

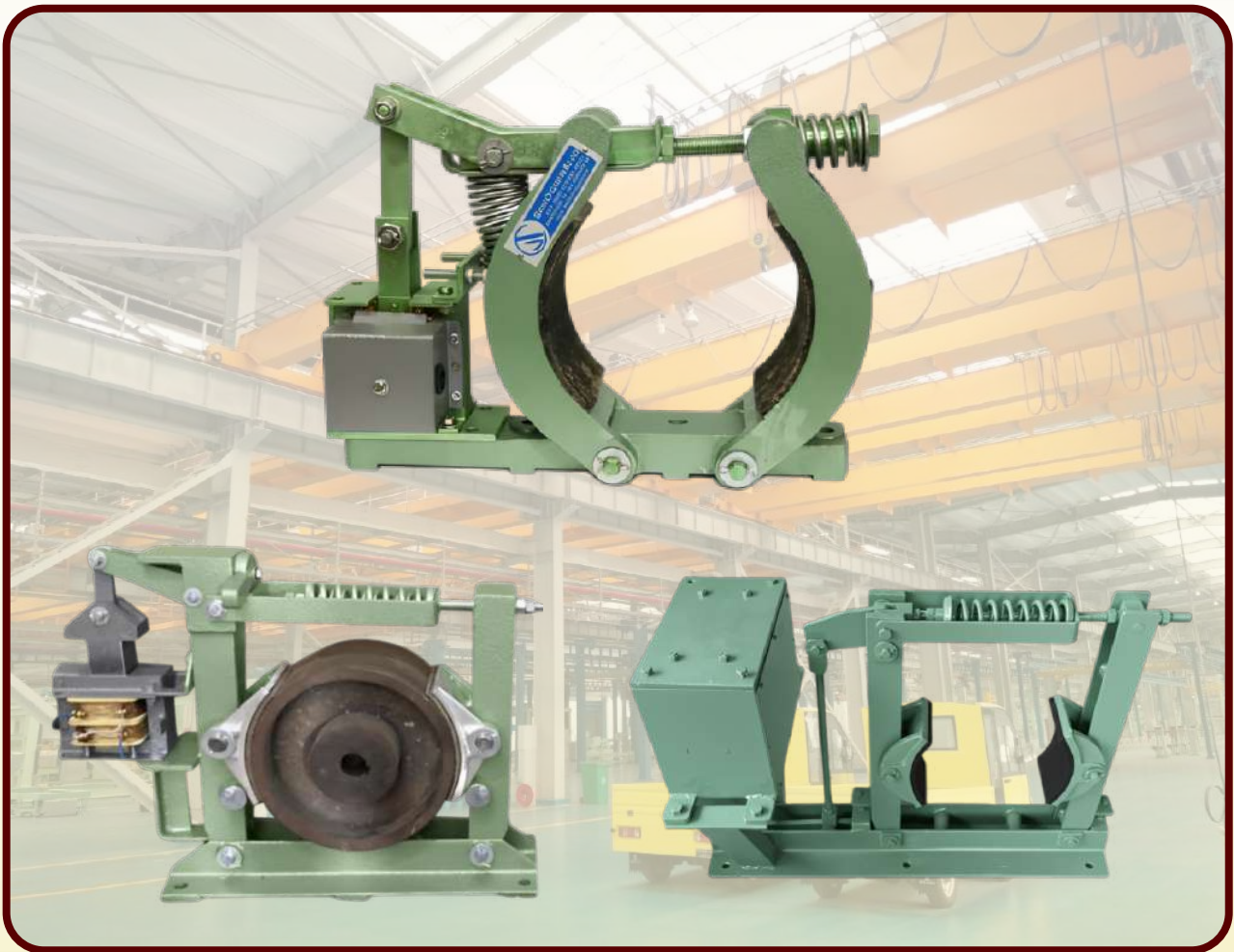


**SPEED-O-CONTROLS  
PVT. LTD.**



**CRANE CONTROL GEAR**

# **AC ELECTROMAGNETIC BRAKES**



**DISCOVER OUR RANGE OF ELECTROMAGNETIC BRAKES**

## INDEX

### AC SOLENOID BRAKE - E SERIES



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### AC ELECTROMAGNETIC BRAKE-EMS SERIES



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### AC ELECTROMAGNETIC BRAKE- 3PHASE EMS3 SERIES



[\(CLICK HERE\)](#)

## INTRODUCTION

SOC operated brakes type 'E' are designed for long life, easy installation and minimum maintenance. They are electrically released and spring applied providing 'Fail Safe' operation. The retarding torque developed is directly proportional to the spring pressure.

