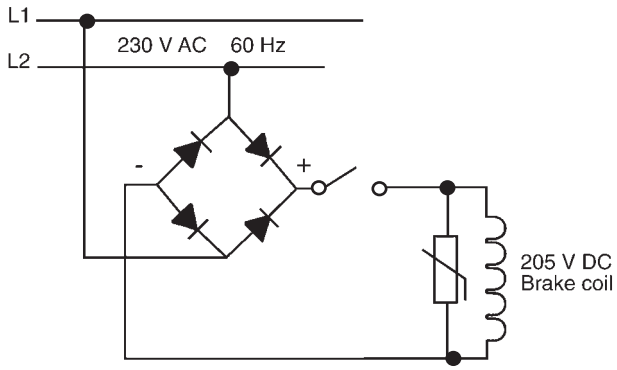
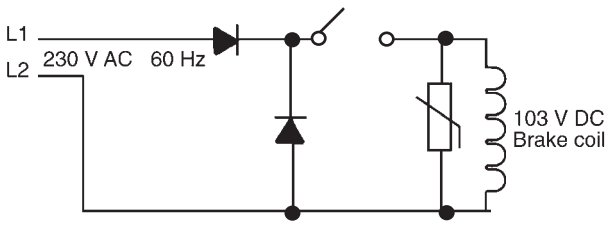



**Figure 2**




* A suppression device **is** required when switching on the DC side of the line and using the half wave rectifier (412-0591-01K).

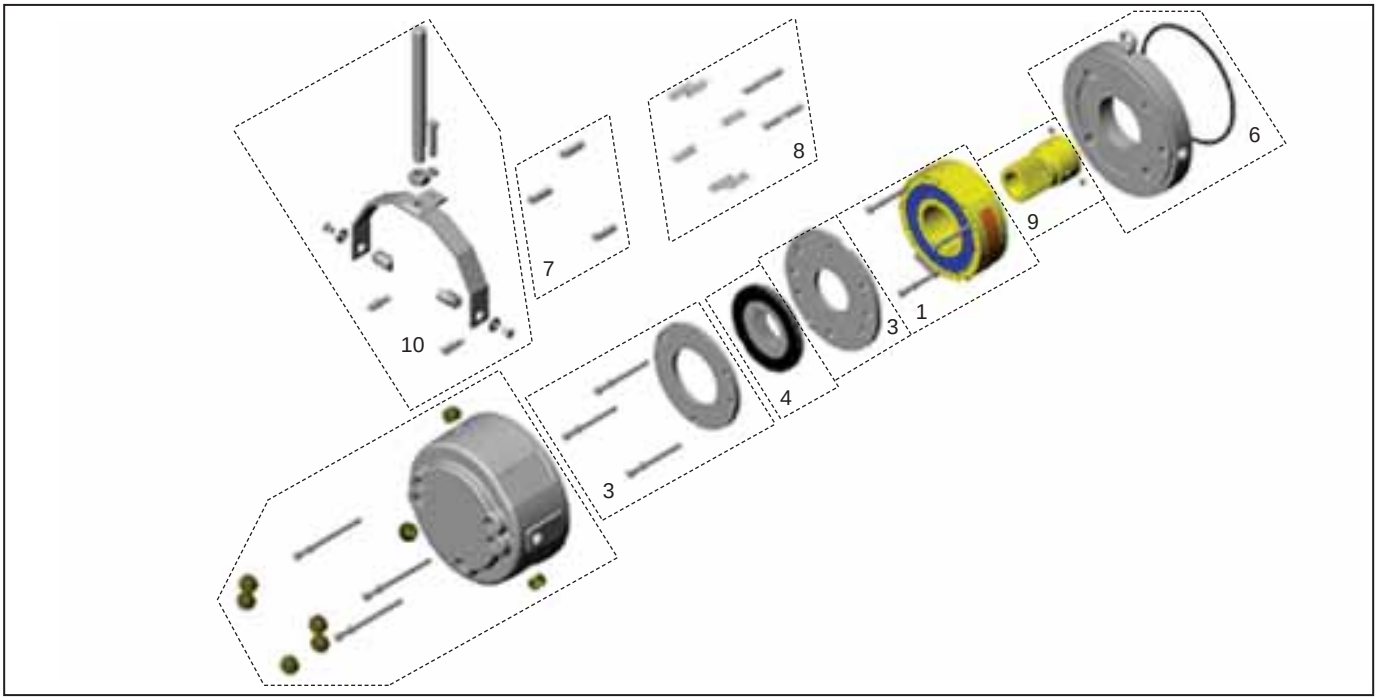



**Table I**

| Item | Torque Rating Description | | 36X-6 | 36X-7 | 36X-8 | 36X-9 |
|---|---|---|---|---|---|---|
| 1 | Mag body & coil assembly (see table J for voltage) | | 5-04-0977-00-0[ ]K | 5-04-0987-00-0[ ]K | 5-04-0992-00-0[ ]K | 5-04-0997-00-0[ ]K |
| 3 | Armature & Pressure Plate Kit | | 8-405-977-0K | 8-405-987-0K | 8-405-992-0K | 8-405-997-0K |
| 4 | Carrier disc kit | | 5-14-0976-0K | 5-14-0985-0K | 5-14-0990-0K | 5-14-0995-0K |
| 5 | Housing kit | | 8-007-130-0K | 8-007-131-0K | 8-007-132-0K | 8-007-133-0K |
| 6a | Adapter plate kit-Aluminum 7.25" B.C. | | 8-001-909-1K | 8-001-910-1K | | |
| | -Steel 7.25" B.C. | | 8-001-911-1K | 8-001-920-1K | | |
| 6b | Adapter plate kit-Aluminum 9" B.C. | | 8-001-909-4K | 8-001-910-2K | 8-001-912-1K | |
| | -Steel 9" B.C. | | 8-001-911-4K | 8-001-920-2K | 8-001-913-1K | |
| 6c | Adapter plate kit-Aluminum 11" B.C. | | | | 8-001-912-2K | 8-001-914-1K |
| | -Steel 11" B.C. | | | | 8-001-913-2K | 8-001-915-1K |
| 6d | Adapter plate kit-Aluminum 14" B.C. | | | | | 8-001-914-4K |
| | -Steel 14" B.C. | | | | | 8-001-915-4K |
| 7 | Adjust bolt kit | | 8-434-975-0K | 8-439-985-0K | 8-434-990-0K | 8-434-990-0K |
| 8 | Sprink kit | Outer pole | 9-70-0965-0K | 9-70-0985-0K | 9-70-0990-0K | 9-70-0995-0K |
| | | Inner pole | 9-70-0975-0K① | * | * | * |
| 9 | Hub (see table K) | English bore | 5-16-0972-01-01[ ] | 5-16-0982-01-01[ ] | 5-16-0992-01-01[ ] | 5-16-0997-01-01[ ] |
| | | Metric bore | 8-016-972-00-M[ ] | 8-016-982-00-M[ ] | 8-016-992-00M[ ] | 8-016-997-00M[ ] |
| 10 | Deadman/maintained release kit | | 8-419-977-0K | 8-419-987-0K | 8-419-992-0K | 8-419-997-0K |

* Inner and outer pole springs are in same kit
①Size 170 brakes w/derated torque do not require inner pole spring kit

**Table J Coil Voltage & Current Ratings**

| Magbody & Coil Assembly Voltage Identifier -0[ ]K | | Current Rating | | | |
|---|---|---|---|---|---|
| Voltage | Insert | 170 | 196 | 230 | 278 |
| 24 Vdc | 0 [E]K | 2.80 | 3.30 | 4.27 | 3.85 |
| 90 Vdc | 0 [J]K | .70 | .82 | 1.05 | 1.19 |
| 103 Vdc | 0 [K]K | .80 | .75 | .96 | 1.08 |
| 180 Vdc | 0 [L]K | .36 | .42 | .54 | .61 |
| 205 Vdc | 0 [M]K | .41 | .38 | .49 | .56 |
| 258 Vdc | 0 [S]K | .33 | .38 | .40 | .44 |
| 414/432 Vdc | 0 [B]K | .22 | .25 | .26 | .29 |

**Table K**

| Bore Diameters | | | |
|---|---|---|---|
| English Bore | Insert [ ] | *Metric Bore* | Insert [ ] |
| 1 1/8 | E | *30mm* | 30 |
| 1 1/4 | F | *35mm* | 35 |
| 1 3/8 | G | *38mm* | 38 |
| 1 1/2 | M | *40mm* | 40 |
| 1 5/8 | H | *42mm* | 42 |
| 1 3/4 | I | *45mm* | 45 |
| 1 7/8 | J | *48mm* | 48 |
| 2 | W | *50mm* | 50 |
| 2 1/8 | N | *55mm* | 55 |
| 2 1/4 | P | *60mm* | 60 |
| 2 3/8 | R | *70mm* | 70 |

