

General Information

Spring Applied — Power-Off Operation

Power-Off Operation Inertia Dynamics AC-style, spring applied motor brakes are designed to decelerate or park inertial loads when the voltage is turned off, either intentionally or accidentally, as in the case of power failure. The friction disc with the hub is coupled to the motor shaft to be braked but is capable of moving axially. When power is off, a spring force clamps the friction disc between a pressure plate and a stationary plate, hence retarding motion. When an AC voltage is applied, the solenoid creates a magnetic force which pulls a lever arm through a linkage mechanism and releases the friction disc. This allows the hub and motor shaft to turn freely.

Application

The motor brakes are commonly used as parking brakes to hold a load in place or as stopping brakes to dynamically decelerate a load. Applications include:

- Material Handling
- Food Processing
- Machine Tools

Selection Procedure

1. To make an accurate brake selection, first determine the motor frame size, shaft size, hp, and RPM where the brake will be mounted.
2. Use chart on the right for static brake torque selection. Note that chart selections are based on a 1.4 service factor and increased to the next highest standard brake torque rating. To select a brake using a different service factor, use the formula below to determine the required brake static torque. Once your torque requirement has been determined, select a brake with at least that capacity.
3. Consult Part Number chart on the following pages for appropriate part number. Brake voltage should be matched with motor voltage rating.

Features

- External Manual Release Lever
- Totally Enclosed Construction
- Torque adjustable from full rated torque down to 50%
- Single phase AC coils provide fast engagement and release times and easy wiring

Mounting

Two styles are available: the single C-Face brake and the double C-Face brake. The single C-Face mounts on the fan end or non-driven end of a motor. The C-Face brake is interchangeable with existing brakes and can be used on motors that are modified to accept a brake. The double C-Face brake can be used as a coupler between standard C-Face motors and C-Face gear reducers. All motor brakes are interchangeable with competitive motor brakes.

Add-On Brakes

A complete kit is available to convert a standard Reliance Electric TEFC motor to a brake motor. The frame size must be 56 or 140. The kit is not available for special enclosures such as washdown or explosion proof.

Motor Brake Coil Current

| VOLTS (VAC) | HZ | BRAKE CURRENT (AMPS) | |
|-------------|----|----------------------|----------|
| | | HOLDING | INRUSH |
| 115/230 | 60 | .54/.27 | 4.8/2.4 |
| 200/400 | | .31/.15 | 2.8/1.4 |
| 208/416 | | .32/.16 | 2.6/1.3 |
| 230/460 | | .27/.13 | 2.6/1.3 |
| 287/575 | | .22/.11 | 2.1/1.05 |
| 104/208 | 50 | .5/.25 | 5.3/2.65 |
| 115/230 | | .5/.25 | 5.4/2.7 |
| 190/380 | | .26/.13 | 3.0/1.5 |
| 220/440 | | .3/.15 | 3.3/1.65 |
| 230/460 | | .26/.13 | 2.7/1.36 |

Static Brake Torque Ratings* (Lb.- Ft.) Selection

| HP | MOTOR SPEED (RPM) | | | | | | |
|-------|-------------------|-----|------|------|------|------|------|
| | 750 | 900 | 1200 | 1500 | 1800 | 3000 | 3600 |
| 1/4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1/3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 |
| 1/2 | 6 | 6 | 6 | 3 | 3 | 3 | 3 |
| 3/4 | 10 | 10 | 6 | 6 | 6 | 3 | 3 |
| 1 | 10 | 10 | 10 | 6 | 6 | 3 | 3 |
| 1 1/2 | 15 | 15 | 10 | 10 | 10 | 6 | 6 |
| 2 | — | — | 15 | 10 | 10 | 6 | 6 |
| 3 | — | — | — | 15 | 15 | 10 | 10 |
| 5 | — | — | — | — | — | 15 | 15 |

* Selections based on 1.4 service factor and increased to next highest standard brake torque rating.

$$T = \frac{HP \times 5252}{RPM} \times SF$$

T = Brake Static Torque (FT.-LBS.)

