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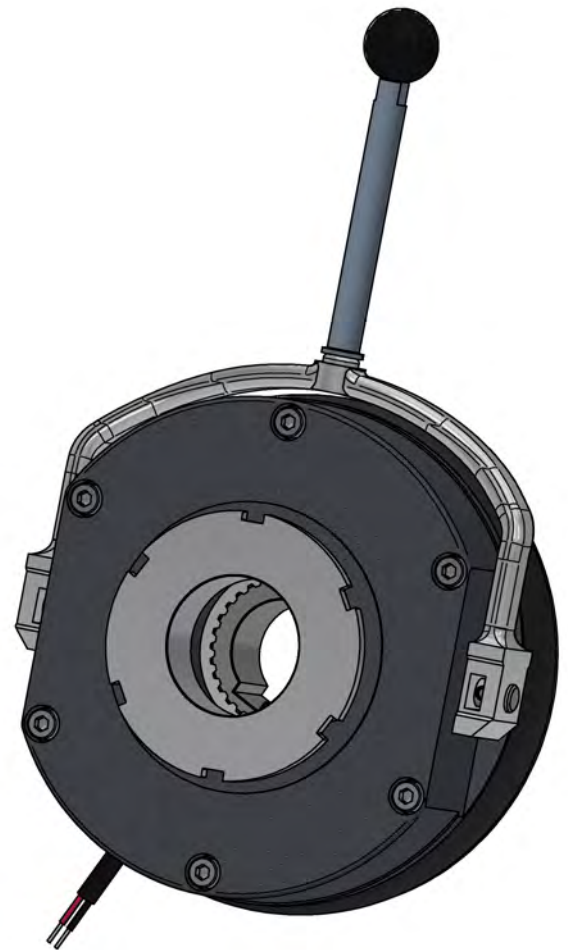
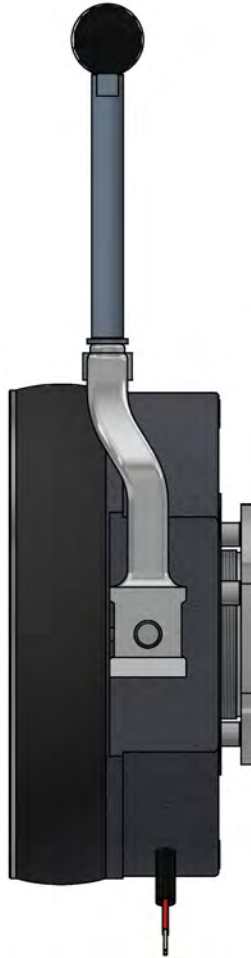
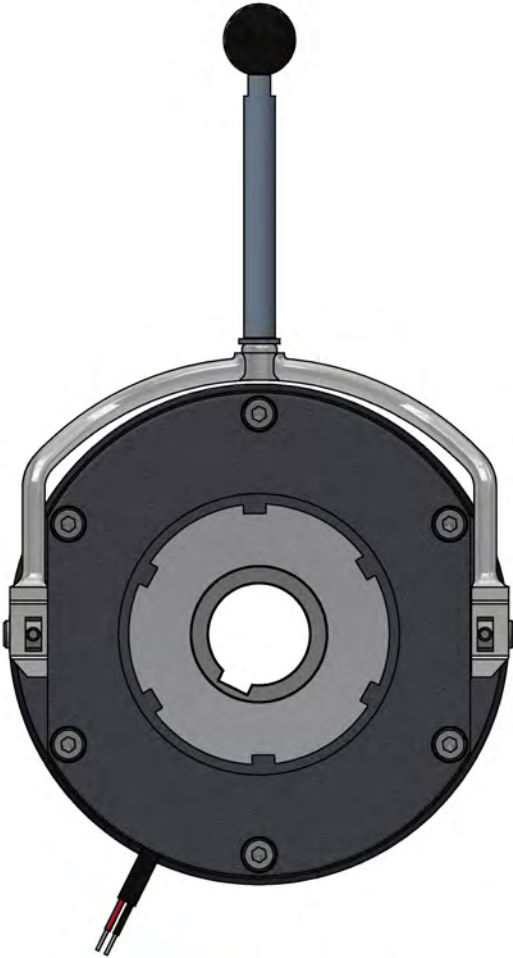
D. C. Spring Applied Brake

