

## Electromagnetic compressor clutches

### Operating manual:

### 73,1 / 73,2 all types (old part numbers KK73.1 / KK73.2)

#### 1. Mounting the clutch on the compressor

The flange (6) and the shaft end (7) of the compressor must be free from dirt. Apply an high temperature approved assembly grease on the shaft end (7) for easy dismounting of the clutch.

**Attention:** We recommend the use of Molykote G-rapid-plus or Molykote P 40.

Slip the coil (1) on the retainer on the compressor flange. Fasten the coil with 4 screws (5) M8 to the compressor (torque: Bitzer 25Nm, Bock 34Nm). Do not buckle the cable. When connecting the coil to the tension source, pay attention to the correct tension value (see surface of plug or embossed at the cable entrance of the coil).

**Attention:** Pay attention to the precise seat of the coil. A non-observance may cause the destruction of the clutch components during operation.

Slip the rotor (2) carefully by hand on the shaft end (7) of the compressor till reaching the stop. The feather key (8) on the shaft end and the groove in the location hole of the rotor must be flush. Never use a hammer for pressing the rotor on.

Fasten the rotor to the shaft end by using a screw (3) M12 (SW 19), a straining washer (3a) and by holding-up with a wrench (SW 41) on the rotor, closing torque 60-80 Nm.

Turn rotor by hand and pay attention to the free run and the generation of noises. In case of grinding or similar noises, dismount the clutch and check it.

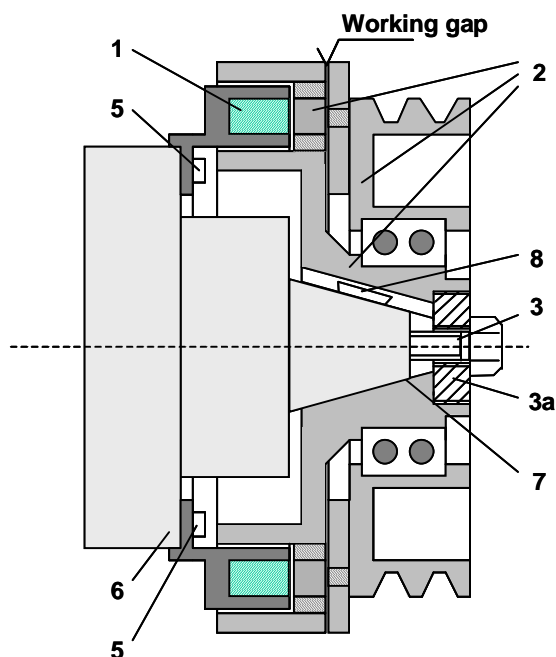
#### 2. Operation of clutch

The clutch does not need any maintenance during operation. During cleaning or other work on the compressor, the clutch must be covered to prevent the penetration of greasy liquids, grease or dirt particles in the working gap of the clutch. No high pressure cleaning.

The belt transmission and the compressor bracket are to be maintained according to part 5 of this operating manual.

#### 3. Dismounting the clutch

Loosen and remove the straining screw (3) and hold it up on the rotor with a wrench (SW 41). Use a screw M16 as pulling-off screw and screw it in the straining washer (3a). Due to the back pressure the rotor (2) detaches from the shaft end (7) of the compressor. Loosen the fastening screws (5) of the coil und pull the



coil (1) off the retainer (6). **Attention:** Do not apply any pulling-off or similar devices to the pulley. This will destroy the clutch components.

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### 4. Specifications of clutches 73,1 / 73,2