HP = Motor Horsepower

SF = Service Factor Desired

RPM = Motor Speed

Motor Brakes

AC Motor Brakes - Nema 2 Housing



AC MOTOR BRAKES

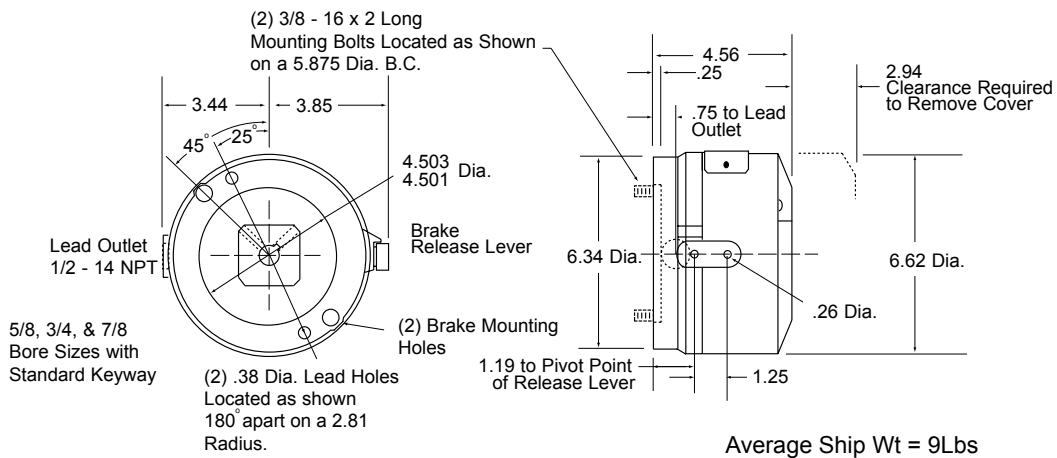
**56,000 & 56,100 Nema 2 Housing
56,300 Nema 1 Housing**

F Series

Factory Assembled and Tested
Manual Release
AC Power Off
Rear Mounted
Aluminum Head
Steel Cover

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb
15 Ft-Lb

AC Rear Mounted Brake



Brake Part Numbers

| COIL VOLTAGE | 5/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51A0321 | F52A0621 | F52A0721 | F53A0821 |
| 230/460, 60 HZ | F51A0324 | F52A0624 | F52A0724 | F53A0824 |
| 287/575, 60 HZ | F51A0325 | F52A0625 | F52A0725 | F53A0825 |
| 115/230, 50HZ | F51A0328 | F52A0628 | F52A0728 | F53A0828 |
| 230/460, 50 HZ | F51A0329 | F52A0629 | F52A0729 | F53A0829 |

| COIL VOLTAGE | 3/4 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51B0321 | F52B0621 | F52B0721 | F53B0821 |
| 230/460, 60 HZ | F51B0324 | F52B0624 | F52B0724 | F53B0824 |
| 287/575, 60 HZ | F51B0325 | F52B0625 | F52B0725 | F53B0825 |
| 115/230, 50HZ | F51B0328 | F52B0628 | F52B0728 | F53B0828 |
| 230/460, 50 HZ | F51B0329 | F52B0629 | F52B0729 | F53B0829 |

| COIL VOLTAGE | 7/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51C0321 | F52C0621 | F52C0721 | F53C0821 |
| 230/460, 60 HZ | F51C0324 | F52C0624 | F52C0724 | F53C0824 |
| 287/575, 60 HZ | F51C0325 | F52C0625 | F52C0725 | F53C0825 |
| 115/230, 50HZ | F51C0328 | F52C0628 | F52C0728 | F53C0828 |
| 230/460, 50 HZ | F51C0329 | F52C0629 | F52C0729 | F53C0829 |

Technical Data

| 60 HZ BRAKE COILS SINGLE PHASE | | | 50HZ BRAKE COILS SINGLE PHASE | | | STATIC TORQUE FT. LB. | NUMBER DISCS |
|--------------------------------|----------------------|---------------------|-------------------------------|----------------------|---------------------|-----------------------|--------------|
| VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | | |
| 115/230 | .50/.25 | 3.66/1.83 | 115/230 | .45/.22 | 3.27/1.64 | 3 | 1 |
| 230/460 | .28/.14 | 1.94/.97 | 230/460 | .24/.12 | 1.76/.88 | 6 | 2 |
| 287/575 | .22/.11 | 1.54/.77 | | | | 10 | 2 |
| | | | | | | 15 | 3 |