**Kit Contents**

| Item | Description |
|---|---|
| 1 | Mag body & coil assembly<br>Mounting bolts (3) & lockwasher (3) |
| 3 | Armature & pressure plate<br>Mounting bolts (3) & lockwasher (3) |
| 5 | Housing<br>Mounting bolts (3) & lockwasher (3)<br>(8) access plugs<br>Housing flange O-ring |
| 6 | Adapter plate<br>Adapter-to-mounting face O-ring |
| 8 | Outer and inner pole springs<br>Torque adjust plugs |
| 10 | Manual release bow<br>Manual release handle<br>Stabilizing bolt & locknut<br>Release pivot (2) & O-rings (2)<br>Release bolts (2) & washers (2)<br>Maintained release bolts, washers & springs |

*Rexnord Industries, Inc.*
*Stearns Division*
*5151 S. International Dr.*
*Cudahy, Wisconsin 53110*
*(414) 272-1100 Fax: (414) 277-4364 www.stearns.rexnord.com*

P/N 8-078-877-00
effective 09/21/06

**Stearns®** *Armature Actuated Brakes*

# Installation and Service Instructions for Stearns AAB Rectifier

## Important

Please read these instructions carefully before installing, operating, or servicing your Stearns brake and rectifier. Failure to comply with these instructions could cause injury to personnel and/or damage to property if the brake is installed or operated incorrectly. For definition of limited warranty/liability, contact Rexnord Industries, Inc., Stearns Division, 5150 S. International Dr., Cudahy, Wisconsin 53110,(414) 272-1100.

OEM's and subsystem suppliers, please forward these instructions with your components to the final user.

## Caution

1. Servicing shall be in compliance with applicable local safety codes including Occupational Safety and Health Act (OSHA). All wiring and electrical connections must comply with the National Electric Code (NEC) and local electric codes in effect.
2. To prevent an electrical hazard, disconnect power source before working on the brake. If power disconnect point is out of sight, lock disconnect in the *off* position and tag to prevent accidental application of power to system.
3. Maximum operating ambient temperature for these rectifiers should not exceed 65°C (150° F).
4. Refer to specific brake Installation and Service Instructions for proper mounting of brake.

## Wiring

1. Connect coil leadwires to rectifier as shown in diagrams. (Polarity does **not** matter.)
2. Connect rectifier leadwires to AC power source.

**Note 1:** For each nominal AC line voltage, use table to determine the proper DC coil rating requirement.

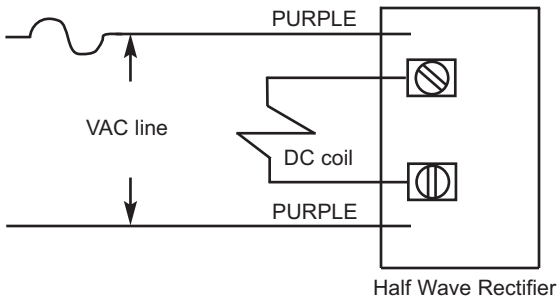
**Note 2:** Rectifiers must be fused with a 1 amp; fast acting fuse, with a rating at, or above the line voltage input to the rectifier. The exception to fusing are kits #412-0292-01 and 412-0292-03, which have built in fuses.

**Table**

| Line Voltage (AC) | Rectifier Type | Recommended Coil Voltage Rating | Stearns Rectifier Part Number | Rectifier Output Voltage |
|---|---|---|---|---|
| 100 | full | 90 | 412-029*-01K | 90 |
| 110 | full | 103 | 412-029*-01K | 99 |
| 115 | full | 103 | 412-029*-01K | 103 |
| 127 | full | 103 | 412-029*-01K | 115 |
| 208 | full | 180 | 412-029*-01K | 187 |
| 220 | full | 205 | 412-029*-01K | 198 |
| 230 | full | 205 | 412-029*-01K | 207 |
| 240 | full | 205 | 412-029*-01K | 216 |
| 230 | full | 205 | 412-0292-03K | 207 |
| 220 | half | 103 | 412-0591-01K | 99 |
| 230 | half | 103 | 412-0591-0*K | 103 |
| 240 | half | 103 | 412-0591-0*K | 108 |
| 380/400 | half | 180 | 412-0591-0*K | 171/180 |
| 415 | half | 180 | 412-0591-0*K | 187 |
| 460 | half | 205 | 412-0591-0*K | 207 |
| 460 | half | 205 | 412-0493-0*K | 207 |
| 575 | half | 260 | 412-0591-0*K | 259 |
| 480 | half | 205 | 412-0591-0*K | 216 |

**Note:** *Insert numeral from existing rectifier in this position. Full Wave rectifier output is 90% of AC line input. Half wave rectifier output is 45% of AC line input.

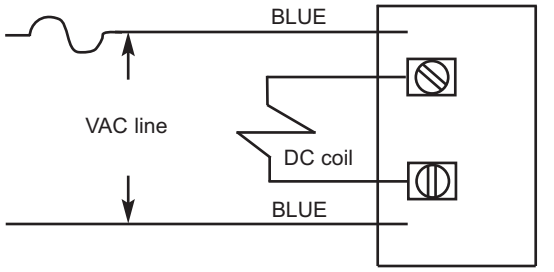
Kit Number 412-0591-01K**




Half Wave Rectifier

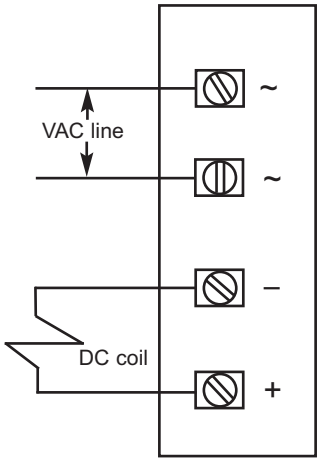
** A suppression device is required when switching on the DC side of the line and using the half wave rectifier (412-0591-01K).

Kit Number 412-0291-01K



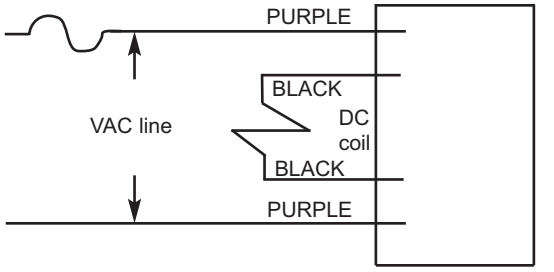

Full Wave Rectifier

Kit Number 412-0292-01K




Full Wave Rectifier

Kit Number 412-0591-03K**




Half Wave Rectifier

BACK TO PRODUCT PAGE

# Installation and Service Instructions for Stearns Quick-Set & Over-Excitation Rectifiers

## Important

Please read these instructions carefully before installing, operating, or servicing your Stearns brake and rectifier. Failure to comply with these instructions could cause injury to personnel and/or damage to property if the brake is installed or operated incorrectly. For definition of limited warranty/liability, contact Rexnord Industries, Inc., Stearns Division, 5150 S. International Dr., Cudahy, Wisconsin 53110,(414) 272-1100.

OEM's and subsystem suppliers, please forward these instructions with your components to the final user.

## Caution

1. Servicing shall be in compliance with applicable local safety codes including Occupational Safety and Health Act (OSHA). All wiring and electrical connections must comply with the National Electric Code (NEC) and local electric codes in effect.
2. To prevent an electrical hazard, disconnect power source before working on the brake. If power disconnect point is out of sight, lock disconnect in the *off* position and tag to prevent accidental application of power to system.
3. Maximum operating ambient temperature for these rectifiers should not exceed 65°C (150° F).
4. Refer to specific brake Installation and Service Instructions for proper mounting of brake.
5. When use of these rectifiers is in conjunction with a motor operated by a variably frequency drive, the input wiring to the rectifier should be run in a wireway that does not contain the motor wires. Shielded cable should be used in applications where the rectifier and motor wires must be run together.

## Wiring

1. Connect coil leadwires to rectifier as shown in diagrams. (Polarity does **not** matter.)
2. Connect rectifier leadwires to AC power source.

