

Single Phase Operation
Dry Working

This range of A.C. Shoe Brakes are spring engaged electrically released units which give Fail-to-Safe operating characteristics. In principle, the system is an internal expanding shoe arrangement having bonded friction linings and a solenoid type operating coil.

On energisation of the coil, the shoes are contracted to release the brake. On interruption of coil current, by switching or due to current failure, the shoes are expanded outwards by spring force into contact with the drum to apply the brake. A feature of this brake is the absence of "drag torque" in the released position. Emergency hand release can be incorporated if required.

Re: Units to Protection Class I
Earth Connections must be in accordance with VDE 0100 Para. 6. This responsibility rests with the user.

Units are manufactured and tested to VDE 0580 and conform to CENELEC Memorandum Part. 3. para. 2.3 E. E. C. Equipment Safety Regulations.

For application information refer to Application and Operating Instructions 7.

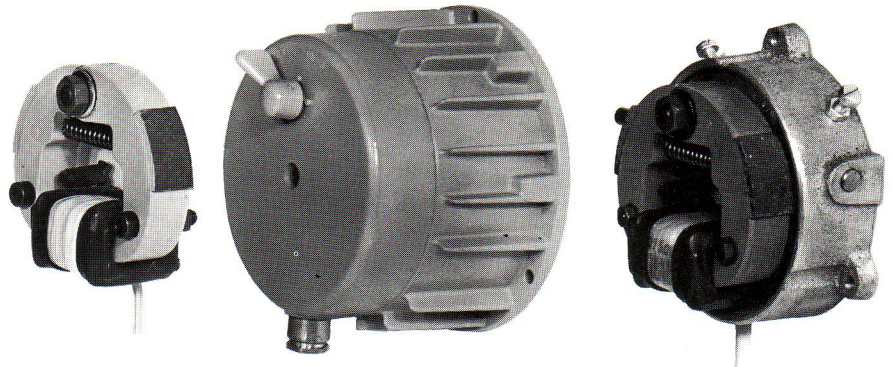


Illustration:
Type 75 141 08 to 17 B 500
Brake System only

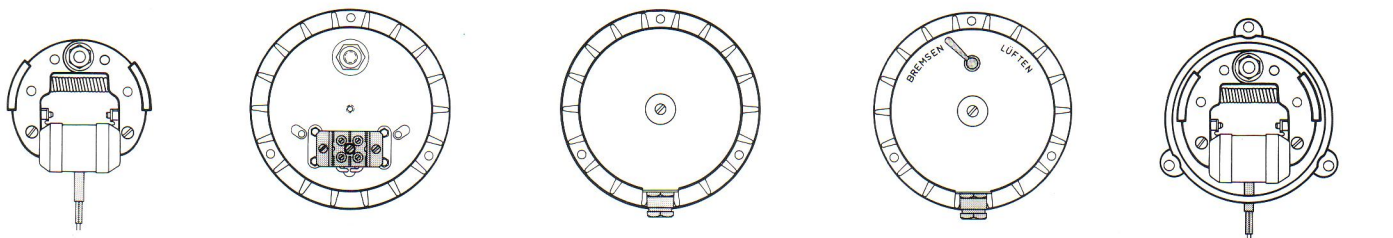
Illustration:
Type 75 145 13 and 17 A
Housing Assembly
with Rear End Cover
incorporating Manual
Release Mechanism
Sizes 08 and 10 are without
Rib-Cooling

Illustration:
Type 75 441 10 A
Flange Mounting Ass.
with Manual Release
Mechanism

Standard Voltages:
110, 220, 380, 415,
500 Volts A.C. 50 Hz
110, 220 Volts A.C. 60 Hz

Protection to DIN 40 050

Insulation Class: B



Type 75 141 08 to 17 B 500
Brake System only.
For direct mounting onto
motor end shield.
Flying Lead Connections
Protection
Unit IP 00

Type 75 143 08 to 17 A
Housing Assembly with
Terminal Block Connection
(Illus. Size 13 and 17
with Rib-Cooling)
and Manual Release Pins
Protection
Unit and Connection IP 20

Type 75 145 08 to 17 A
Housing Assembly as per
Type 75 143 but with
additional Rear End Cover
fitted with Cable Gland
Protection
Unit and Connection IP 40
(Illus. Size 13 and 17
with Rib-Cooling)

Type 75 145 08 to 17 A
Housing Assembly
with Rear End Cover
fitted with Cable Gland
incorporating Manual
Release Mechanism.
(When ordering please
specify)
Protection
Unit and Connection IP 40
(Illus. Size 13 and 17
With Rib-Cooling)