TYPE - 14.458.XX

Fitting & Operating Instructions Manual



14.458.xx brakes also available in UL version 41.458.xx



ELECTROMAGNETIC RELEASE SPRING SET BRAKE

TYPE: - 14.458

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SECTION I

SAFETY PRECAUTIONS

1. To prevent electrical mishaps be sure to disconnect the power to the brake from its source before attempting to service or repair.
2. Look down or secure any load held by this brake prior to service or repair.
3. If this brake has been supplied with a manual hand release, do not override the brake by securing the hand release in an open position.
4. Do not operate brake in atmospheres with explosive gases and dusts or corrosive substances. This brake can operate in non explosive dust or with optional seal in water splash and oil laden atmospheres.
5. When storing or installing the friction rotor, ensure that oil or grease is kept away from the friction material surface.

SECTION II

OPERATING PRINCIPLES

A. HOW THE BRAKE SETS

The EMCO Dynatorq Electromagnetic Release, Spring Set Brake – Type 14.458, as shown in Figure 1, produces its stopping torque by the use of multiple springs (4) exerting pressure against the armature plate (2). The armature plate in turn, is forced towards the friction plate (8) for mounting flange (10) compressing the dual faced friction rotor (6) between the armature plate and the friction plate (or mounting flange). Figure 1 illustrates the position of the armature plate, friction rotor and friction plate in the set position. The rotor is internally splined slides on the externally hub (7) which is keyed to the shaft.

B. HOW THE BRAKE RELEASES

Energizing the coil (1) with the proper DC voltage produces an electromagnetic force which attracts the armature plate (2), closes the air gap “a” and allows the friction rotor (6) to rotate freely. The axial movement of the friction rotor is accommodated by splined hub (7).

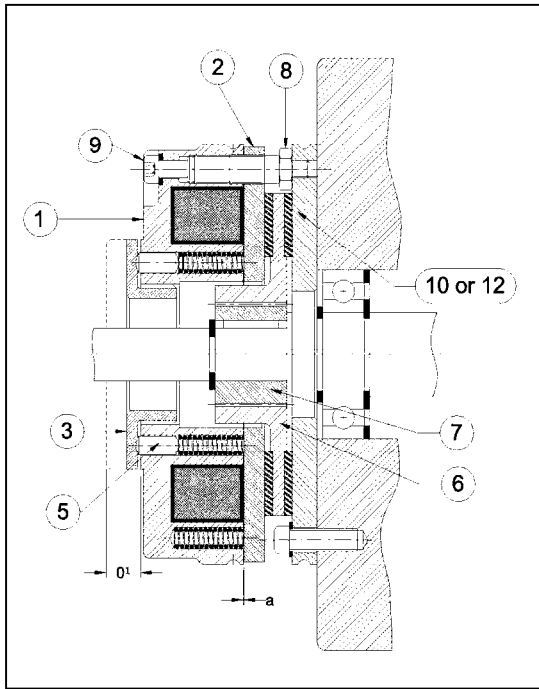


FIGURE 1
Cross Sectional View

TABLE 1

Brake Size	06	08	10	12	14	16	18	20/23	25	31
Brake Torque (Nm)***	4	8	16	32	60	100	150	260/315	400	600/800
Torque reduction/step Nm	0.1	0.2	0.6	1.2	1.6	2.1	1.4	2.0	5*	5*
0°	6	6.5	8.5	10	11.5	11.5	13	15	16	16

*** Brake torque tolerance +30% / -10%, Torque will be achieved after completion of burnishing operation

Note: - * There are no steps for this size. The figure given relates to a rotational angle of 45° of the adjuster.

All values are in 'mm'

SECTION III ACCESSORIES

A. MANUAL RELEASE HANDLE (Position 13, Figure 2)

In the event of power failure the brake can be released manually, pulling the handle towards the torque adjusting ring releases the friction rotor by moving the armature plate away. The release is a deadman type so that when you let go, the brake immediately returns to its set position.