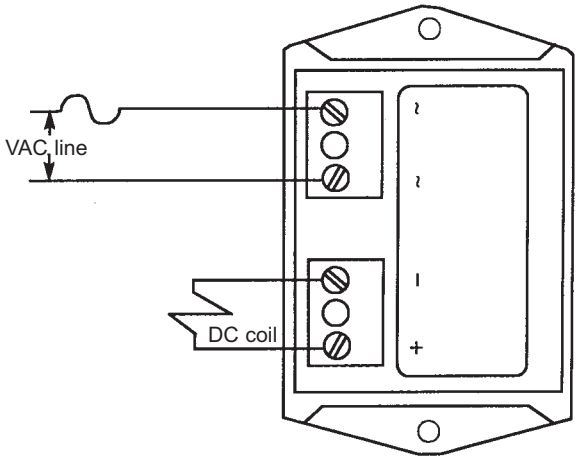
**Note:** For each nominal AC line voltage, use table to determine the proper DC coil rating requirement.

**Table A**

| Line Voltage (AC) | Rectifier Type | Recommended Coil Voltage Rating | Stearns Rectifier Part Number | Rectifier Output Voltage |
|---|---|---|---|---|
| 230 | full | 205 | 412-0296-01K | 207 |
| 460 | full | 415 | 412-0498-01K | 414 |
| 230 | half | 103 | 412-0293-01K | 207/103* |
| 460 | half | 205 | 412-0496-01K | 414/207* |
| 575 | half | 260 | 412-0598-11K | 259 |
| 460 | half | 205 | 412-0498-11K | 207 |

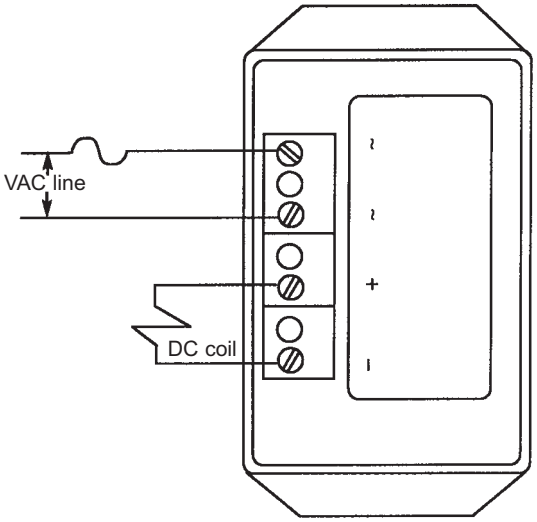
*The over-excitation rectifier produces a momentary fullwave output before switching to a halfwave output.

412-0296-01K
412-0498-01K
412-0498-11K
412-0598-11K




Quick-Set Rectifier/Tor-ac
Fuse is: 1A 250V for 230 VAC line
1A 600V for 460 VAC line
1A 600V for 575 VAC line

412-0293-01K
412-0496-01K



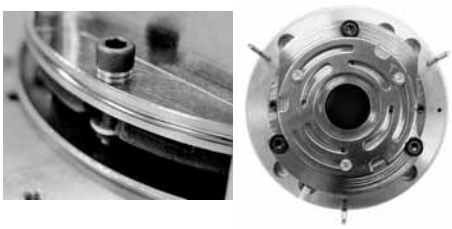
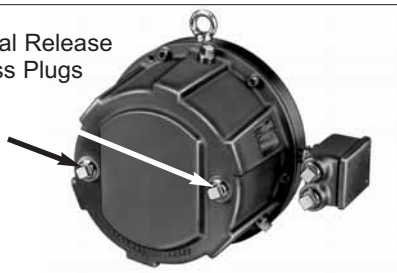

Over-Excitation Rectifier
Fuse is: 3A 250V for 230 VAC line
3A 600V for 460 VAC line

*Rexnord Industries, LLC*
*Stearns Division*
*5150 S. International Drive*
*Cudahy, Wisconsin 53110*
*(414) 272-1100 Fax: (414) 277-4364* ***www.rexnord.com***

# Armature Actuated Brake Modifications

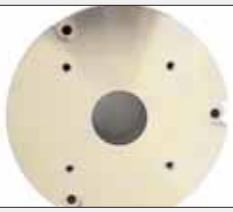
BACK TO PRODUCT PAGE

## Series 333/350/360

| Modification | Series | Brake Size | List Price Adder |
|---|---|---|---|
| Maintained Manual Release | | | |
|  | 333 | ALL | size 72 $43.00<br>size 90 $50.00<br>size 112 $55.00<br>size 132 $63.00<br>size 145 $70.00<br>size 170 $80.00<br>size 196 $150.00<br>size 230 $184.00<br>size 278 $275.00 |
| Manual Release Access Plugs  | 350/360 | ALL | Standard feature |
| Non-Maintained Manual Release | | | |
| 333  360 | 333 | ALL | size 72 $43.00<br>size 90 $50.00<br>size 112 $55.00<br>size 132 $63.00<br>size 145 $70.00<br>size 170 $80.00<br>size 196 $150.00<br>size 230 $184.00<br>size 278 $275.00 |
| | 360 | ALL | size 170 $250.00<br>size 196-278 $300.00 |
| Electronic Brake Release Indicator Switch | | | |
|  | 333/350/360 | ALL | $330.00 |
| Electronic Wear Indicator Switch | 333/350/360 | ALL | $330.00 |
| AC Rectifiers, In-Line | 333 | size 72-90 115 Vac<br>size 72-112 230 Vac | $46.00 standard in-line<br>$70.00 in-line quickset |
| AC Rectifiers, Separate | 333/350/360 | ALL | see rectifier pages |
| Conduit Box | | | |
|  | 333/350/360 | ALL | $205.00 |
| | 350/360 with IP67 conduit box | ALL | $360.00 |

# Series 333/350/360 Modifications

BACK TO PRODUCT PAGE

| Modification | Series | Brake Size | List Price |
|---|---|---|---|
| Band Seal (Boot) | | | |
|  | 333 | ALL | size 72 $11.00<br>size 90 $12.00<br>size 112 $14.00<br>size 132 $20.00<br>size 145 $34.00<br>size 170 $50.00<br>size 196 $63.00<br>size 230 $75.00<br>size 278 $90.00 |
| End Cap Plug | | | |
|  | 333 | ALL | size 72 $10.00<br>size 90 $15.00<br>size 112 $20.00<br>size 132 $25.00<br>size 145 $45.00<br>size 170 $45.00<br>size 196 $50.00<br>size 230 $60.00<br>size 278 $75.00 |
| Space Heater | | | |
|  | 333/350/360 | ALL | Sizes 72-112 $116.00<br>Sizes 132-278 $208.00 |
| Tach Machining | | | |
|  | 333<br>tapped holes in magnet body for tether mount | ALL | $25.00 |
| | 350/360<br>Machining on brake housing | ALL | Size 170 $814.00<br>Sizes 196-278 $1,020.00 |
| Through-Shaft | | | |
|  | 333<br>through-shaft seal in magnet body | ALL | Sizes 72-170 $176.00<br>Sizes 196-278 $376.00 |
|  | 350/360<br>through-shaft hole in housing with shaft seal | ALL | $376.00 |

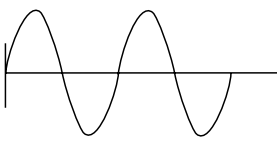
# AC Rectifiers for use with Armature Actuated Brakes

## Product Overview

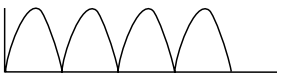
NOTE: For brake response times with and without AC rectifiers see page 94.