## CONSTRUCTIONAL FEATURES

Special constructional features such as those listed below account for exceptionally long mechanical life of the brakes.

### NEOPRENE SHOCK ABSORBER -

Prevents link pin breakage and increases the life of the solenoid.

### HARDENED STEEL LEVER AND SPRING GLAND -

The hardened steel construction of the lever and spring gland reduces wear at the pins and all other points of contact.

### CAST IRON WHEEL -

The physical properties of the minimize the tendency of the wheel to deposit metal particles in the lining which could result in serious scoring of the wheel.

### SPRING PINS -

The tight gripping spring pins insure against the loss of pins due to shock.

### INEXPENSIVE LINING REPLACEMENT -

Linings attached to shoes by removable flat head groove-pins.

### FEWER JOINTS -

The shoe is actually a part of shoe lever and not separate from it. This makes for fewer mechanical joints and keeps wear points at a minimum.

### SOLENOID -

The solenoid coil can be removed without disturbing the brake adjustment. Solenoid loading is designed to reduce wear.

## BRAKE SELECTION

The method most generally used to determine the required braking torque is to calculate the full load motor torque by means of the following formula:

$$T = \frac{9552 \times kW}{n}$$

**T** = Full load motor torque in Newton Metre (Nm)

**kW** = Motor output in Kilowatts

**n** = Rated speed of the motor shaft on which brake wheel is mounted in revolution per minute(r.p.m)

The torque rating of brake selected should be at least equal to the full load motor torque for the duty considered.

BRAKE TYPE	DRUM DIA		TORQUE MAX (KGM)	
	INCH	MM	INTERMITTENT	CONTINUOUS
EMD - 4	04	100	2.25	1.3
EMD - 5.5	5.5	139.7	4.8	3.4
EMD - 7	07	177.8	10.2	6.8
EMD - 10	10	250	-	14.7



# AC SOLENOID BRAKES - E SERIES



[CLICK HERE FOR INDEX](#)

## TECHNICAL SPECIFICATION

MODEL	E-4	E-5.5	E-7
ITEM CODE	900710010001	900710020001	900710030001
DRUM DIA (MM)	4" (101.6 mm)	5.5" (139.7mm)	7" (177.8mm)
BREAKING TORQUE (INTERMITTENT)	-	4.8 kgm	10.2 kgm
BREAKING TORQUE (CONTINUOUS)	1.36 kgm	3.4 kgm	6.8 kgm
STROKE (MM)	25	31.4	31.4
VOLTAGE INPUT	415	415	415
HOLDING VOLTAGE	415	415	415
OPERATING TEMPERATURE	Ambient Temp.	Ambient Temp.	Ambient Temp.
COIL	CLASS F Insulation	CLASS F Insulation	CLASS F Insulation
RATING	Intermittent	Intermittent	Intermittent
NO OF OPERATIONS	720 Operations/Hr	720 Operations/Hr	720 Operations/Hr
TOTAL WEIGHT (KG)	5.5kg	11.5kg	15.5kg

