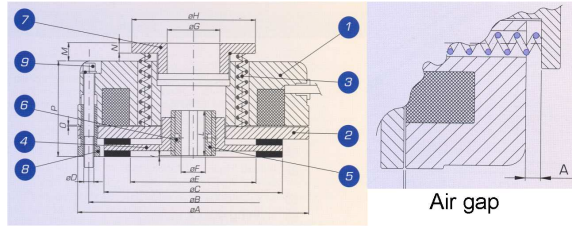


24V & 100V DC BRAKES

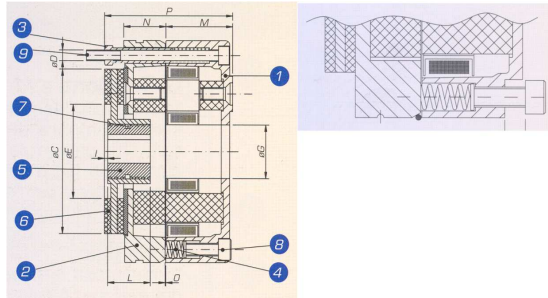
- 1) Electromagnet
- 2) Armature Plate
- 3) Torque Springs
- 4) Disc
- 5) Splined Hub
- 6) O-ring
- 7) Adjuster Ring
- 8) Adjuster Nuts
- 9) Fixing Screws



Frame	Brake Model	Distance Between Adjusting-ring and Electromagnet "A" [mm]									
		9 mm	8 mm	7 mm	6 mm	5 mm	4 mm	3 mm	2 mm	1 mm	A = 0 mm
QB 63	K01	-	-	-	0.7	1.4	2.1	2.8	3.5	4.3	5.0
QB 71	K02	-	-	-	-	2.0	4.0	6.0	9.0	10.0	12.0
QB 80	K03	-	-	-	-	2.6	5.3	8.0	10.6	13.2	16.0
QB 90	K04	-	-	-	-	-	4.0	8.0	12.0	16.0	20.0
QB 100	K05	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0	40.0
QB 112	K06	-	4.0	11.0	18.0	25.0	32.0	39.0	46.0	53.0	60.0
Braking Torque Value (Nm.) with Different Distances											Max. Torque

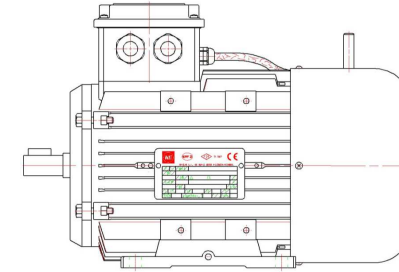
AC BRAKES

- 1) Electromagnet
- 2) Armature Plate
- 3) Adjusting Screw
- 4) Torque Springs
- 5) Splined Hub
- 6) Disc
- 7) O-ring
- 8) Braking Torque Adjusting Screw
- 9) Fixing Screws



Frame	Brake Model	Distance Between Adjusting-Screw and Electromagnet "A" [mm]								
		7 mm	6 mm	5 mm	4 mm	3 mm	2 mm	1 mm	A = 0 mm	
QB 63	AC1	-	0.3	1.0	1.7	2.4	3.1	3.8	4.5	
QB 71	AC2	-	-	1.7	3.6	5.0	6.6	8.3	10.0	
QB 80	AC3	-	-	2.6	5.3	8.0	10.5	13.3	16.0	
QB 90	AC4	-	-	-	4.0	8.0	12.0	16.0	20.0	
QB 100	AC5	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	
QB 112	AC6	11.0	18.0	25.0	32.0	39.0	46.0	53.0	60.0	
Braking Torque Value (Nm.) with Different Distances										Max. Torque

THREE PHASE MOTORS WITH BRAKE INSTALLATION AND MAINTENANCE INSTRUCTIONS



Definition:

The motor you have purchased will supply driving power to various machines, and industrial equipment. It is manufactured according to Turkish Standards TS 3205 and EN 60034.