### Full Wave

Input



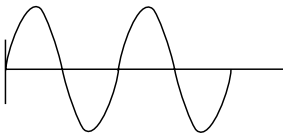
Output



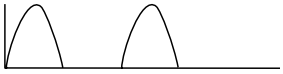
A rectifier in which both positive and negative half-cycles of the incoming (AC) signal are rectified to produce a unidirectional (DC) current through the load. The DC output voltage of a full wave rectifier is $V_{DC=}$ .90$V_{AC}$.
Maximum operating voltage is +10% of nominal, frequency 50/60 Hz, maximum ambient temperature range of -40˚C to 65˚C

### Half Wave

Input



Output



A rectifier in which only alternate half-cycles of the incoming (AC) signal are rectified to produce a unidirectional (DC) current through the load. The DC output voltage of a half wave rectifier is $V_{DC=}$ .45$V_{AC}$.
Maximum operating voltage is +10% of nominal, frequency 50/60 Hz, maximum ambient temperature range of -40°C to 65°C

### Combination Full and Half Wave

Provides option of utilizing either full or half wave rectification
Maximum operating voltage is +10% of nominal, frequency 50/60 Hz.
Maximum ambient temperature range is -40°C to 65°C

### TOR-AC Full and Half Wave

Provides coil turn off nearly as fast as DC side switching. Includes line filter for AC drive applications or whenever electrical filtering is required to protect the rectifier from high-frequency electrical line pulses. Must be switched on/off by a switch in an AC lead of the TOR-AC. Maximum operating voltage +10% of nominal, frequency 50/60 Hz.
Maximum ambient temperature range is -40°C to 65°C

### QuickSet

A rectifier that provides a quick brake response time even when the rectifier is permanently wired across the windings of an AC motor. The QuickSet Rectifier detects the decaying, motor generated voltage that occurs when power is removed from the motor circuit, and interrupts brake coil current in response. QuickSet Rectifiers can be specified full wave or half wave.
Operating voltage is ±10% of nominal, frequency 50/60 Hz.
Maximum ambient temperature range is -40°C to 65°C

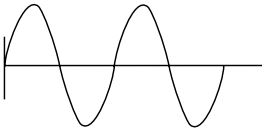
### QuickSet/QuickRelease

A rectifier that provides a timed, full wave rectified "over-excitation" brake release function, followed by continuous, half wave rectified brake released "holding" function, when used in conjunction with an appropriate brake coil voltage rating.

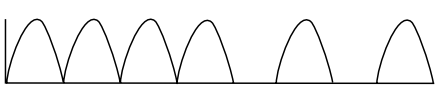
**USED AS WATTSAVER:** Provides a timed, full wave rectified brake release function, followed by continuous, half wave rectified brake released "wattsaver" function, when used in conjunction with an appropriate brake coil voltage rating. The Wattsaver serves to reduce the electrical power consumption and dissipation of the brake in the released state.

Operating voltage is ±10% of nominal, frequency 50/60 Hz.
Maximum ambient temperature varies by part number - see information by part number on following pages.

Input

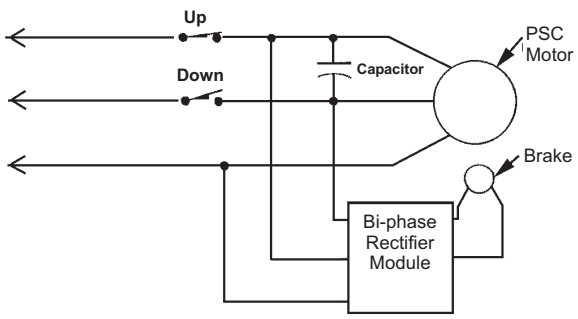


Output



### Bi-Phase Rectifiers

A rectifier that is typically used in single phase, reversing, permanent split capacitor (PSC) motor applications. A single phase, reversing, PSC motor typically has two windings of equivalent resistance. The winding which serves as the main winding is connected directly across the power line, the winding which serves as the auxiliary winding is connected in series with a run capacitor across the power line. The direction of rotation is reversed by interchanging the function of the two windings. The Bi-Phase Rectifier provides the same voltage to the brake coil regardless of the direction of rotation of the motor. The Bi-Phase Rectifier has five leads and comes in standard response and QuickSet versions. Bi-Phase Rectifiers are application specific. Please contact factory for more information.



# AC Rectifiers Continued
# Selection & Pricing

BACK TO PAGE 1

## Discount Symbol R3

### 115 Vac Input Voltage

**Full Wave**

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| 72-196 | 412029101K | 115 | 103 | K or J | ac or dc side or connect across motor terminals | ac leads dc terminal block | .8 | $46.00 |
| ALL | 412029201K | 115 | 103 | K or J | ac or dc side or connect across motor terminals | ac terminal block dc terminal block | 1.6 | $70.00 |
| ALL | 412029203K | 115 | 103 | K or J | ac or dc side or connect across motor terminals | ac leads dc leads | 1.6 | $70.00 |

**Combination Full and Half Wave**

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| * | 412049101K | 115/230 460/575 | 50/103 207/259 414/517 | 50 Vdc = G 103 Vdc = K* 207 Vdc = M 259 Vdc = S 414 Vdc = B 517 Vdc = A | ac or dc side or connect across motor terminals | ac terminal block dc terminal block | .8 | $90.00 |

*At 50 Vdc coil voltage, this rectifier can be used on brake sizes 72-112. At 103 Vdc coil voltage, this rectifier can be used on brake sizes 72-196. At all other listed coil voltages, this rectifier can be used on any brake size.

### 230 Vac Input Voltage

**Full Wave**

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412029101K | 230 | 207 | M | ac or dc side or connect across motor terminals | ac leads dc terminal block | .8 | $46.00 |
| ALL | 412029201K | 230 | 207 | M | ac or dc side or connect across motor terminals | ac terminal block dc terminal block | 1.6 | $70.00 |
| ALL | 412029203K | 230 | 207 | M | ac or dc side or connect across motor terminals | ac leads dc leads | 1.6 | $70.00 |

**Combination Full and Half Wave**

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| * | 412049101K | 115/230 460/575 | 50/103 207/259 414/517 | 50 Vdc = G 103 Vdc = K 207 Vdc = M 259 Vdc = S 414 Vdc = B 517 Vdc = A | ac or dc side or connect across motor terminals | ac terminal block dc terminal block | .8 | $90.00 |

**TOR-AC Rectifier with Line Filter, Full Wave**

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412029401K 412029402K | 230 | 207 | M | ac side only | Terminals Leadwires | .6 | $115.00 |

**QuickSet**

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412029601K | 230 | 207 | M | NONE-connect across motor terminals | ac terminal block dc terminal block | .6 | $120.00 |

**QuickSet/QuickRelease or 205 Vdc Wattsaver**

| Brake Sizes | Part Number | Max Ambient Temp | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 72-230 | 412029301K | 65°C | 230 | 207 Vdc over-excitation | K or J | ac side only or connect across motor terminals | ac terminal block dc terminal block | 2.0 | $480.00 |
| | | | | 103 Vdc sustaining | | | | 1.0 | |

# AC Rectifiers Selection/Pricing Continued

BACK TO PAGE 1

**Discount Symbol R3**

## 460 Vac Input Voltage

**At 50 Vdc coil voltage, this rectifier can be used on brake sizes 72-112.
At 103 Vdc coil voltage, this rectifier can be used on brake sizes 72-196. At all other listed coil voltages, this rectifier can be used on any brakes size.

### Half Wave

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412049301K | 400 | 180 | L | ac or dc side or connect across motor terminals | ac terminal block<br>dc terminal block | .8 | $46.00 |
| | | 460 | 207 | M | | | | |

### Combination Full and Half Wave

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ** | 412049101K | 115/230<br>460/575 | 50/103<br>207/259<br>414/517 | 50 Vdc = G 103 Vdc = K*<br>207 Vdc = M 259 Vdc = S<br>414 Vdc = B 517 Vdc = A | ac or dc side or connect across motor terminals | ac terminal block<br>dc terminal block | .8 | $90.00 |

### TOR-AC with Line Filter

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412049404K | 460 | 414 | B / Full | ac side only | Terminals | 0.3 | $102.00 |
| ALL | 412049405K | 460 | 414 | B / Full | ac side only | Leadwires | 0.3 | $102.00 |
| ALL | 412049411K | 460 | 207 | M / Half | ac side only | Terminals | 0.3 | $102.00 |
| ALL | 412049412K | 460 | 207 | M / Half | ac side only | Leadwires | 0.3 | $102.00 |
| ALL | 412049413K | 460 | 207 | M / Half | ac side only | Terminals | 0.6 | $187.00 |
| ALL | 412049414K | 460 | 207 | M / Half | ac side only | Leadwires | 0.6 | $187.00 |

### QuickSet

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412049801K | 460 | 414 | B<br>Fullwave | NONE-connect across motor terminals | ac terminal block<br>dc terminal block | .3 | $120.00 |
| ALL | 412049811K | 460 | 207 | M<br>Halfwave | NONE-connect across motor terminals | ac terminal block<br>dc terminal block | .6 | $120.00 |

### QuickSet/QuickRelease or 414 Vdc Wattsaver

| Brake Sizes | Part Number | Max Ambient Temp | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|---|
| 72-230 | 412049601K | 45°C | 460 | 414 Vdc over-excitation | M | ac side only or connect across motor terminals | ac terminal block<br>dc terminal block | 1.0 | $480.00 |
| | | | | 207 Vdc sustaining | | | | 0.5 | |