AC Motor Brakes - Nema 2 Housing



AC MOTOR BRAKES

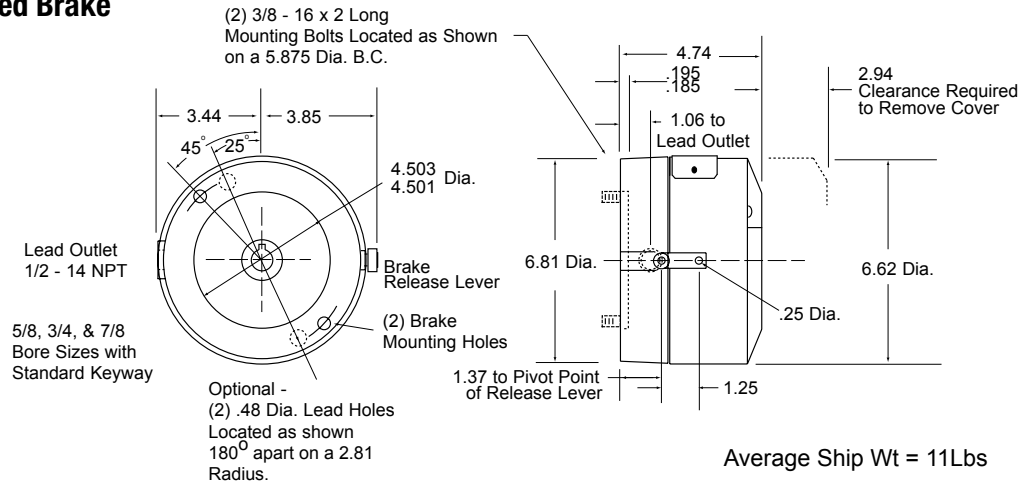
56,400 Nema 2 Housing

F Series

Factory Assembled and Tested
Manual Release
AC Power Off
Rear Mounted
Cast Iron Head
Steel Cover

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb
15 Ft-Lb

AC Rear Mounted Brake



Brake Part Numbers

| COIL VOLTAGE | 5/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51A7321 | F52A7621 | F52A7721 | F53A7821 |
| 230/460, 60 HZ | F51A7324 | F52A7624 | F52A7724 | F53A7824 |
| 287/575, 60 HZ | F51A7325 | F52A7625 | F52A7725 | F53A7825 |
| 115/230, 50HZ | F51A7328 | F52A7628 | F52A7728 | F53A7828 |
| 230/460, 50 HZ | F51A7329 | F52A7629 | F52A7729 | F53A7829 |

| COIL VOLTAGE | 3/4 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51B7321 | F52B7621 | F52B7721 | F53B7821 |
| 230/460, 60 HZ | F51B7324 | F52B7624 | F52B7724 | F53B7824 |
| 287/575, 60 HZ | F51B7325 | F52B7625 | F52B7725 | F53B7825 |
| 115/230, 50HZ | F51B7328 | F52B7628 | F52B7728 | F53B7828 |
| 230/460, 50 HZ | F51B7329 | F52B7629 | F52B7729 | F53B7829 |

| COIL VOLTAGE | 7/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51C7321 | F52C7621 | F52C7721 | F53C7821 |
| 230/460, 60 HZ | F51C7324 | F52C7624 | F52C7724 | F53C7824 |
| 287/575, 60 HZ | F51C7325 | F52C7625 | F52C7725 | F53C7825 |
| 115/230, 50HZ | F51C7328 | F52C7628 | F52C7728 | F53C7828 |
| 230/460, 50 HZ | F51C7329 | F52C7629 | F52C7729 | F53C7829 |