Appropriate compressors	Bitzer: 4U-4GFCY, 6U-TFCY Bock: FK(X)40, FK(X)50 max. 775cc, FK(X)4 Dorin: 4T-39 bis -65 Konvekta: KV4, KV5, KV6
Admissible coolants for the air conditioning equipment	R22 and R134a
Working voltage U (VDC) of the coil:	12V/24V (see identification at the cable exit of the coil)
Current consumption I of the coil:	5,17A (12V) / 2,6A (24V) direct current at 20°C
Ohm resistance R of the coil:	2,3Ω (12V) / 9,2Ω (24V) at 20°C
Electric power P of the coil:	62W at 20°C
Protection class of coil:	IP64
Transferable torque M	450Nm at 20°C and nominal working voltage
Clutch operating voltage VDC	10 -14V (12V system)/ 20-32V (24V system)
Guaranteed torque at 20V (10V) and 100°C	400Nm
Operation temperature	Max:-30°C – max. +120°C
Distance between friction partners (working gap)	0.60 – 0.90mm
Property class of straining screw M12	8.8
Fastening torque of straining screw	60 – 80Nm
Fastening torque of the studs for screwed pulley (typ KK73.2)	10Nm (M6) 12Nm (M8)
Maximal length of engagement of the studs for screwed pulley	73,2.A 15mm, 73,2.B 7mm, 73,2.C 7mm, 73,2.G 8mm

Product in conformity with the following EC directive. Tested as per EN 50081-2 and EN 50082-2.



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### 5. Maintenance / Service interval (every 10.000km)

Check of the belt transmission	Belt alignment failure max. $\leq 0,5^\circ$
	Belt pretensioning according to specifications from the belt manufacturer
	Condition and fixation of the deflection pulleys
Check of the compressor bracket	Mounting / suspension of the bracket
	Function of the pressure cylinder / tensioning units
	Mounting / suspension of the diesel engine
Check of the electrical connection	Condition of the connector (plug, contact, sealing...)

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### 6. Trouble shooting, possible cause, solution

Faults	Possible causes	Remedial action
Clutch does not close any more, no voltage	Intermittent contact in the plug	Check plug
	Contact corroded	Clean contacts
	Connection cable defect	Repair cable, replace coil
	Short-circuit in the coil	Replace coil
Clutch does not close spite of current flow	Insufficient voltage supply	Check supply from alternator
	Impurities in the friction gap (foreign matters)	Disassemble clutch, remove foreign matters and assemble it again
Clutch slips when switched on (causes destruction of the clutch by premature wear),	Insufficient voltage supply	Check supply from alternator
	Friction surface polluted by small quantities of greasy or oily substances	Disassemble clutch, clean friction surfaces with alcohol and assemble it again.
	Heat penetration in the clutch due to slipping of V-belts this induces grease lost of the bearing or overheating of the clutch	Disassemble clutch. Clean friction surfaces or replace already damaged components. After reassembly of the clutch, tension V-belts correctly
	Incorrect distance between coil and rotor (coil not in line with rotor), this induces that the switchable torque is reduced	Disassemble clutch, check cone for cleanness. Check the seat of the feather key, check the hub of the coil.
	Clutch worn, working gap to big (app. 1,2mm), friction surfaces are blue	Replace clutch or component
Clutch does not open immediately when switched off, this will cause a premature wear of the clutch), shrieking noise	Voltage supply not completely interrupted	Check circuit element for switching the coil ON/OFF and replace it if necessary (e.g. relais)
Clutch does not open any more, supply voltage is in order	Clutch worn and friction surfaces welded together	Replace clutch
Permanent grinding noise	Coil not correctly centered or not firmly screwed down	Check coil, screw it down, or replace it if damaged. Check clutch for consequential damages, eventually disassemble clutch, check bearing and friction surfaces, replace eventually damaged components.
	Compressor bearings defect, causes friction between coil and rotor.	Replace bearings. Check coil function. Replace it if damaged. If clutch slips, replace whole clutch due to friction damage.
	Friction surface polluted by greasy or oleiferous substances	Disassemble the clutch, replace bearing, if necessary, clean friction Surfaces with alcohol and assemble them again.

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	Blockage of compressor. Clutch slips, both components blue due to friction heating.	Check compressor- Clutch destroyed, replace it.
Untrue run of the pulley, loud running noise	Bearing damaged due to wear or incorrect seat of the feather key	Check whether feather key and groove are flushing. If not, change clutch as the components will be permanently damaged, or disassemble the clutch and replace bearing.

### 7. Spare parts list

Description	Part number	Product features
Bearing set	73,009,0003	Including bearing, Hex. Head screw M12, tension disk, 2x retaining rings, cover disk
Magnetic coil	73,008,1004	24V with connector
	73,008,1003	12V with connector