## 575 Vac Input Voltage

### Half Wave

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412059101K<br>UL E71115 | 400 | 180 | L | ac side only or connect across motor terminals | ac leads<br>dc terminal block | .8 | $46.00 |
| | | 575 | 259 | S | | | | |
| ALL | 412059103K | 400 | 180 | L | ac side only or connect across motor terminals | ac leads<br>dc leads | .8 | $46.00 |
| | | 575 | 259 | S | | | | |

### Combination Full and Half Wave

| Brake Sizes | Part Number | AC Input | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ** | 412049101K | 115/230<br>460/575 | 50/103<br>207/259<br>414/517 | 50 Vdc = G 103 Vdc = K<br>207 Vdc = M 259 Vdc = S<br>414 Vdc = B 517 Vdc = A | ac or dc side or connect across motor terminals | ac terminal block<br>dc terminal block | .8 | $90.00 |

### QuickSet

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412059811K | 575 | 258 | S | NONE-connect across motor terminals | ac terminal block<br>dc terminal block | .6 | $120.00 |

### TOR-AC with Line Filter - Half Wave

| Brake Sizes | Part Number | AC Input 50/60 Hz | DC Output | Brake Coil Voltage/ Letter Designation | Switching | Connection | Max Current (amps) | List Price |
|---|---|---|---|---|---|---|---|---|
| ALL | 412059411K | 575 | 259 | S | ac side only | terminals | .6 | $102.00 |
| | 412059412K | | | | | leadwires | | |

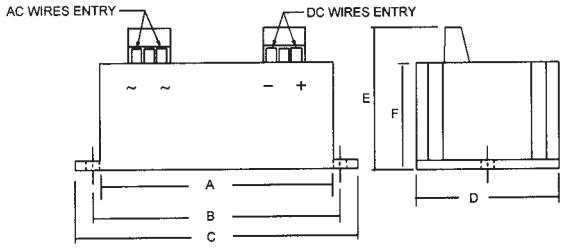
BACK TO PAGE 1

# AC Rectifiers Continued

## Rectifier Dimensions

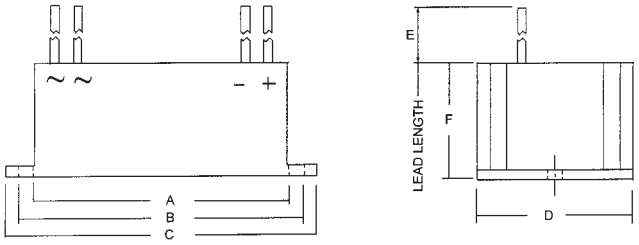
### Tape Mount

| Part Number | Length | Width | Ht | Connection | |
|---|---|---|---|---|---|
| | | | | AC | DC |
| 4-1-20291-01K | 1.4 | 0.6 | 1.0 | Leadwire, 7” long | Terminal |
| 4-1-20292-01K | 1.38 | 1.06 | 0.94 | Terminal | Terminal |
| 4-1-20292-03K | 1.38 | 1.06 | 0.9 | Leadwire, 2.5” long | Leadwire, 2.5” long |
| 4-1-20491-01K | 2.25 | 1.25 | 1.0 | Terminal | Terminal |
| 4-1-20591-03K | 1.4 | 0.75 | 0.9 | Leadwire, 7” long | Leadwire, 7” long |
| 4-1-20591-01K | 1.4 | 0.75 | 1.0 | Leadwire, 7” long | Terminal |




Terminal location or connection may differ from sketch
Flange or Tape Mount

| Part Number | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 4-1-20293-01K | 4.6 | 5 | 5.5 | 3.3 | 2.03 | 1.25 |
| 4-1-20294-01K | 3 | 3.5 | 4 | 2 | 2 | 1.5 |
| 4-1-20296-01K | 3 | 3.5 | 4 | 3 | 2 | 1.5 |
| 4-1-20493-01K | 2 | 2.5 | 3 | 1.5 | 1.6 | 1 |
| 4-1-20494-04K | 3 | 3.5 | 4 | 2 | 2 | 1.5 |
| 4-1-20494-11K | 3 | 3.5 | 4 | 2 | 2 | 1.5 |
| 4-1-20494-13K | 3 | 3.5 | 4 | 2 | 2 | 1.5 |
| 4-1-20496-01K | 4.6 | 5 | 5.5 | 3.3 | 2 | 1.25 |
| 4-1-20498-01K | 3 | 3.5 | 4 | 3 | 2 | 1.5 |
| 4-1-20498-11K | 2 | 2.38 | 2.6 | 2 | 2.1 | 1.3 |
| 4-1-20594-11K | 3 | 3.5 | 4 | 2 | 2 | 1.5 |
| 4-1-20598-11K | 2 | 2.38 | 2.6 | 2 | 2.1 | 1.3 |

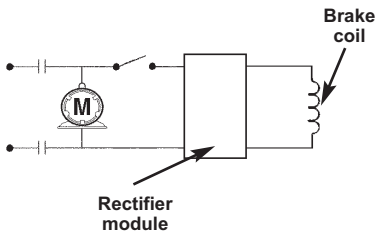



| Part Number | A | B | C | D | E | F | Mount |
|---|---|---|---|---|---|---|---|
| 4-1-20494-01K | 2.3 | | | 1.32 | 6 | 0.86 | Tape |
| 4-1-20294-02K | 3 | 3.5 | 4 | 2 | 6 | 1.5 | Flange |
| 4-1-20494-05K | 3 | 3.5 | 4 | 2 | 6 | 1.5 | Flange |
| 4-1-20494-12K | 3 | 3.5 | 4 | 2 | 6 | 1.5 | Flange |
| 4-1-20494-14K | 3 | 3.5 | 4 | 2 | 6 | 1.5 | Flange |
| 4-1-20594-12K | 3 | 3.5 | 4 | 2 | 6 | 1.5 | Flange |

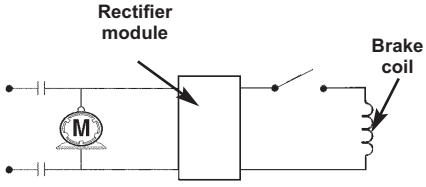
## Wiring Diagrams/Switching

NOTE: For brake response times with and without AC rectifiers see page 94

### AC Side Switching

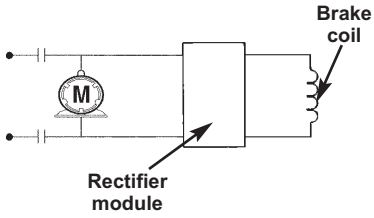



### DC Side Switching




Use DC side switching with the following Rectifiers ONLY: 4-1-20291-01K, 4-1-20292-01K, 4-1-20292-03K, 4-1-20493-01K, 4-1-20491-01K

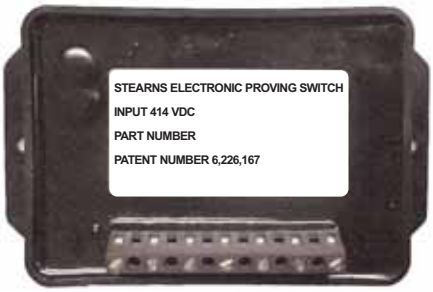
### Connected Across Motor Terminals (No switching)



# Electronic Brake Release Indicator (Proving Switch)
## *Armature-Actuated Brake Series*

BACK TO PAGE 1

Indicates when the brake is released by sensing the change in the brake coil current waveform.
For use with the Series 333/350/360 brakes





### Features

- *Mount in remote location (control cabinet)*
- *Operating temperature -40°C through 65°C*
- *Not susceptible to common problems of mechanical switches, such as mechanical fatigue, tolerances, and vibration.*
- *Relay contacts are silver-cadmium oxide*
- *Utilize either normally-open contacts (UL rated 2-20A, inductive or resistive, at 12-240 VAC and CSA rated 10A, inductive or resistive at 240 VAC) or normally-closed contacts (UL rated 2-10A, inductive or resistive, at 12-240 VAC and CSA rated 10A, inductive or resistive, at 240 VAC)*

**Wiring Instructions: See sheet P/N 8-178-000-03**

### Brake Operation

When electrical power is applied to the armature-actuated brake coil, the armature is attracted by the electromagnetic force generated by the magnet body, which overcomes spring action. This allows the friction disc to rotate freely. When electrical power is interrupted, the electromagnetic force is removed and the pressure spring mechanically forces the armature plate to clamp the friction disc between itself and the pressure plate. This develops torque to stop or hold the load.

### Switch Operation

When the brake armature is pulled in to the magnet body to release the brake, a change in the brake coil current waveform occurs. By tracking this change in the brake coil current, the electronic switch indicates when the brake is released.