Type 75 341 10 A
Flange Mounting Ass.
(without Manual Release)

Type 75 441 10 A
Flange Mounting Ass.
with Manual Release

Protection:
Unit and Connection IP 00

Technical Data

The Response Times listed relate to units operating at normal working temperature and nominally rated voltage. The t_1 ("ON") and t_2 ("OFF") values refer to current. ON and OFF conditions, i.e. t_1 represents the release time of the brake from the moment of applying current, to the brake torque falling to zero, t_2 represents the engagement

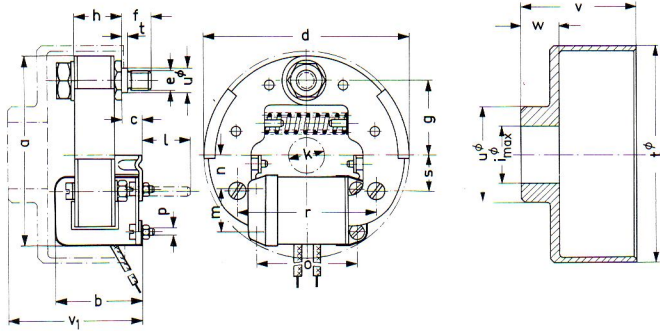
time of the brake from the moment of interrupting current supply, to the brake delivering its rated braking torque (M_{2N}).

The Thermal Capacity P_N is the amount of energy (work) which the brake can dissipate hourly. The max. Permissible Friction Work W_{max} per Engagement, is the max. amount of energy which the brake can absorb per stop.

The values listed relate to a shaft speed of 1500 r.p.m. All listed values are valid for units operating either horizontally or vertically.

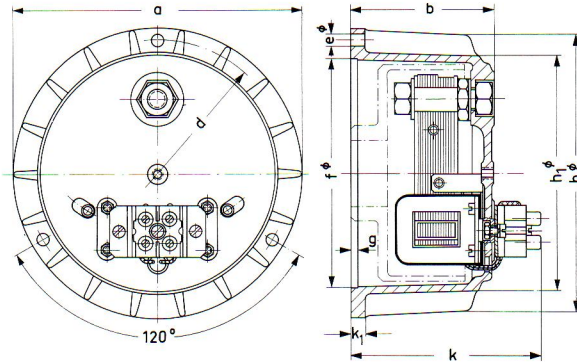
N.B. Drum brakes have an inherent servo action which can result in frictional variation, it must therefore be noted that brake torque can fluctuate slightly.

Size	Rated Torque (Run-in) $M_1 \approx M_{2N}$ M_{2N} Nm	Max. Speed n_{max} r.p.m.	Thermal Capacity P_N kJ/h	Max. Permiss. Friction Work per Engagement W_{max} kJ	Input Power P_{20} VA	Response Time		Inertia Brake Drum J kgcm ²	Weight				
						ON t_1 ms	OFF t_2 ms		75 141 B 500	75 141 A 901	75 143 A	75 145 A	75 341 A 75 441 A
08	2	10000	50	0,35	15	10	20	1,75	0,3	0,25	0,45	0,65	—
10	5	8000	80	0,6	28	10	20	4,5	0,6	0,4	0,85	1,1	0,9
13	10	6000	130	1,1	48	10	20	17,5	1,3	1	1,9	2,2	—
17	20	4500	200	2	80	10	20	55	3,2	2,35	4,7	5,2	—