Safety:

TEE three phase general-purpose motors comply with the recent valid technical standards. All repair and servicing operations on motors must be carried out when the equipment is electrically isolated and the motor and driven machine are at standstill. The motors should only be transported, installed, connected, commissioned, maintained, and operated by skilled persons familiar with all relevant safety standards and mounting specifications.

Assembly and Operation:

Please consider the following points for assembly and operation of the motor:

- Do not neglect to check the motors for any transport damage prior to installation.
- Always use eyebolt for lifting (mounted on size 112 and larger models). Do not lift the motor from the shaft end unless otherwise specified.
- Ensure motors are adequately protected during transportation and storage. If stored for a long time, the motors must be protected against dust, moisture and other harmful factors. Please follow the procedure below if the motor has been out of use for a long time.
- Examine the bearings and replace them if necessary.
- Check the insulation resistance. If the insulation resistance measured at 25°C and 500V is below 2 Mohm, the motor must be dried at 80°C.

Assembly to Driven Machine:

The rotors are dynamically balanced with half key. Therefore, the transmission elements must also be balanced with half key.

To fit a half coupling on the motor shaft easily, please ensure that the shaft-end is clean.

It is advised to heat coupling elements up to 60-80°C, before securing them on to the shaft.

Caution:

The use of a hammer is not permitted, for fitting the couplings to the shaft.

Please ensure right pulley diameter and appropriate belt tension.

One of the major factors extending the lifetime of motors is the alignment of the motor shafts and the driven machine.

Please note that even a minor misalignment may soon damage the bearings.

While operating the motor and the driven elements such as couplings or pulleys, check radial/ axial forces to protect the bearings against damage.

During assembly, the space below the feet of the motor must be filled with steel shims if necessary. Please ensure the motor is centered accurately, and the bolts are fastened properly.

Power Connection:

The standard terminal box has 6 connection leads. Short circuit links should be connected as follows:

W2	U2	V2	W2 -- U2 -- V2		
U1	V1	W1	U1	V1	W1
L1	L2	L3	L1	L2	L3
Delta Connection (Δ)			Star Connection (Y)		

Important Note:

As a rule, lower voltage value on the motor label is for the Delta connection, and the higher one is for the Star connection.

These values must be noted, and the mode of connection must be selected according to phase-to-phase supply voltage.

For example, a motor of 230V/400 V must run only with Star connection when connected to a 400 V supply.

Star-Delta starting operation is possible for motors normally operating in Delta. In this case, all short circuit links must be removed, and 6 leads must be connected to the starting device. This mode of operation is used in applications (fan, centrifugal pump, etc.) that use low voltage and require a low starting torque. The motor must not be left to operate continuously in starting position (Star connection). Normally, 2 and 4 pole motors up to (and including) 3 kW

6 pole motors up to (and including) 2.2 kW

8 pole motors up to (and including) 1.5 kW

are wound for 400 V (Star Connection).

Motors with higher power ratings are wound for 400 V (Delta Connection).

Grounding:

According to VDE 0530, all motors must be grounded from the terminal marked "ground" in the terminal box.

Protection:

The motors must be protected against short circuit, phase loss, and overloads by proper fuses, thermal-magnetic switches

or electronic protection circuits. The nameplate values are valid where the ambient temperature does not exceed 40°C and altitude is less than 1000 m. The permissible voltage variation according to VDE 0530 is $\pm 5\%$ at the rated output and rated frequency.

Check-points:

- Check data on your nameplate
- Check that the voltage and frequency comply with the above data
- Check protection devices
- Secure electrical connections
- Check ambient temperature
- Ensure that the cable connection box is fixed and cable entries are properly sealed
- Check that mounting bolts are secure

Important Notes:

The motors should be handled by qualified persons.

Please ensure that shaft, and the electrical terminals are connected properly. The normal rotation of the motor is clockwise

facing the drive end. But if connected incorrectly, it may reverse causing a hazard to machinery and personnel. Therefore, please check the rotation of motor before connecting it to driven unit.