Technical Data

| 60 HZ BRAKE COILS SINGLE PHASE | | | 50HZ BRAKE COILS SINGLE PHASE | | |
|--------------------------------|----------------------|---------------------|-------------------------------|----------------------|---------------------|
| VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS |
| 115/230 | .50/.25 | 3.66/1.83 | 115/230 | .45/.22 | 3.27/1.64 |
| 230/460 | .28/.14 | 1.94/.97 | 230/460 | .24/.12 | 1.76/.88 |
| 287/575 | .22/.11 | 1.54/.77 | | | |

| STATIC TORQUE FT. LB. | NUMBER DISCS |
|-----------------------|--------------|
| 3 | 1 |
| 6 | 2 |
| 10 | 2 |
| 15 | 3 |

Motor Brakes

AC Motor Brakes - Nema 4 Housing



AC MOTOR BRAKES

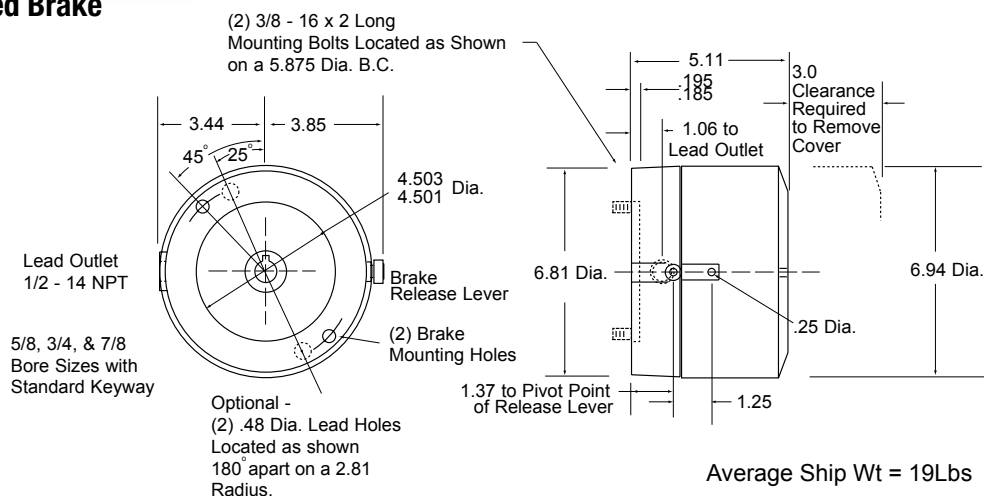
56,200 Nema 4 Housing

Factory Assembled and Tested
Manual Release
AC Power Off
Rear Mounted
Cast Iron Head
Cast Iron Cover
Includes O-Ring Seals to create a dust-tight brake enclosure

F Series

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb
15 Ft-Lb

AC Rear Mounted Brake



Brake Part Numbers

| COIL VOLTAGE | 5/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51A1311 | F52A1611 | F52A1711 | F53A1811 |
| 230/460, 60 HZ | F51A1314 | F52A1614 | F52A1714 | F53A1814 |
| 287/575, 60 HZ | F51A1315 | F52A1615 | F52A1715 | F53A1815 |
| 115/230, 50HZ | F51A1318 | F52A1618 | F52A1718 | F53A1818 |
| 230/460, 50 HZ | F51A1319 | F52A1619 | F52A1719 | F53A1819 |

| COIL VOLTAGE | 3/4 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51B1311 | F52B1611 | F52B1711 | F53B1811 |
| 230/460, 60 HZ | F51B1314 | F52B1614 | F52B1714 | F53B1814 |
| 287/575, 60 HZ | F51B1315 | F52B1615 | F52B1715 | F53B1815 |
| 115/230, 50HZ | F51B1318 | F52B1618 | F52B1718 | F53B1818 |
| 230/460, 50 HZ | F51B1319 | F52B1619 | F52B1719 | F53B1819 |

| COIL VOLTAGE | 7/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51C1311 | F52C1611 | F52C1711 | F53C1811 |
| 230/460, 60 HZ | F51C1314 | F52C1614 | F52C1714 | F53C1814 |
| 287/575, 60 HZ | F51C1315 | F52C1615 | F52C1715 | F53C1815 |
| 115/230, 50HZ | F51C1318 | F52C1618 | F52C1718 | F53C1818 |
| 230/460, 50 HZ | F51C1319 | F52C1619 | F52C1719 | F53C1819 |