## AC SOLENOID BRAKES-E SERIES

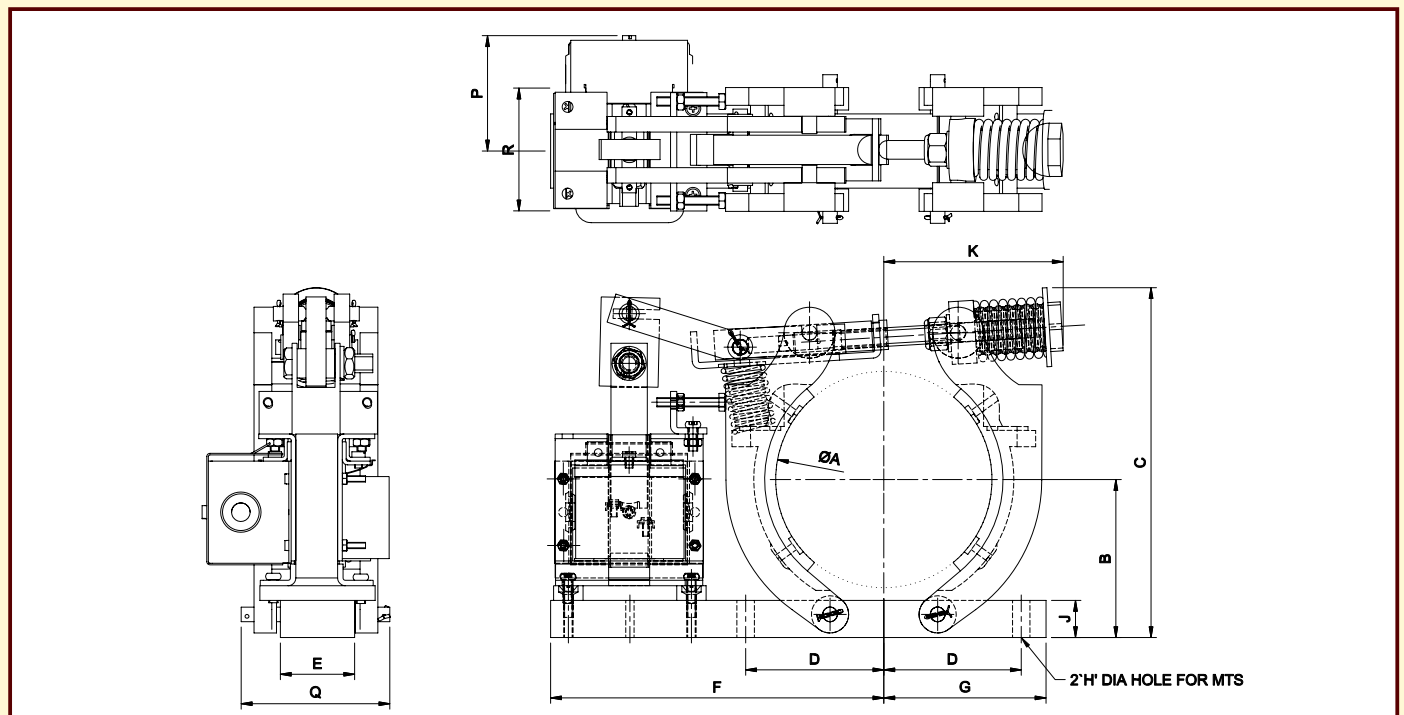


## DIMENSIONS (MM)

BRAKE SIZE	BREAKING TORQUE (KGM)		A	B	C	D	E	F	G	H	J	K	P	Q	R
	INTERMITTENT	CONTINUOUS													
4.0"	-	1.3	102	73	178	67	32	140	78	10	16	73	79	76	79
5.5"	4.8	3.4	140	102	240	89	51	213	105	11	25	124	79	95	79
7.0"	10.2	6.8	178	127	291	111	64	241	127	14	25	152	79	121	79

Note: 10" details also available on request.

## G A DRAWING



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**CRANE CONTROL GEAR** V6

# AC ELECTROMAGNETIC BRAKES-EMS SERIES



[CLICK HERE FOR INDEX](#)

## INTRODUCTION

A.C drum brakes are suitable for single phase A.C supply up to 440V and are available for drum diameters of 100mm to 375mm and braking torque up to 69kg-m.

## CONSTRUCTIONAL & WORKING

The shoes and the base of the brakes are of graded cast iron. Other components are fabricated steel. The lever is hinged on the main arm, which is connected to the side arm through a tie rod and is stressed by a pre-loaded compression spring. The compression of the spring can be adjusted to set the braking torque to the desired value. The brake liner of selected quality material and are riveted to the shoes by aluminium rivets.

A.C. selenoids with laminated magnetic sheet metal house a copper magnetizing coil that is impregnated with Class F materials. The plunger which is connected to the lever, is drawn into the coil, when it is energised with A.C source. This loads the spring and releases the brakes shoes from the brake drum. When the supply is cut off, the plunger is pulled out of the coil, and the spring force clamps the brake shoes on the brake drum and the brake are applied.