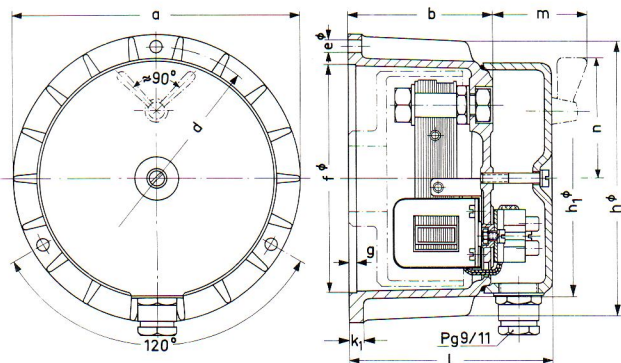


Type 75 141 08 to 17 B 500

Type 75 141 08 to 17 A 901
Brake Drum

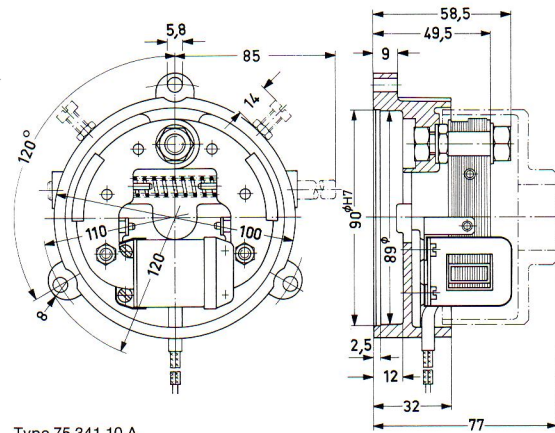


Type 75 143 08 to 17 A
Sizes 08 and 10 are without Rib-Cooling



Type 75 145 08 to 17 A

Type 75 145 08 to 17 A
with external Manual Release
(shown chain-dotted)
Sizes 08 and 10 are without Rib-Cooling



Type 75 341 10 A

Type 75 441 10 A
with external Manual Release
(shown chain-dotted)

Shoe System Dimensions Type 75 141 .. B 500

All Dimensions are in mm

Subject to alteration

Size	a	b	c	d	e	f	g _{-0,1}	h	k _{max}	l	m	n	o	p	r	s	t	u _{H9}	v ₁
08	62	29	4,5	68	M 6	8,5	24	16,5	12	18,5	15	10	33,5	M 2,6	47	11	2,3	6,3	43,5
10	80	38	6,5	86	M 8	10,5	31	22	15	20,5	18	13,5	42	M 3	58	15	2	8,3	56
13	106,5	49	7,5	115	M 10	14	42	29	22	22	24	19	57	M 4	80	24	3,5	10,4	70,5
17	139,5	65,5	9	150	M 12	17,5	54	41,5	30	27	35	23	72	M 5	102	30	5	12,9	97

Brake Drum and Housing Mounted Brake Dimensions Types 75 141 .. A 901, 75 143 .. A, 75 145 .. A

Size	a	b	d	e ^{H12}	f ^{H8}	g	h	h ₁	i _{max}	k	k ₁	l	m	n	t	u	v	w
08*	98	47,5	88	5,4	75	3	—	79	25	66	4	70,5	46	46	71,5	36	37	13
10*	120	60	110	5,3	95	3	—	99	28	78	5	85	48	50	89,5	40	48	16
13	155	76	145	6,5	130	3	148	—	34	94,5	6,5	104	51	63	120	50	62	20
17	206	104	190	9	170	3,5	195	—	48	122,5	8	135	54	68	156	70	86	30

* without Rib-Cooling

Ordering Data

A.C. Shoe Brake
Type: 75 . 4 . Size: .. A
with or without Manual Release
or Brake System

Type: 75 141 Size: .. B 500
Nominal Voltage: ... Volts A.C. ... Hz
Rated Torque: ... Nm
Brake Drum
Type: 75 141 Size: .. A 901
Bore: Ø ... mm H7
Keyway: ... mm JS9

Ordering Example

A.C. Shoe Brake
75 143 10 A

220 Volts A.C. 50 Hz
5 Nm
Brake Drum
75 141 10 A 901
Ø 18 mm H7
6 mm JS9

For A. C. Fail-Safe Shoe Brakes

Machines etc. Fig. 4 Brake Unit, complete in Housing with terminal block connections complete with End Cover fitted with Emergency Hand Release mechanism.

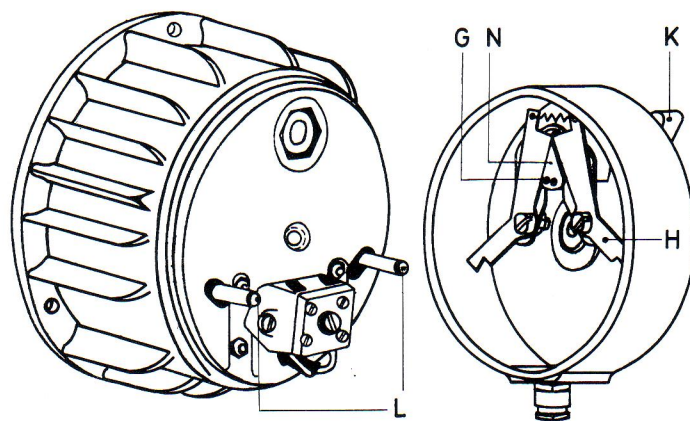
The Brake Units complete in Housing are normally supplied with fitted Hand Release Bolts (L) whereas the Brake Element only (Fig. 3) can be supplied with or without, according to requirements.