B. SEAL (Position 11, Figure 2)

Stretch the seal over the brake, allow it to snap into the grooves provided around the coil body and friction plate. The brake is now protected against oily, dirty or wet environments. The seals is also ideal in clean environments where it is necessary to keep the friction dust contained inside the brake.

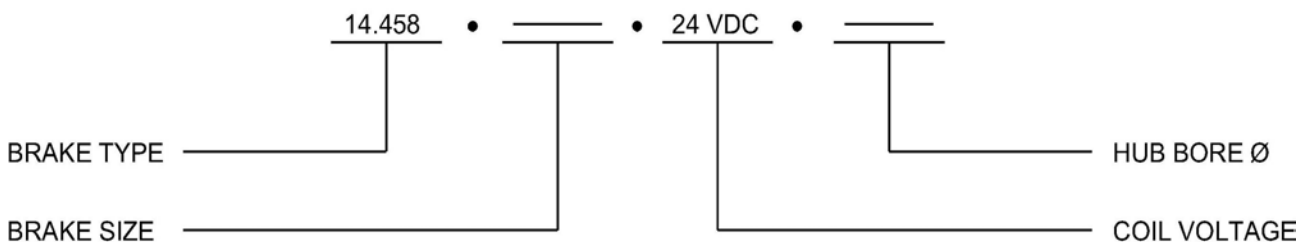
C. MOUNTING FLANGE (Position 2, Figure 2) OR FRICTION PLATE (Position 10, Figure 2)

The mounting surface should be ground to a 5 – 8µm finish. On applications that do not have a suitable counter surface for the rotor to act against, EMCO Dynatorq offers a friction plate or a mounting flange as an accessory.

D. RECTIFIER

Full and half wave rectifiers are available.