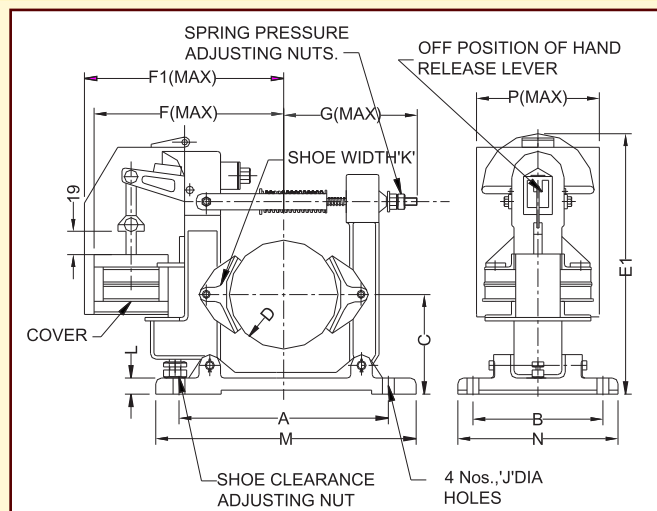
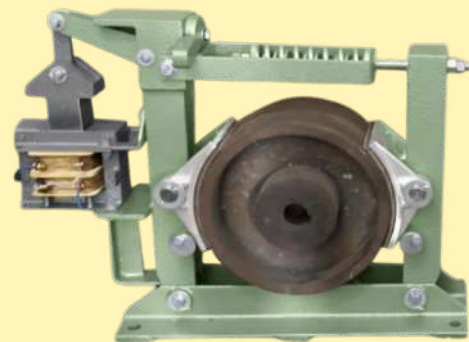
## FEATURES

1. The brake is fail-to-safety. The brake is applied in absence of A.C. current and is released when the supply is restored.
2. High-quality brake lining material ensures consistent braking torque and reliable operation.
3. Clean environmental working, less noise.
4. Braking torque can be adjusted easily and quickly.
5. Ease of maintenance.

## DIMENSION DETAILS

BRAKE TYPE	DRUM DIA.		BRAKING TORQUE		A	B	C	E	E1	F	F1	G	J	K	L	M	N	P	WT (KG) (APPROX)
	INCH	MM	50%	100%															
EMS- 4" EMS 100	4	100	2.20	1.87	232	70	130	275	295	230	255	140	10	57	14	267	98	155	13
EMS- 6" EMS 150	6	150	7.60	6.5	310	76	143	305	325	260	285	175	10	70	18	340	114	155	18.5
EMS- 8" EMS 200	8	200	17.75	15	400	92	175	380	390	340	265	235	14	89	20	441	126	175	30.5
EMS- 10" EMS 250	10	250	22.7	19.3	470	114	225	460	480	380	405	275	14	108	23	508	150	175	43.5
EMS- 12" EMS 300	12	300	45.7	38.8	530	152	254	530	552	445	470	320	18	127	22	616	210	190	78
EMS- 15" EMS 380	15	380	69	58.6	610	190	315	645	667	495	520	355	22	152	28	680	240	190	97

\* The above dimensions of braking torque is in Kg-m



## NOTES

1. Brake type EMS 4 denotes A.C. single phase 4" drum diameter (inch series)
2. Brake type EMS 100 denotes A.C. single phase 100mm diameter (metric series)
3. Brake are made to inch or metric drum
4. Coils are rated for operation single phase, 440/440V, 50 cycles.
5. Coils can be supplied with class B insulation.
6. Coils for higher ambient temperature up to 60°C can be offered on request.
7. Tolerance on indicated dimensions is +2mm.
8. Higher braking torque can be adjusted for reduced CDF duty.

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**CRANE CONTROL GEAR V6**

08/11/25

# A.C. ELECTROMAGNETIC BRAKES-3PHASE EMS3 SERIES



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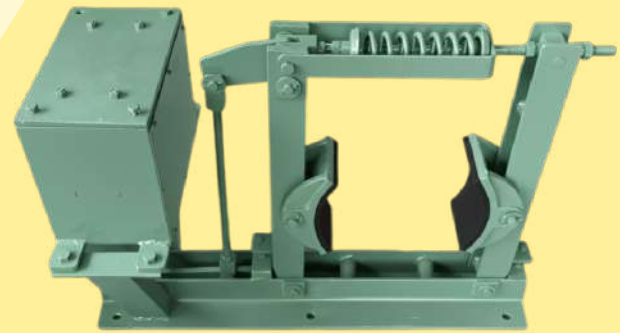
## INTRODUCTION

A.C drum brakes are suitable for three phase A.C supply up to 440V and are available for drum diameters of 150mm to 600mm and braking torque up to 200 kg-m.