TEE guarantees that its motors comply with this instruction manual. The removal of parts or dismantling of the motor will automatically void this warranty.

The above instructions are valid for the motor you have purchased. TEE reserves the right to alter these instructions.

Please contact your dealer for items not covered in this leaflet.

The motors which has a starting current level of bigger than 31A in three phase type, necessary precaution has to be taken according to the limits of EN 61000-3-3 and EN 61000-3-11, or the motors must be connected to a network which has a service current capacity bigger than 100A per phase.

Brake:

The brake is designed to assure, by means of the pressure springs and when no voltage is applied, the intrinsic safety equal and not higher than brake label value in Nm. On exciting the electromagnet the armature plate is pulled towards the electromagnet itself, thus loading the pressure springs and enabling the disc, which is axially movable on the toothed hub, to turn freely. When the current fails, the pressure spring drive the armature plate towards the disc, thus braking the motor shaft.

Proper working of the brake is guaranteed when operating at room temperature.

When operating at low temperatures or in damp places it's necessary to use covers or guards to avoid the attachment of the friction material on the braking surfaces when the brake hasn't been working for a long time.

Minimum braking torque adjustment must be always higher than 30% of its nominal value.

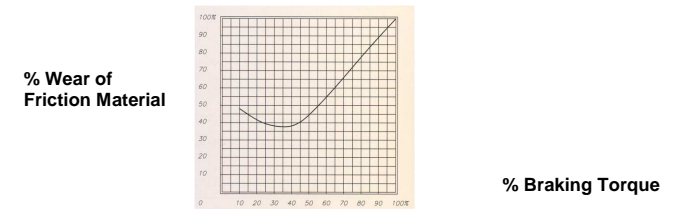
All the parts of the brake mechanism that is already mounted on the motor, must be checked frequently. The control of the brake parts must be done, after all the electrical connection of the motor and the brake has been cut off, according to the catalogue and manuals. The required brake performance can only be achieved by using the original parts.

The wear of the brake friction material depends mainly upon the load inertia, the motor speed, the operating frequency, and the heating of the brake. **The brake friction material must certainly be renewed after 3mm of wear. The air-gap must also be adjusted after the renewal of the brake friction material.** The air-gap adjustment must be repeated, when the air-gap exceeds 0,7mm, in order to achieve the required performance.

Adjusting of the air-gap is made operating the adjusting screws after loosening the fixing screws. Please allow for a cooling down period before adjusting the air-gap after brake operating.

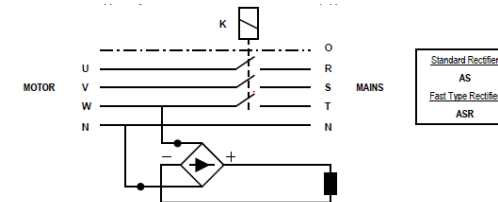
The nominal value for the air-gap is 0,2mm (+0,05 -0). **The maximum value allowed for the air-gap is 0,7mm.** If this value is exceeded the brake performances will change and this can prevent brake to work properly during motor revolution this causing an overheating of both the motor and the brake.

The effect of friction material and the breaking torque can be found below.



Half wave rectifiers are built-in for 100V DC brake motors and they must be connected according to the following scheme to obtain a normal braking function.

The rectifiers must be supplied by the customer for the motors that are equipped with 24V DC brakes.



Handling of Discarded Motor

The discarded motor at the end of its useful life must be recycled in accordance with the national law. The all materials (steel, cast iron, copper, aluminum, plastics used in insulation materials) used for manufacturing of the motors subject to material recycling after the all parts are separated. All oil and grease should be disposed or incinerated according to the ordinance of waste oils. Electronic components of the motor must be recycled separately from other parts.

Spare Parts:

Please specify model, and serial number stated on the nameplate when ordering spare parts from your dealer. The dust seals and hand release devices can be supplied as an accessory upon request.