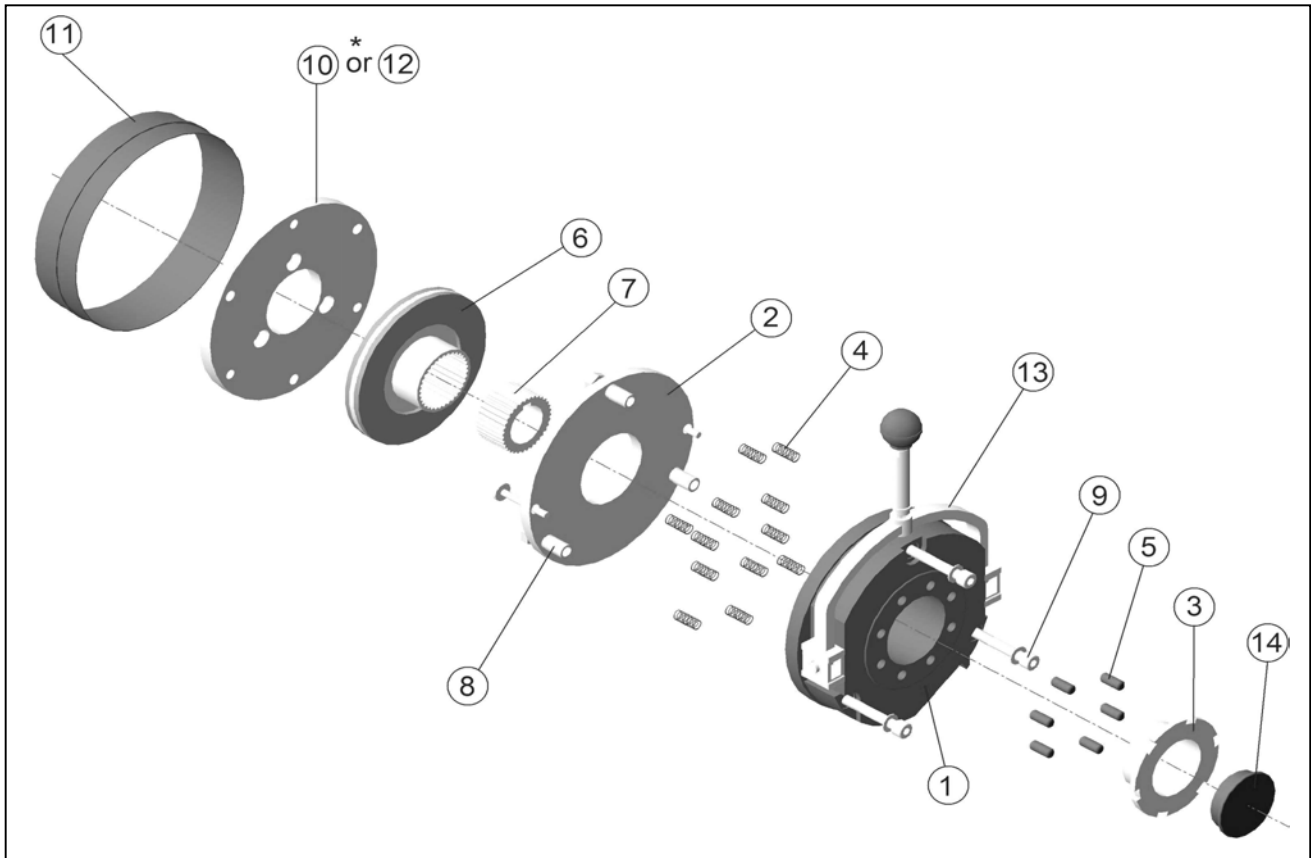
SECTION IV STANDARD BRAKE DESCRIPTION



SECTION V

ASSEMBLY INSTRUCTIONS FOR TYPE 14.458

1. If a suitable counter braking surface for the friction rotor (6) is not available, screw the mounting flange to the machine.
2. Press the splined hub (7) onto the keyed shaft. Secure the hub axially with circlip or by similar means.
3. Slide the friction rotor (6) onto the splined hub (7).
4. Hand release are already fitted onto the brake.
5. Place the mounting bolts (9A) and washers (9B) in the holes of the stator assembly (1).
6. Screw the brake to its mounting flange, or counter braking surface, with the mounting bolts (9A) using torque values consistant with normal mechanical practice.



* Optional Equipment

Figure 2
Exploded View

- | | | |
|--------------------------|---------------------------------|-----------------------|
| 1. Stator | 6. Rotor with Sleeve | 11. Seal |
| 2. Armature plate | 7. Hub | 12. Mounting flange |
| 3. Torque adjusting ring | 8. Adjustment tube | 13. A-H. hand release |
| 4. Spring | 9. A,B, mounting bolt & washer | 14. Dust plug |
| 5. Compression part | 10. Friction plate (Optional) | |