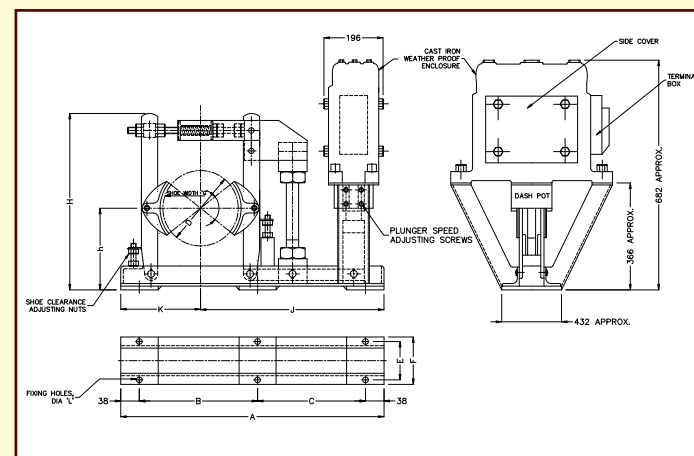
## CONSTRUCTIONAL & WORKING

The shoes and the base of the brakes are of graded cast iron. Other components are fabricated steel. The lever is hinged on the main arm, which is connected to the side arm through a tie rod and is stressed by a pre-loaded compression spring. The compression of the spring can be adjusted to set the braking torque to the desired value. The brake liner of selected quality material and are riveted to the shoes by aluminium rivets.

A.C. **solenoids** with laminated magnetic sheet metal house a copper magnetizing coil that is impregnated with Class F materials. The plunger which is connected to the lever, is drawn into the coil, when it is energised with A.C source. This loads the spring and releases the brakes shoes from the brake drum. When the supply is cut off, the plunger is pulled out of the coil, and the spring force clamps the brake shoes on the brake drum and the brake are applied.



## G.A.DRAWING



## FEATURES

1. The brake is fail-to-safety. The brake is applied in absence of A.C. current and is released when the supply is restored.
2. High-quality brake lining material ensures consistent braking torque and reliable operation.
3. Clean environmental working, less noise.
4. Braking torque can be adjusted easily and quickly.
5. Ease of maintenance.

## NOTES

1. Brake type 6 denotes A.C. three phase 6" drum diameter (inch series)
2. Brake type EMS 150 denotes A.C. three phase 150mm diameter (metric series)

## DIMENSION DETAILS

DRUM DIA.		BRAKING TORQUE		A	B	C	E	F	G	h	H	J	K	L
INCH	MM	kg.m	lb.ft											
6	150	16	116	710	330	304	100	140	70	240	500	522	190	13
8	200	21.25	154	762	355	331	127	178	89	264	520	546	216	13
10	250	26.60	192	838	431	331	156	130	108	276	543	594	244	16
12	300	58.25	421	890	407	407	165	230	127	292	645	610	280	16
15	380	72.80	526	965	431	458	165	242	152	314	682	647	318	16
16	400	80	580	985	441	468	180	236	180	314	682	657	328	20
18	460	125	900	1030	484	484	190	254	162	340	720	669	356	21
20	500	150	1100	1104	524	504	215	302	200	360	720	689	415	25
24	600	50% OF COIL RATING		1385	710	575	310	405	230	485	990	955	430	26