Technical Data

| 60 HZ BRAKE COILS SINGLE PHASE | | | 50HZ BRAKE COILS SINGLE PHASE | | | STATIC TORQUE FT. LB. | NUMBER DISCS |
|--------------------------------|----------------------|---------------------|-------------------------------|----------------------|---------------------|-----------------------|--------------|
| VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | | |
| 115/230 | .50/.25 | 3.66/1.83 | 115/230 | .45/.22 | 3.27/1.64 | 3 | 1 |
| 230/460 | .28/.14 | 1.94/.97 | 230/460 | .24/.12 | 1.76/.88 | 6 | 2 |
| 287/575 | .22/.11 | 1.54/.77 | | | | 10 | 2 |
| | | | | | | 15 | 3 |

AC Motor Brakes - Nema 2 Housing



AC MOTOR BRAKES

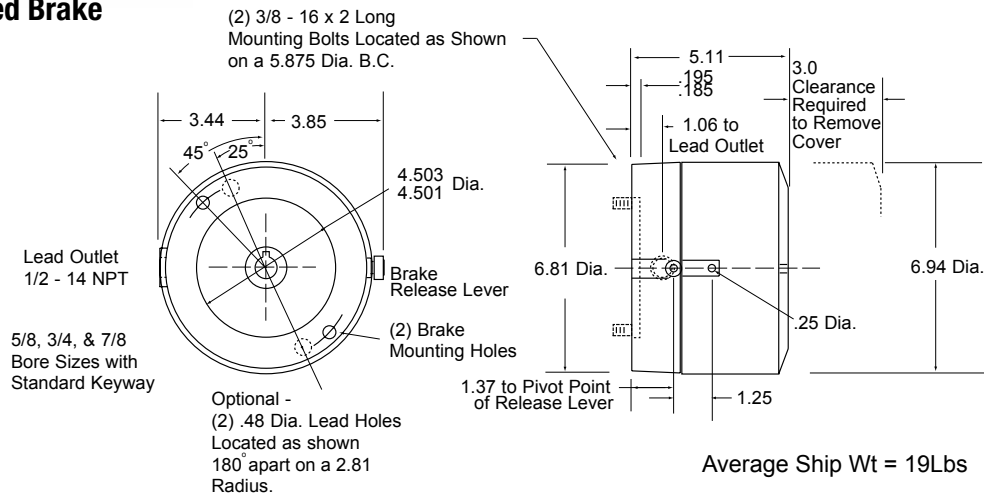
56,000 Nema 2 Housing

Factory Assembled and Tested
Manual Release
AC Power Off
Rear Mounted
Cast Iron Head
Cast Iron Cover

F Series

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb
15 Ft-Lb

AC Rear Mounted Brake



Brake Part Numbers

| COIL VOLTAGE | 5/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51A8311 | F52A8611 | F52A8711 | F53A8811 |
| 230/460, 60 HZ | F51A8314 | F52A8614 | F52A8714 | F53A8814 |
| 287/575, 60 HZ | F51A8315 | F52A8615 | F52A8715 | F53A8815 |
| 115/230, 50HZ | F51A8318 | F52A8618 | F52A8718 | F53A8818 |
| 230/460, 50 HZ | F51A8319 | F52A8619 | F52A8719 | F53A8819 |

| COIL VOLTAGE | 3/4 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51B8311 | F52B8611 | F52B8711 | F53B8811 |
| 230/460, 60 HZ | F51B8314 | F52B8614 | F52B8714 | F53B8814 |
| 287/575, 60 HZ | F51B8315 | F52B8615 | F52B8715 | F53B8815 |
| 115/230, 50HZ | F51B8318 | F52B8618 | F52B8718 | F53B8818 |
| 230/460, 50 HZ | F51B8319 | F52B8619 | F52B8719 | F53B8819 |