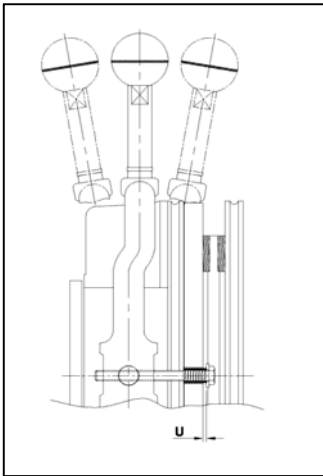


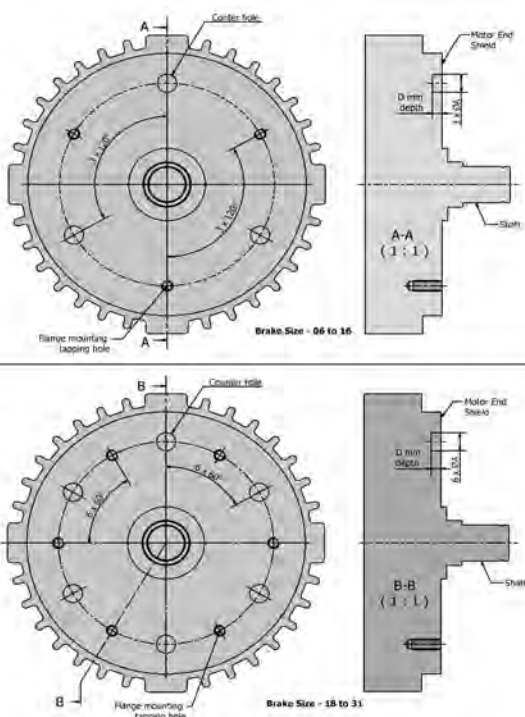
FIGURE 3

Hand release "U" Dimension

7. The air gap is preset at the factory.
8. If necessary, you can check the air gap with a feeler gauge in 3 positions.
(NOTE: Air gap dimension is illustrated in Figure 1 denoted by "a").
9. If air gap adjustment is necessary, loosen bolts (9A), rotate the adjustment tubes (8) approximately ¼ turn, tighten bolts (9A), and measure air gap. If air gap is not within tolerance, repeat procedure.
10. Set the hand release gap (Dimension "U" Figure 3) to the value indicated in table 2 by tightening nuts (13H). Once set the nut is locked with factory applied thread locking compound. Any change in this setting could interfere with the safe operation of the brake.

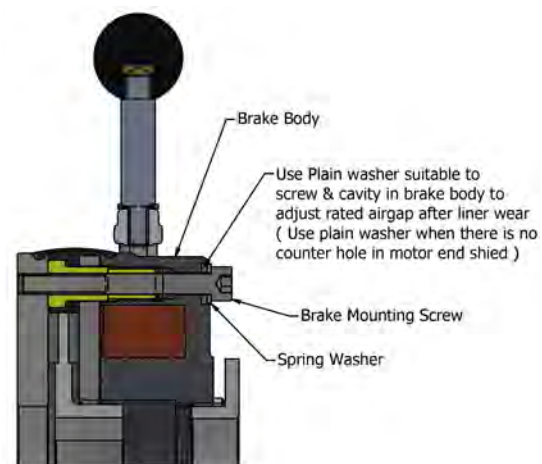
TABLE 2: Rated air gap, Max airgap, Bolt tightening torque & Hand release value.

Brake Size	06	08	10	12	14	16	18	20/23	25	31
Rated air gap 'a' (+0.1/-0.05)	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5
Max airgap 'a'	0.5			0.75			1.0		1.25	
Tightening torque of fixing bolt (Nm) (-10%)	3.0	6.0	10.0		20.0			35.0		
'U' (+0.1)	1	1	1	1	1	1.5	1.5	1.5	2	2
Perpendicularity of motor shaft w.r.t end shield	0.04			0.06			0.08		0.10	



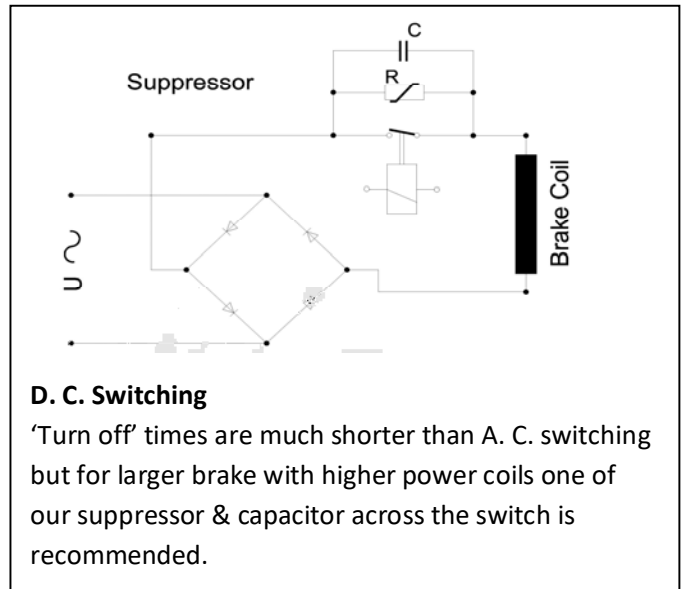
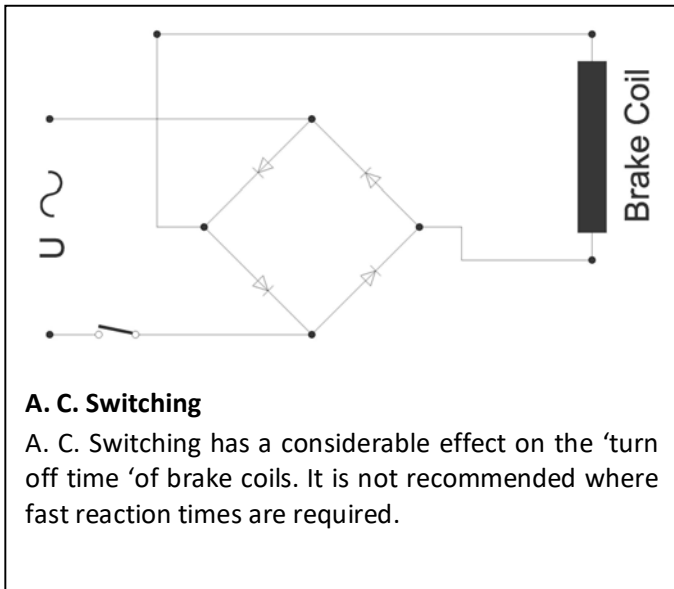
Brake Size	Counter hole on motor end shield ØA x D mm depth
14.458.06	3 x Ø5.5 x 3 mm
14.458.08	3 x Ø6.5 x 3 mm
14.458.10	3 x Ø8 x 4 mm
14.458.12	
14.458.14	3 x Ø8 x 5 mm
14.458.16	
14.458.18	6 x Ø8 x 5 mm
14.458.20/23	6 x Ø11 x 5 mm
14.458.25	
14.458.31	