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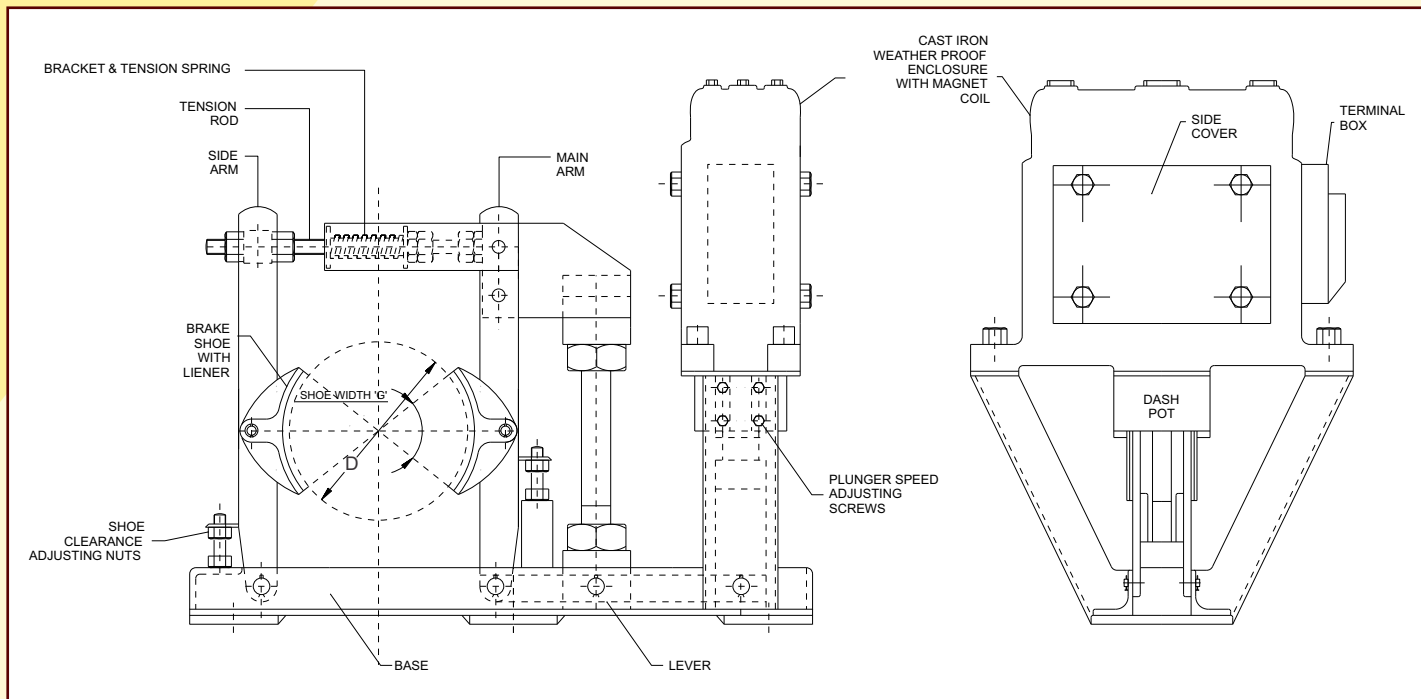
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**CRANE CONTROL GEAR V6**

08/11/25

For essential component of EMS Drum Brake please see Fig. 1 and find the following explanations :-

## COMPONENT OF EMS DRUM BRAKE



### BASE :

The Brake is mounted on a base construction.

### BRAKE ARM :

Hinged with the brake shoe, they surround the brake drum and in connection with tension rod and dash pot they apply the braking force is generated by the spring.

### TENSION SPRING :

Consists of rod, torque spring. The adjustable braking force is generated by the torque spring.

### MAGNET COIL :

Is coil use to open the brake and is acting against the clamping force. The energy, required for release, is generated by Electro-Magnet.

### TENSION ROD :

Its function is to transmit the braking force to the two brake arm, and therefore it is the most stressed component of the brake. In all brakes the tension rod is made of alloy steel with rolled threads.

### BRACKET :

The bracket is the hinge between tension rod and the brake arm the bracket should be a pin junction as well.

### LEVER :

Bracket, Tension Spring, Dash Pot are mounted to the lever. Here, the transformation from large stroke and small force into small stroke and high force is realized.

## MOUNTING ADJUSTMENT

Brake are suitable for AC supply up to 415/440 V three phase, 50 Hz. and are available for 150mm to 600mm Dia.

These brake are the available with rated torque ranging from 130 Kg. Cm, for the smallest brake (150mm dia drum). up to 8500 Kg.cms. (500 mm drum dia).

These brake have a more rigid construction and better designed. and more efficient Solenoid, with damping provided to cushion lamination impact and thereby extend solenoid life and provide a smoother braking action.

These brakes have a better duty cycle then the single phase brakes.

### CONSTRUCTION :-

Base & Brake Arm are cast iron high grade (FG-220) shoe are self-aligning, easy removable with fabric lining fixed with aluminum rivet, magnet solenoid type with laminated magnetic circuit having pole face to ensure quiet operation.

### OPERATION :-

Compression spring provide the necessary working pressure to apply the brake, release being effected by a three phase electromagnet hand release lever is tilted to the lock brake in the off position when required. Requires regular maintenance and periodical replacement of worn part and coils.

### NOTE:-

- 1) Brake type EMS 6 denotes A.C. Three phase 6 inch Dia. (Inch series)
- 2) Brake type EMS 150 denotes A.C. Three phase 150mm Dia. (Metric series)
- 3) Brake are made to suit either inch or metric drum size.
- 4) Coil are rated for operation 415 / 440 three phase A.C., 50 cycles.
- 5) Coils can be supplied with class 'B' insulation for operation at higher ambient temperature upto 60°
- 6) Tolerance  $\pm 2$  mm.



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