| COIL VOLTAGE | 7/8 BORE HUB | | | |
|----------------|------------------|------------------|-------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES | 15 FT. LB. BRAKES |
| 115/230, 60HZ | F51C8311 | F52C8611 | F52C8711 | F53C8811 |
| 230/460, 60 HZ | F51C8314 | F52C8614 | F52C8714 | F53C8814 |
| 287/575, 60 HZ | F51C8315 | F52C8615 | F52C8715 | F53C8815 |
| 115/230, 50HZ | F51C8318 | F52C8618 | F52C8718 | F53C8818 |
| 230/460, 50 HZ | F51C8319 | F52C8619 | F52C8719 | F53C8819 |

Technical Data

| 60 HZ BRAKE COILS SINGLE PHASE | | | 50HZ BRAKE COILS SINGLE PHASE | | |
|--------------------------------|----------------------|---------------------|-------------------------------|----------------------|---------------------|
| VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS |
| 115/230 | .50/.25 | 3.66/1.83 | 115/230 | .45/.22 | 3.27/1.64 |
| 230/460 | .28/.14 | 1.94/.97 | 230/460 | .24/.12 | 1.76/.88 |
| 287/575 | .22/.11 | 1.54/.77 | | | |

| STATIC TORQUE FT. LB. | NUMBER DISCS |
|-----------------------|--------------|
| 3 | 1 |
| 6 | 2 |
| 10 | 2 |
| 15 | 3 |

Coupler Brakes

AC C-Face Coupler Brakes - Nema 2 Housing



AC C-FACE COUPLER BRAKES

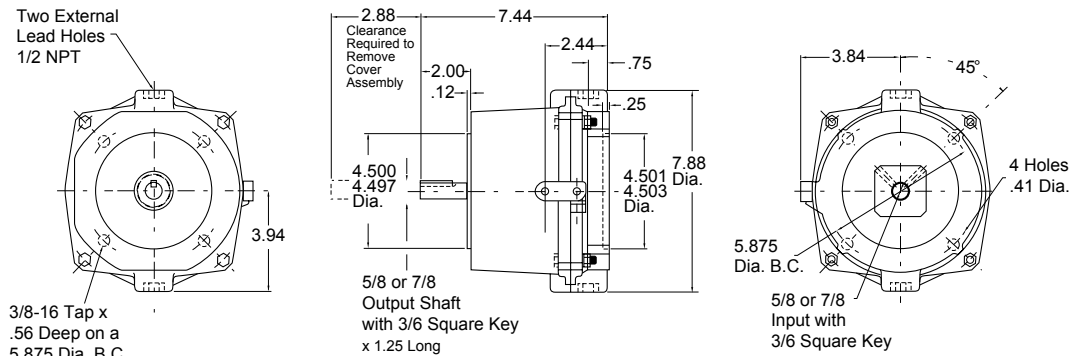
Nema 2 Housing

Factory Assembled and Tested
Manual Release
AC Power Off
C-Face 56 C and 145TC
Aluminum Head
Aluminum Cover

M Series

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb

C-Face Mounted Brake



Average Ship Wt = 12.5Lbs

Brake Part Numbers

| COIL VOLTAGE | 56C - 5/8 BORE SHAFT AND HUB | | |
|----------------|------------------------------|------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES |
| 115/230, 60HZ | M51A0321 | M52A0621 | M52A0721 |
| 230/460, 60 HZ | M51A0324 | M52A0624 | M52A0724 |
| 287/575, 60 HZ | M51A0325 | M52A0625 | M52A0725 |
| 115/230, 50HZ | M51A0328 | M52A0628 | M52A0728 |
| 230/460, 50 HZ | M51A0329 | M52A0629 | M52A0729 |

| COIL VOLTAGE | 145TC - 7/8 BORE SHAFT AND HUB | | |
|----------------|--------------------------------|------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES |
| 115/230, 60HZ | M51C0321 | M52C0621 | M52C0721 |
| 230/460, 60 HZ | M51C0324 | M52C0624 | M52C0724 |
| 287/575, 60 HZ | M51C0325 | M52C0625 | M52C0725 |
| 115/230, 50HZ | M51C0328 | M52C0628 | M52C0728 |
| 230/460, 50 HZ | M51C0329 | M52C0629 | M52C0729 |