## Ordering Information

| List Price | Discount Symbol |
|---|---|
| $330.00 | R3 |

*Part Number Example:* 4 - 4 - 0 7 0 9 0 - X X

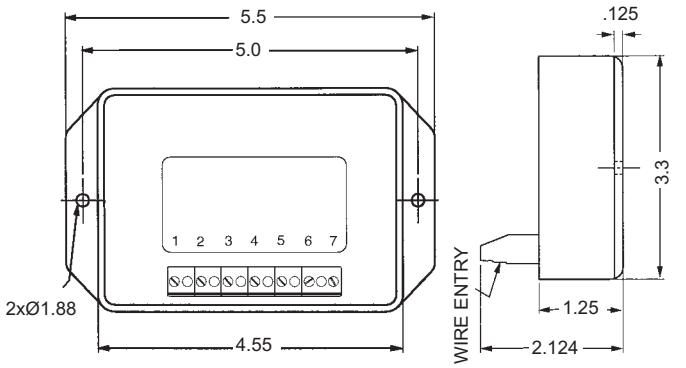
| DC Voltage* | Characters To Insert |
|---|---|
| 24 | 024 |
| 90 | 090 |
| 103 | 103 |
| 180 | 180 |
| 205 | 205 |
| 258 | 258 |
| 414 | 414 |

*Standard voltages listed. For other voltages, contact factory.

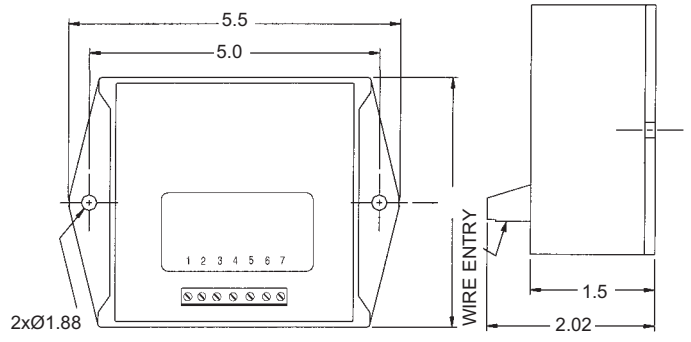
Specify brake model number. The last 2 digits of the switch part number will depend upon the brake size

## Dimensions

414V Unit




24V thru 240V Units




*Standard voltages listed. For other voltages, contact factory.

**NOTE: Cannot be used with half-wave rectifier. Use with full-wave or TOR-AC full-wave rectifier only.**

Stearns® Brakes, Clutches and Electronic Components

P/N 8-178-000-03
effective 6/27/03

# Electronic Brake Release Indicator (Proving Switch)
## *Armature-Actuated Brake Series*

Indicates when the brake is released by sensing the change in the brake coil current waveform.
For use with the Series 333/350/360 brakes


### Features

- *Mount in remote location (control cabinet)*
- *Operating temperature -40°C through 65°C*
- *Not susceptible to common problems of mechanical switches, such as mechanical fatigue, tolerances, and vibration.*
- *Relay contacts are silver-cadmium oxide*
- *Utilize either normally-open contacts (UL rated 2-20A, inductive or resistive, at 12-240 VAC and CSA rated 10A, inductive or resistive at 240 VAC) or normally-closed contacts (UL rated 2-10A, inductive or resistive, at 12-240 VAC and CSA rated 10A, inductive or resistive, at 240 VAC)*

### Brake Operation

When electrical power is applied to the armature-actuated brake coil, the armature is attracted by the electromagnetic force generated by the magnet body, which overcomes spring action. This allows the friction disc to rotate freely. When electrical power is interrupted, the electromagnetic force is removed and the pressure spring mechanically forces the armature plate to clamp the friction disc between itself and the pressure plate. This develops torque to stop or hold the load.

### Switch Operation

When the brake armature is pulled in to the magnet body to release the brake, a change in the brake coil current waveform occurs. By tracking this change in the brake coil current, the electronic switch indicates when the brake is released.

## Ordering Information

| List Price | Discount Symbol |
|---|---|
| $330.00 | R3 |

*Part Number Example:* 4 - 4 - 0 7 0 9 0 - X X

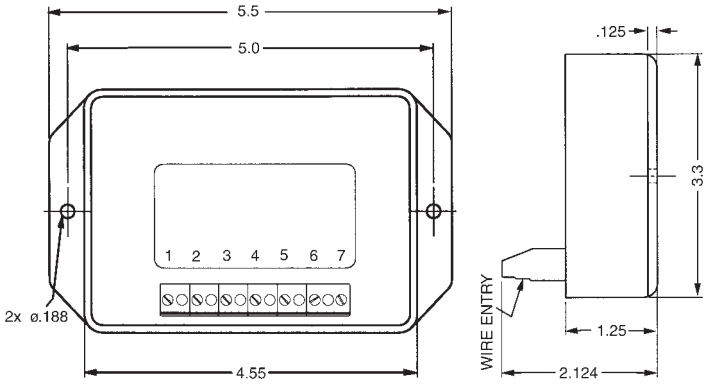
| DC Voltage* | Characters To Insert |
|---|---|
| 24 | 024 |
| 48 | 048 |
| 90 | 090 |
| 103 | 103 |
| 180 | 180 |
| 205 | 205 |
| 240 | 240 |
| 414 | 414 |

*Standard voltages listed. For other voltages, contact factory.

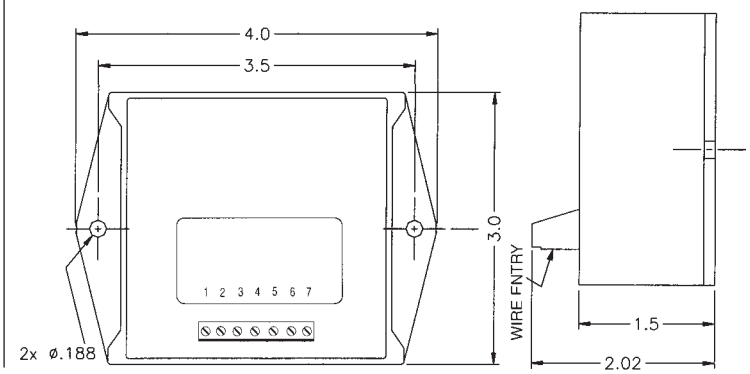
Specify brake model number. The last 2 digits of the switch part number will depend upon the brake size

## Dimensions

### 414V Unit




### 24V thru 240V Units



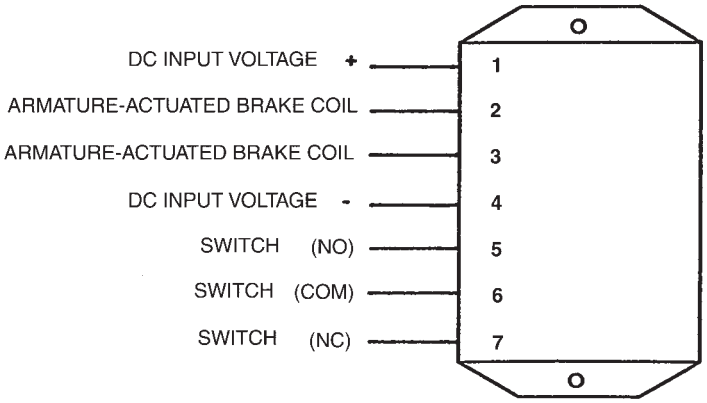

**NOTE: Cannot be used with half-wave rectifier. Use with full-wave or TOR-AC full-wave rectifier only.**

## Wiring Instructions

**IMPORTANT: Please read these instructions carefully before installing, operating or servicing your Stearns switch. Failure to comply with these instructions could cause injury to personnel and/or damage to property if the switch is installed or operated incorrectly. For definition of limited warranty/liability, contact Rexnord Insustries, Inc., Stearns Division, 5150 S International Drive, Cudahy, Wisconsin 53110, (414) 272-1100.**

### CAUTION!

1. Installation and servicing must be made in compliance with all local safety codes including Occupational Safety and Health Act (OSHA). All wiring and electrical connections must comply with the National Electrical Code (NEC) and local electrical codes in effect.
2. To prevent an electrical hazard, disconnect power source before working on equipment. If the power disconnect is out of sight, lock the disconnect in the *off* position and tag it to prevent accidental application of power.
3. Make sure voltage rating of the switch corresponds to the voltage rating shown on the nameplate of the brake.
4. Installation and servicing should be performed only by qualified personnel familiar with the construction and operation of this equipment.



