

Please read carefully before starting operation !

1. Should any damage occur due to disregard of the following instructions the guarantee expires and the manufacturer is free from any obligations. The device can only be employed under operations parameters not exceeding the nominal capacity of the clutch or brake. Maximum torque and highest permissible power loss must be strictly observed. The available voltage must correspond to the operation voltage indicated on the identification plate. When a clutch of the E(R)AT ... -Type is used, the distance between the brush holders and the slide ring must correspond to the measure indicated on the table of dimensions. If a brake is used, there is no slide ring and the connection is effectuated directly on the coil. Thereupon it must be checked that no body contact takes place. If a clutch or a brake is operated in an extremely dustladen place (soot, wood chip, paper or cement dust) a dust cover should be provided. In such a case an additional fan should allow reliable dissipation of the heat developed.

Storage : Clutches and brakes must be stored in a dry place and protected against corrosion. The device can only be stored in its welded plastic hull containing moisture absorbing chips.

2. Installation :  
Installation of the device must be carried out with care in order to prevent damaging of bearing and packing. Any use of force impairs the function. The borehole present should be lightly smeared with a rust proofing grease. The system being lubricated for life, any other lubrication with oil or grease is not admitted as it would impair the performance of the device.

3. Starting operation :  
Clutches and brakes should be taken into operation by means of short current pulses to allow proper distribution of the magnetic particles. Thereupon the rotor speed correspond to the use required.

4. Dismounting, Repairs :  
Instructions for repair are supplied on request free of obligation. Upon disassembly of clutches and brakes any shock by knocks and shoves must be prevented. When removing the rotor a brace can be used.

c			Datum	29.12.1993	Zeichnungsnummer / drawing number				operating instructions	Komm.Nr		Vertragsnummer
b			Bearb.	KIPP	1.1232E					General-Information		
a			Gepr.									
	Änderung	Datum	Name	Norm	Einbauort:	Ersatz fuer:						

## Repair instructions :

Clutches	EAT 2002	330 220 00	ERAT 2002	330 230 00
	EAT 2002 RR	330 233 00	ERAT 2002 RR	330 225 00

"R" = heat sink  
 "RR" = remnant rotor  
 "O" = watercooling

The magnetic particle clutch / brake should be disassembled in the following order :

During assembly, refer to the sectional drawing.

- To disassemble, place the clutch / brake on a workbench with the slipring or coil connectors up. Disconnect the slipring from the coil, and remove the screws to lift the slipring from the housing.
- Loosen the screws on the bearing shell to remove the bearing shell together with the internal rotor. The housing with the coil is now accessible.
- After removing the circlip ring from the ball bearing, lift the ball bearing and seals from the bearing shell.
- Clean the inner side of the housing and the internal rotor carefully of magnetic powder.
- Fit the new seals and ball bearings in the bearing shell and fix them on the bearing cover using the circlip ring. Before that, slide the seals (V ring) on the hollow shaft of the internal rotor. Push the internal rotor into the ball bearing of a bearing shell and fix it in position using a circlip ring.
- Housings fitted with heat sink, e.g. Type ERAT ... FRAT... have the heat sinks shrunk on. Heat them slightly if they need to be pulled off. As clutches are balanced with the heat sink fitted, be sure to re-fit it in exactly the same position.

Brakes	FAT 2002	330 200 00	FRAT 2002	330 210 00
	FAT 2002 RR	330 201 00	FRAT 2002 RR	330 211 00
			FRATO 2002	330 240 00

### Important note !

The magnetic powder must be poured into the air gap / space between the internal rotor and the external rotor ( not into the hollow space in which the field coil is located ). Be sure to use only the amount and particle size of magnetic powder approved for the particular type of clutch / brake.

The old magnetic powder must not be re-used.

Then replace the internal rotor with the housing cover and screw it down. Secure the slipring assembly and make the connections with the coil.