All values are in 'mm'



**SECTION VI
ELECTRICAL CONNECTION**

The brake requires D. C. Voltage to operate correctly. The necessary D. C. Voltage can be provided by one of our transformer / rectifiers or a full wave half wave rectifiers or your own supply.



NOTE : INPUT AC VOLTAGE TO BRAKE RECTIFIER SHOULD NOT BE GIVEN FROM MOTOR TERMINALS IF MOTOR IS OPERATED BY VFD

**SECTION VII
ALTERING TORQUE RATING**

The brake is supplied from the factory with the nominal torque settings. This torque can be reduced by unscrewing the torque adjustment ring (3) with a spanner within the limit of the "O" dimension given in Table 1 and depicted in Figure 1. The torque adjuster ring has detent action with torque variation per step given in Table 1.

**SECTION VIII
MAINTENANCE**

In most applications, the brake needs practically no maintenance. However, after a long period of operation, or if the brake has a high duty cycle, adjustment of the air gap ('a', Figure 1) may be necessary. When the 'a max' value shown in Table 3 is exceeded, adjust the value back to 'a' using the air gap adjustment instructions described in section V, step 9 of the assembly instructions.

**SECTION IX
PARTS LIST AND ORDERING**

When ordering parts refer to the exploded view in Figure 2 for part description.

Ordering Example:
Give the following:

- | | |
|-----------------------------------|--------------------------------|
| 1) 14.458 __ __. Size | 3) Coil Voltage |
| 2) Part Description (As per list) | 4) Hub Bore Diameter (in 'mm') |



**14.458.xx brakes
also available in
UL version 41.458.xx**



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Manufacturers:

Emco Dynatorq Pvt. Ltd.

(Formerly known as EMCO LENZE PVT.LTD.)

Unit – I : Shivam Ind. Estate, Bldg. No. 3,
Gala No. 12A & 12B, Tungareshwar Phata Road,
Sativali, Vasai (E), Thane-401 208. Maharashtra.
Phone : +91 250 2480489 / 2480490 / 3298019 / 2481256
Fax : +91 250 2481 086
Email : vasai@emco-dynatorq.in

Unit – II & IV : Plot No. 1002 – 1003 & 1426 GIDC,
Waghodia – 391 760, Dist. – Vadodara. (Gujarat)
Phone : +91 2668 262180
Email : dynatorq@gmail.com

MARKETING OFFICE: 1st Floor, Sita Mauli, B Wing, Above Bank of Maharashtra,
Madanlal Dhingra Road, Panch Pakhadi, Thane – 400 602 (Mumbai)
Ph. No. : (022) 25405488, 25405490, 25452244, Fax: (022) 25452233
Email: mktg@emco-dynatorq.in
Website : www.emco-dynatorq.in