To fit Brakes complete with Housing (as Figs. 1, 2 and 4), the following procedure should be adopted. Firstly fit and key the Brake Drum to the Motor or Machine Shaft; same must be suitably axially located in position by the use of a Shaft Shoulder, Grub Screw, Circlip or any other conventional method. It must similarly be noted that, when adapting this arrangement, when in position the rear face of the Brake Drum boss should line up with the flange mounting face of the Brake Housing - this ensures correct axial positioning. The Brake Housing has a female spigot location manufactured to tolerance H8. The mating male spigot on Motor or Machine should be manufactured to tolerance h8 or e8. When assembled, the relative concentricity of Brake Drum I/D to male locating spigot should be within ± 0.5 mm max. The Machine or Motor Shaft must rotate true within 0.05 mm. To assemble the Brake, close the Brake Shoes by compressing the Hand Release Bolts (L) together; this will allow the Shoe Assembly to slide into the Drum, then locate on the spigot and bolt the Unit into position through the three fixing holes provided in the Brake Housing flange. Effect connections to terminal block and test Unit for free running in release position prior to starting up.

To fit or replace a Brake Shoe Element (as Fig. 3) - firstly mount the Shoe Assembly by means of its Fulcrum Pin (Item 6); secondly, fit the Operating Coil (Item 10) by use of the four Screws and Nuts provided (Item 16) - these are located beneath the Rubber Coil Protection Gaiters. Prior to fully tightening the Assembly, correctly centralise the Brake Shoes in relation to the Motor or Machine Shaft and position the Buffer Bracket (Item 8); this serves to position the Brake Shoes symmetrically when the Brake is disengaged. (This feature is not self-cancelling). Failure to centralise the Assembly correctly can result in the Brake Linings being in constant rubbing contact with the Brake Drum in the dis-engaged position, thus resulting in drag, undue heat and wear. The Brake Drum (Item 17) can then be fitted and keyed to the Shaft, ensuring that same is suitably axially located. It is recommended that where no hand release facility is provided, the Brake be energised with the appropriate A. C. current, this will facilitate easy loading of the Brake Drum. Under no circumstances should the Brake Drum be hammered into position over an expanded Brake Assembly. When assembling, we recommend that all fixing screws be locked by a suitable locking fluid, e.g. "LOCTITE".

To un-assemble, reverse the outlined procedure.

When fitting a rear cover with Hand Release Mechanism (as Fig. 4), the Release Lever (K) must be in position "BREMSSEN" to allow the release levers (H) to pass over the Lifting Bolts (L). In the case where a Brake has been supplied with Hand Release Mechanism, it will be noted that scribed lines are marked on the Brake Housing and Cover to indicate the correct radial position of the Cover. In cases where a Hand Release Cover Assembly is supplied separately, when fitting, the Cover should be rotated radially about its spigot until one Lever (H) comes into contact with its appropriate Lifting Bolt (L); this position should then be marked. Then rotate the Assembly in the opposite direction until contact is made with the second Lifting Bolt and also mark this position. The Cover should then be rotated into the central position and fixed by its Screw (Item 23); this then ensures that the Release Levers are working symmetrically to effect equal lifting action.



Hand Release Facility

Emergency Hand Release is provided in the following forms:

- For Brake Unit complete in Housing as per (Fig. 1). To release manually, compress Lifting Bolts (L).
- For Brake Unit, complete in Housing as per (Fig. 2). To release manually, remove Rear Cover (Item 21) and compress Lifting Bolts (L).
- For Brake Unit complete in Housing with fitted Hand Release Rear Cover Assembly as per (Fig. 4). To release manually, turn Lever (K) to position marked "LÜFTEN".

The Hand Release Mechanism in Rear Cover Assembly as shown in Fig. 4 permits the Brake to be locked in the "Off" position ("LÜFTEN") when the Lifter Cam (N) is fitted with only one limit screw in position G.

When the cam has 2 limit screws fitted, the Brake cannot be locked off.