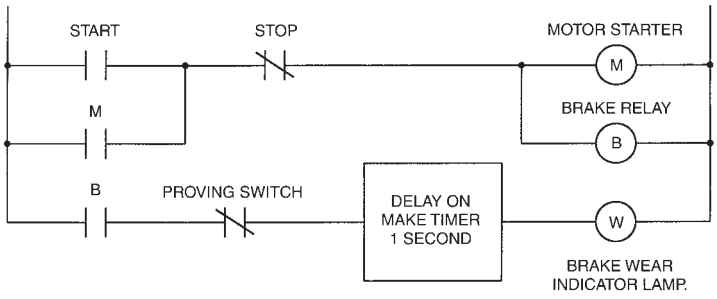

### WARNING!

**This switch is designed for use with a full wave rectifier only, *DO NOT USE THIS SWITCH WITH A HALF WAVE RECTIFIER.***

## Applications

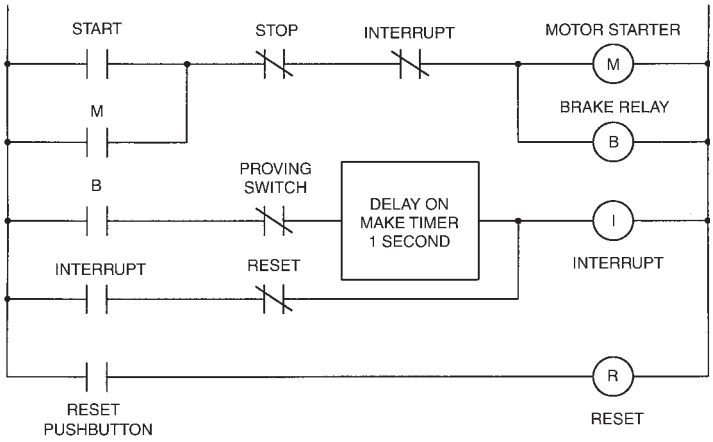
The Stearns electronic proving switch has been designed to detect and analyze the brake or clutch coil current waveform "signature" and thereby determine the operational status of the power transmission device. This operational status signal is delivered via a single pole, double throw relay contact. The status signal can be utilized in a wide variety of control and warning functions, as described in diagrams A and B.

### A. SIMPLE BRAKE WEAR INDICATOR




LOGIC: If, within one second after application of power to the motor and brake, the proving switch N.C. contact does not open, the brake has not released, or has not released in an appropriate manner. The brake wear indicator lamp will illuminate, alerting the user that brake wear is excessive and service is required.

### B. BRAKE RELEASE DETECTOR WITH SYSTEM SHUTDOWN




LOGIC: If, within one second after application of power to the motor and brake, the proving switch N.C. contact does not open, the brake has not released, or has not released in an appropriate manner. Interrupt relay "I" is energized and latched, disabling motor starter "M" and brake relay "B". An indicator lamp may be wired in parallel with the interrupt relay coil, indicating "Brake not Released". Adjust/repair brake, depress "Reset" push-button, depress "Start" button, system resumes operation. Control voltage may simply be interrupted to eliminate "Reset" function, if desired. Proving switch contact must be utilized to interrupt *both motor starter and brake relay !!!* If only motor starter is interrupted, load may be free to fall !!!

REXNORD

*Rexnord Industries, LLC*
*Stearns Division*
*5150 S. International Dr.*
*Cudahy, Wisconsin 53110*
*(414) 272-1100 Fax: (414) 277-4364 www.stearns.rexnord.com*

# Technical Data

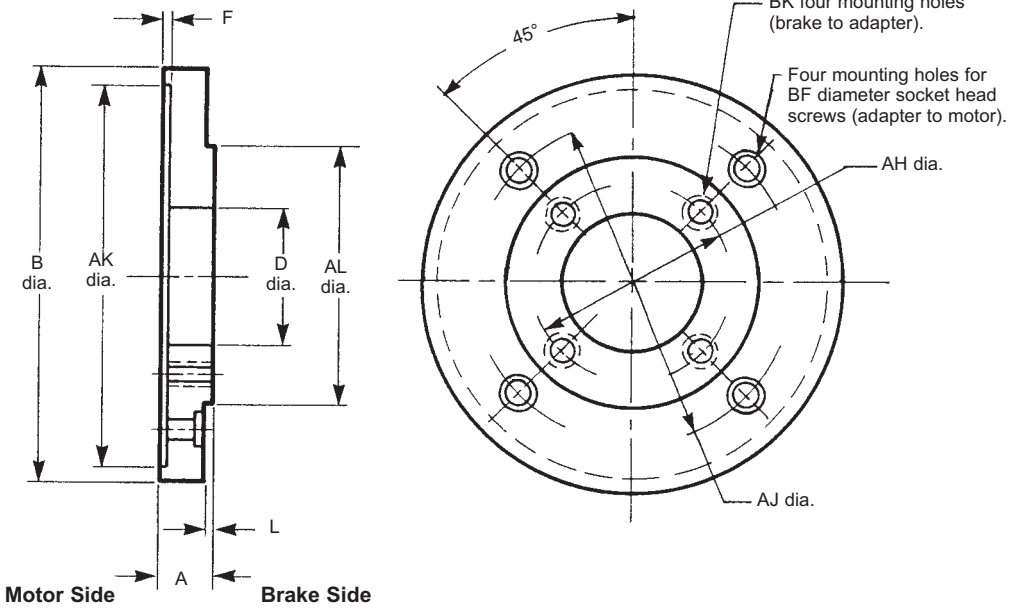
## SAB Motor Frame Adapter Dimensions

### Selection

To select an adapter for a specific brake, refer to the *Motor Frame Adapter* Tables as shown in the brake series sections of this Catalog. After selecting the adapter stock number, refer to the Tables below for dimensions.

All adapters are constructed with an opening for internal lead wire connection, corresponding to the NEMA standard location for the motor frame size.

Screws for mounting adapter to motor must be provided by customer. Socket head cap screws are supplied for mounting brake to adapter.




*Dimensions for estimating only. For installation purposes, request certified prints.*