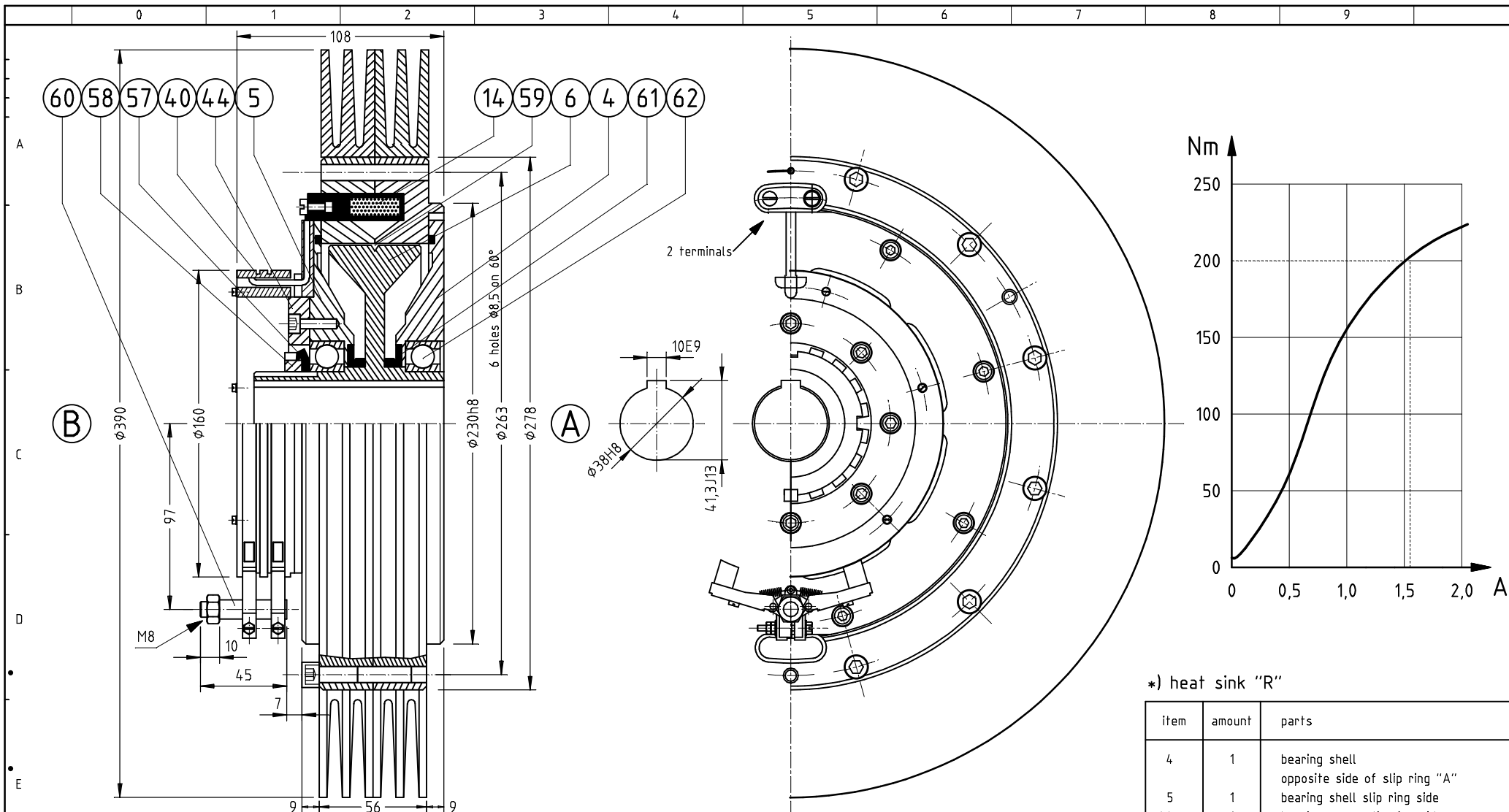
Following assembly, place the clutch/ brake in its fitting position, i.e. with its hollow shaft horizontal.

Push the internal rotor into the hollow shaft revolving at low speed while tapping on the rotor. This distributes the magnetic powder evenly in the air gap.

### Spare parts :

\*) Only available as a complete repair kit

Item	Pcs	Type 2002	Stock-No.
6	1	Internal rotor	330 200 06
14	1	Field coil 24VDC	314 230 10
60	1	Brush holder assy.	314 310 60
40	1	Slip ring	314 210 40
-	4	Carbon brush with connecting tag 10x5x16mm	314 310 62
62	2	Ball bearing	330 200 71 *)
61	2	V-ring seal	
5	1	Bearing shell slip ring side	ME 126 048 00
44	1	Bearing cover slip ring side snug fit for slip ring "B"	ME 330 200 44
4	1	Bearing shell opposite side of slip ring "A"	ME 126 049 00
57	1	Retaining ring for hollow shaft (rotor)	Ex 100 698 00
58	1	Threaded nut for hollow shaft (rotor)	Ex 102 047 00
59	-	Magnetic powder 120 gr/ 50-80µ	330 200 88



In order to avoid magnetic leakage flux and to achieve a good heat removal, non-ferrous metals should be used for installation or attachment of auxiliary components (not for drive shaft).

dimensions and specifications subjekt to change

Applicable for horizontal and vertical shaft position !

rated torque	residual torque	field values			resistance at 20°C	operating times		max. admissible power loss			mass moment of inertia		weight
		maximum values	rated current			t <sub>on</sub> [ms]	t <sub>off</sub> [ms]	0 min <sup>-1</sup>	1000 min <sup>-1</sup>	1500 min <sup>-1</sup>	ext. rotor	int. rotor	
M <sub>max</sub> [Nm]	M <sub>res</sub> [Nm]	P [ W ]	U [ V ]	I <sub>N</sub> [ A ]	R [ Ω ]			P <sub>v</sub> [ W ]	P <sub>v</sub> [ W ]	P <sub>v</sub> [ W ]	J [kgm <sup>2</sup> ]	J [kgm <sup>2</sup> ]	m [ kg ]
200	4,0	55	24	1,55	11	1100	1000	400 700*	800 1900 *	1000 2500 *	198·10 <sup>-3</sup> 330·10 <sup>-3</sup> *	35,2·10 <sup>-3</sup>	25 31 *

\*) heat sink "R"

item	amount	parts
4	1	bearing shell
5	1	opposite side of slip ring "A"
57	1	bearing shell slip ring side
44	1	bearing cover slip ring side
6	1	snug fit for slip ring "B"
14	1	internal rotor
40	1	field coil 24VDC
57	1	slipring
58	1	retaining ring for hollow shaft (rotor)
58	1	threaded nut for hollow shaft (rotor)
59	-	air gap for magnetic powder
60	1	brush holder assy.
61	2	V ring gasket
62	2	ball bearing