For A. C. Fail-Safe Shoe Brakes

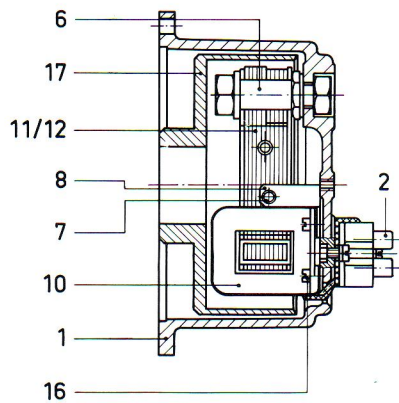


Fig. 1

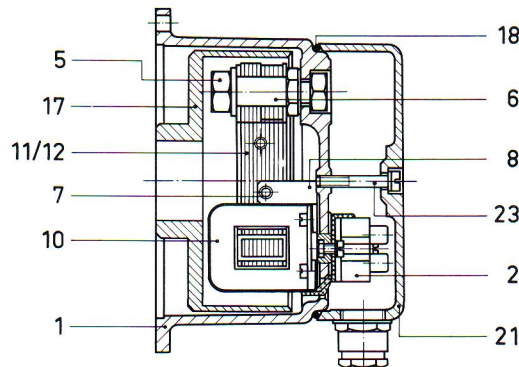


Fig. 2

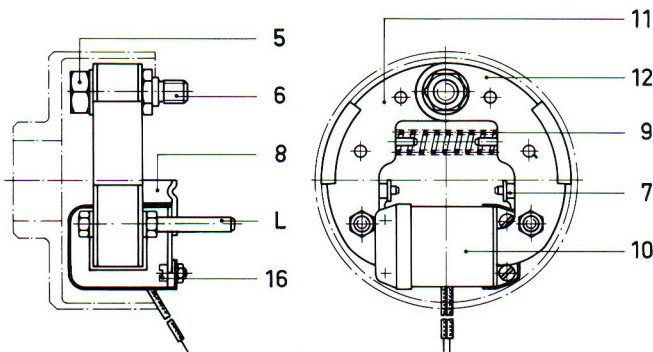


Fig. 3

- 1. Brake Housing
- 2. Terminal Block
- 5. Fixing Nut
- 6. Fulcrum Pin
- 7. Rubber Buffer
- 8. Buffer Bracket
- 9. Compression Spring
- 10. Operating Coil
- 11. Armature Shoe
- 12. Armature Shoe
- 16. Coil Fixing Screws
- 17. Brake Drum
- 18. "O" Ring
- 21. End Cover
- 23. Cover Fixing Screw
- L. Hand Release Bolts

Construction and Operating Principle

This range of Brake Units are spring-engaged, electrically-released A. C. devices which provide "Fail-to-Safe" operating characteristics. The basic construction of the Brake is a two-part shoe-shaped Armature Assembly of laminated construction with shaded poles (Items 11/12) onto which are bonded brake linings; the two Armature Shoes are mounted onto a Screwed Fulcrum Pin (Item 6) about which the Assembly pivots; this Pin also serves to mount the Brake Assembly into the Brake Housing (Item 1) (see Illustrations 1 and 2) or, alternatively, directly onto the Motor End Shield when supplied as a Brake Element only (see Illustration 3). The Brake is actuated by means of a Compression Spring (Item 9) used to apply the Brake and an Operating Coil (Item 10) to release the Brake. The Operating Coil is fixed to the Brake Housing or Motor End Shield by 4 screws and nuts (Item 16). The pole pieces of the Armature Assembly pass into the core of the Operating Coil through two rubber protection gaiters situated at either end of the Coil - these serve to prevent ingress of foreign matter onto the pole faces. The Brake Assembly is centralised in the released position by two Rubber Buffers (Item 7) mounted on a Bracket (Item 8) which is located and fixed with the Operating Coil. The Brake Drum (Item 17) is fitted on the Motor or Machine Shaft and passes over the Brake Element to effect an internal Shoe Assembly.

The operation of the Brake is such that on interruption, or failure, of A. C. current supply the Brake is applied by the Spring (Item 9) which forces the Shoe Assembly outwards into contact with the Brake Drum (Item 17). On energising the Operating Coil (Item 10) the Armature Shoes are drawn together, thus compressing the Spring (Item 9) and releasing the Brake. In the released position the Brake Linings are completely clear of the Brake Drum and, as such, the Brake has no drag torque. The unit is self-compensating for wear throughout its working life and can be satisfactorily operated until such time as the thickness of the Lining is worn to within 0.5 mm of the Armature Shoe Assembly. At this stage the Brake Element should be replaced. No facility is provided for Brake Torque regulation.

Assembly and Fitting Instructions

This range of A. C. Shoe Brakes are available in four basic constructional forms to Fig. 1. Brake Unit, complete with Housing with open terminal block connections. Fig. 2. Brake Unit, complete with Housing with terminal block connections and fitted End Cover. Fig. 3. Brake Element only with Flying Lead Coil Connections. This design is for direct mounting onto a Motor End Shield or Adaptor Plate for through shaft assemblies, i. e. Fan Cooled