| Brake Series | Torque (lb-ft) | Adapter Stock Number | Dimensions in Inches (Dimensions in Millimeters) | | | | | | | | | | | Add'l Shaft Length Req'd | List Price | Discount Symbol |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | AH | AJ | AK | AL | B | BF | BK Hole | D | F | L | | | |
| 56,000 | 1.5 - 6 | 5-55-5041-00 | 1.25 (31.75) | 5.88 (149.22) | 7.25 (184.15) | 8.500 8.502 (215.900) (215.951) | 4.497 4.500 (114.325) (114.275) | 9.00 (228.60) | .50 (12.70) | 3/8 - 16 x 1/2 deep | 4.00 (101.60) | .19 (4.76) | .12 (3.18) | .94 (23.88) | $700 | B4 |
| 65,300* | | 5-55-5046-00 | | | | | | | | | | | | | | |
| 56,000 and 56,800* | 10 - 25 | 5-55-5043-00 | | | | | | | | | | | | | $700 | B4 |
| 87,000 and 87,800* | 6 - 105 | 5-55-7046-00 | 1.06 (26.99) | 7.25 (184.15) | 11.00 (279.40) | 12.501 12.504 (317.525) (317.602) | 8.499 8.497 (215.875) (215.849) | 13.00 (330.20) | .62 (15.88) | 1/2 - 13 through | 4.12 (104.78) | .19 (4.76) | .38 (9.52) | .87 (22.10) | $875 | B2 |
| 87,300 | | 5-55-7054-00 | | | | | | | | | | | | | | |
| 87,000 and 87,800* | 6 - 105 | 5-55-7055-00 | 1.00 (25.40) | | 9.00 (228.60) | 10.500 10.502 (266.700) (266.751) | 8.499 8.497 (215.875) (215.849) | 11.00 (279.40) | ** | | 6.25 (158.75) | | .25 (6.35) | .81 (20.57) | $450 | B2 |
| 87,300* | | 5-55-7045-00 | | | | | | | | | | | | | | |
| 87,000, 87,800* and 87,300* | 6 - 105 | 5-55-7043-00 | .75 (19.05) | 7.25 (184.15) | 5.88 (149.35) | 4.502 4.507 (114.35) (114.48) | 8.499 8.497 (215.875) (215.849) | 8.75 (222.25) | .62 (15.75) | 1/2 - 13 through | 4.00 (101.60) | .19 (4.76) | .25 (6.35) | .56 (14.23) | $1,300 | B2 |
| 81,000 | 125 - 130 | 5-55-2045-00 | 1.06 (26.99) | 11.00 (279.40) | 14.00 (355.60) | 16.002 16.005 (406.451) (406.527) | 12.499 12.496 (317.475) (317.398) | 16.50 (419.10) | .62 (15.88) | 5/8 - 11 through | 9.75 (247.65) | .19 (4.76) | .25 (6.35) | .87 (22.10) | $1,875 | C1 |
| 81,000 | 125 - 230 | 5-55-2041-00 | 1.12 (28.58) | 11.00 (279.40) | 7.25 (184.15) | 8.500 8.502 (215.900) (215.951) | 12.499 12.496 (317.475) (317.398) | 12.499 12.496 (317.475) (317.398) | .50 (12.70) | 5/8 -11 through | 6.00 (152.40) | .19 (4.76) | --- | .93 (23.62) | $1,325 | C1 |
| 81,000 | | 5-55-2043-00 | | | 9.00 (228.60) | 10.500 10.502 (266.700) (266.751) | | | | | 7.75 (196.85) | | | .93 (23.62) | | C1 |
| 82,000 and 82,300* | 125 - 550 | 5-55-2046-00 | 1.94 (49.21) | 11.00 (279.40) | 14.00 (355.60) | 16.002 16.005 (406.451) (406.527) | 12.499 12.496 (317.475) (317.398) | 16.50 (419.10) | .62 (15.88) | 5/8 - 11 x 1 deep | 9.50 (241.30) | .19 (4.76) | .25 (6.35) | 1.75 (44.45) | $1,875 | C1 |
| 82,000 and 82,300* | | 5-55-2042-00 | 1.38 (34.92) | | 7.25 (184.15) | 8.500 8.502 (215.900) (215.951) | | 13.25 (336.55) | .50 (12.70) | 5/8 -11 through | 6.00 (152.40) | | | 1.19 (30.23) | $1,325 | C1 |
| 82,000 and 82,300* | | 5-55-2044 | 1.38 (34.92) | | 9.00 (228.60) | 10.500 10.502 (266.700) (266.751) | | 13.25 (336.55) | | | 7.75 (196.85) | | | 1.19 (30.23) | $2,075 | C1 |
| 86,000 | 500 - 1000 | 5-55-6041-00 | 1.56 (38.69) | 14.00 (355.60) | 11.00 (379.40) | 12.500 12.504 (317.500) (317.602) | 16.000 15.995 (406.400) (406.273) | 16.19 (441.16) | .62 (15.88) | 5/8 - 11 x 3/4 deep | 8.62 (219.08) | .19 (4.76) | .25 (6.35) | 1.37 (34.80) | $2,800 | C1 |

* 1/2-13 flat head screws are supplied with adapter.

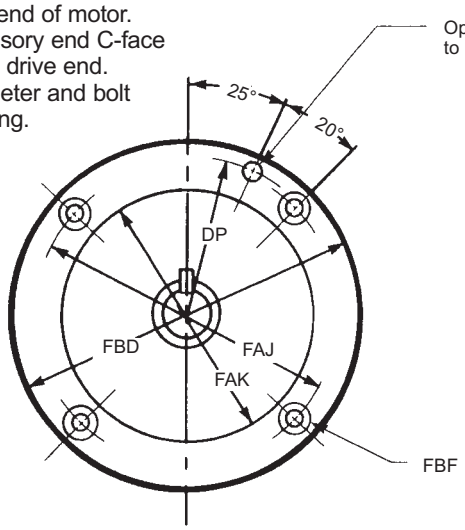
** When adding an adapter to a hazardous location brake, refer to the "mounting requirements" on the product page for the recommended brake series for accommodating adapters.

# Dimensions for C-Face AC Brake Motor System (cont.)

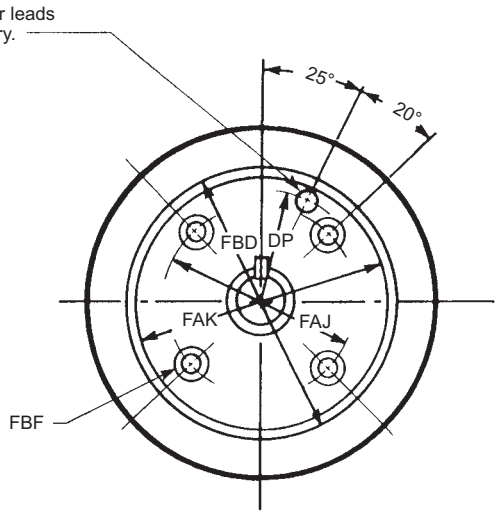
BACK TO PRODUCT PAGE

## Accessory End

FC face mounting for accessories, including brakes, on the end opposite the drive end of motor. Some motor accessory end C-face may differ from the drive end. Confirm shaft diameter and bolt circle before ordering.




143TFC to 184TFC Frames, Inclusive




213TFC to 326TFC Frames, Inclusive

## Dimensions (Inches)

| Frame Designation | FAJ | FAK | FBD Max. | FBF Hole | | | Hole for Accessory Leads | |
|---|---|---|---|---|---|---|---|---|
| | | | | Number | Tap Size | Bolt Penetration Allowance | DP | Diameter |
| 143TFC and 145TFC | 5.875 | 4.500 | 6.50 | 4 | 3/8-16 | 0.56 | 2.81 | 0.41 |
| 182TFC and 184TFC | 5.875 | 4.500 | 6.50 | 4 | 3/8-16 | 0.56 | 2.81 | 0.41 |
| 213TFC and 215TFC | 7.250 | 8.500 | 9.00 | 4 | 1/2-13 | 0.75 | 3.81 | 0.62 |
| 254TFC and 256TFC | 7.250 | 8.500 | 10.00 | 4 | 1/2-13 | 0.75 | 3.81 | 0.62 |
| 284TFC and 286TFC | 9.000 | 10.500 | 11.25 | 4 | 1/2-13 | 0.75 | 4.50 | 0.62 |
| 324TFC and 326TFC | 11.000 | 12.500 | 14.00 | 4 | 5/8-11 | 0.94 | 5.25 | 0.62 |

NOTE: Standards have not been developed for the shaft extenison diameter and length, and keyseat dimensions.

## Tolerances* (Inches)

FAK Dimension, Face Runout, Permissible Eccentricity of Mounting Rabbet

| FAK Dimension | Tolerance on FAK Dimension | | Maximum Face Runout | Maximum Permissible Eccentricity of Mounting Rabbet |
|---|---|---|---|---|
| | Plus | Minus | | |
| Less than 12 | 0.000 | 0.003 | 0.004 | 0.004 |
| 12 and Larger | 0.000 | 0.005 | 0.007 | 0.007 |

* Tolerance requirement on 56,X00 and 87,000 Series Brake kits is .015 T.I.R. (total indicated runout shaft to motor register face).

Shaft Runout

| Shaft Diameter | Maximum Permissible Shaft Runout |
|---|---|
| 0.3750 to 1.625, inclusive | 0.002 |
| Over 1.625 to 6.500, inclusive | 0.003 |

*SOURCE: ANSI/NEMA Standards Publication No. MG 1-1987; Part 4 and Part 11.*

## Stearns Recommended Minimum Shaft Diameter by Torque

Minimum recommended shaft size considers a keyed C1045 steel shaft under *dynamic* use in a typical spring set brake application.

| Torque ft-lb | Minimum Shaft (inches) |
|---|---|
| 0.50 | 0.250 |
| 0.75 | 0.250 |
| 1.5 | 0.375 |
| 3 | 0.500 |
| 6 | 0.500 |
| 10 | 0.625 |
| 15 | 0.750 |
| 25 | 0.875 |
| 35 | 1.000 |
| 50 | 1.125 |

| Torque ft-lb | Minimum Shaft (inches) |
|---|---|
| 75 | 1.250 |
| 105 | 1.375 |
| 125 | 1.375 |
| 175 | 1.625 |
| 230 | 1.750 |
| 330 | 2.000 |
| 440 | 2.125 |
| 500 | 2.375 |
| 750 | 2.500 |
| 1000 | 2.750 |

| Torque Nm | Minimum Shaft (mm) |
|---|---|
| 4 Nm | ø10 mm |
| 8 Nm | ø13 mm |
| 16 Nm | ø16 mm |
| 32 Nm | ø20 mm |
| 60 Nm | ø25 mm |
| 80 Nm | ø28 mm |
| 150 Nm | ø34 mm |
| 240 Nm | ø39 mm |
| 400 Nm | ø47 mm |