Technical Data

| 60 HZ BRAKE COILS SINGLE PHASE | | | 50HZ BRAKE COILS SINGLE PHASE | | |
|--------------------------------|----------------------|---------------------|-------------------------------|----------------------|---------------------|
| VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS | VOLTAGE | CURRENT HOLDING AMPS | CURRENT INRUSH AMPS |
| 115/230 | .50/.25 | 3.66/1.83 | 115/230 | .45/.22 | 3.27/1.64 |
| 230/460 | .28/.14 | 1.94/.97 | 230/460 | .24/.12 | 1.76/.88 |
| 287/575 | .22/.11 | 1.54/.77 | | | |

| STATIC TORQUE FT. LB. | NUMBER DISCS |
|-----------------------|--------------|
| 3 | 1 |
| 6 | 2 |
| 10 | 2 |

Must be direct-coupled; mounted between motor and speed reducer.
Not recommended for belted or other overhung load applications.

DC C-Face Coupler Brakes - Nema 2 Housing



DC C-FACE COUPLER BRAKES

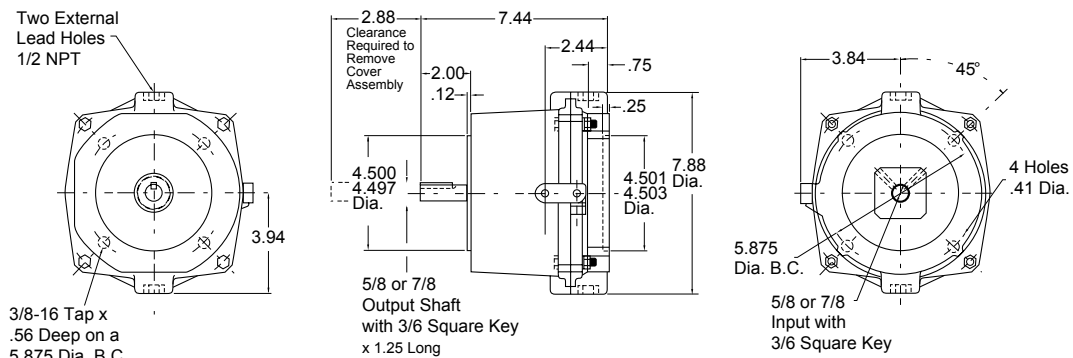
Nema 2 Housing

Factory Assembled and Tested
Manual Release
DC Power Off
C-Face 56 C and 145TC
Aluminum Head
Aluminum Cover

M Series

3 Ft-Lb
6 Ft-Lb
10 Ft-Lb

C-Face Mounted Brake



Average Ship Wt = 12.5Lbs

Brake Part Numbers

| COIL VOLTAGE | 56C - 5/8 BORE SHAFT AND HUB | | |
|--------------|------------------------------|------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES |
| 24 VDC | M51A032Y | M52A062Y | M53A072Y |
| 90 VDC | M51A032X | M52A062X | M53A072X |

| COIL VOLTAGE | 145TC - 7/8 BORE SHAFT AND HUB | | |
|--------------|--------------------------------|------------------|-------------------|
| | 3 FT. LB. BRAKES | 6 FT. LB. BRAKES | 10 FT. LB. BRAKES |
| 24 VDC | M51C032Y | M52C062Y | M53C072Y |
| 90 VDC | M51C032X | M52C062X | M53C072X |

Technical Data

| DC BRAKE COILS | | |
|----------------|--------------|-----------------|
| VOLTAGE | CURRENT AMPS | RESISTANCE OHMS |
| 24 VDC | .91 | 26.4 |
| 90 VDC | .25 | 365 |

| STATIC TORQUE FT. LB. | NUMBER DISCS |
|-----------------------|--------------|
| 3 | 1 |
| 6 | 2 |
| 10 | 3 |

Must be direct-coupled; mounted between motor and speed reducer.
Not recommended for belted or other overhung load applications.