

1. Design

Several versions of mechanically actuated single-plate turbo-cooled clutches are available:

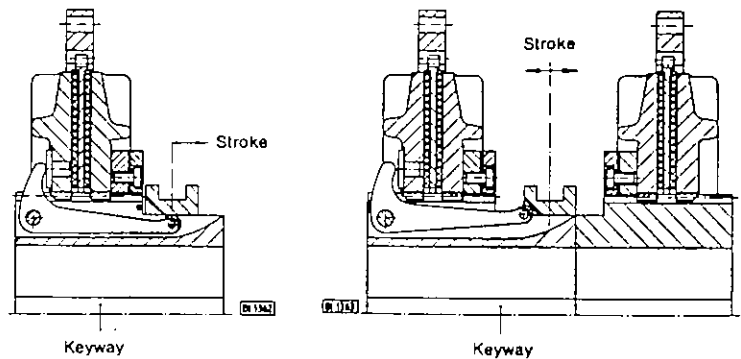
single clutches (available up to size 75) see fig. 1.

Double clutches or clutch-brake combined units (available up to size 75) see fig. 2.

For special applications, a two-plate version of the mechanically actuated clutch can be supplied.

Housings:

Ring housings are supplied as standard, but special housings can be made to your requirements.



Keyway

Keyway

Fig. 1

Fig. 2

2. Operating (fig. 3 refers)

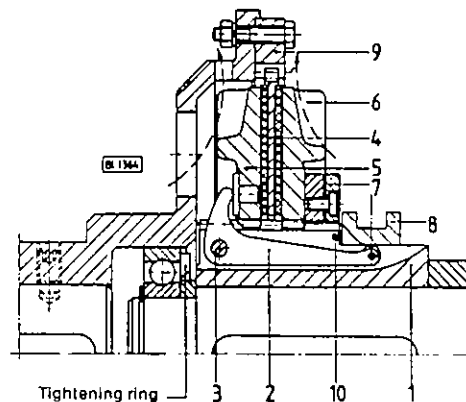
The housing (9) is geared internally to accept the tooth profile of the outer plate (4). The inner plates (5 or 6) move axially on the splined hub (1). Moving the sliding sleeve (8) over the three levers (2) compresses the plate pack and so torque can be transmitted between hub and housing.

A number of radial cooling fins on the inner plates (5/6) give both an increased area for heat transfer and forced convection effect (turbo-cooling), greatly increasing the heat dissipation rate. Thus even on the most severe of applications the clutch temperature is maintained within acceptable limits.

These clutches are intended for dry running only, and must not be lubricated. All bearings must be sealed to prevent contamination of the friction facings.

3. Spare parts

When ordering spare parts, in addition to the part number and description, please give the fabriek number of the clutch, which is to be found stamped on the hub or the housing. To avoid errors on delivery, please ensure that all orders are placed in writing or by telex.



- 1 hub
- 2 lever
- 3 pin
- 4 outer plate
- 5 inner plate with pressure bolts
- 6 inner plate
- 7 adjusting nut
- 8 sliding sleeve
- 9 housing
- 10 washer

Tightening ring

Fig. 3

4. Installation

When incorporating an Ortlinghaus clutch into your system, please observe the following points.

The bearings should be positioned as close to the clutch as possible. If this is not practical, or if the clutch is to run at high speeds, then for split shaft applications the shafts should be stepped into one another (fig. 3). Split shafts must be accurately aligned (fig. 4-6).

The hub must be securely fixed to the shaft, and anchored against axial movement. The housing must also be secured (by a screw or a taper lock bearing) to prevent axial movement, but must rotate freely relative to the hub when the unit is disengaged. The clutch can be actuated by an actuator ring or an actuating fork.

The actuating fork must encircle the sliding sleeve to act at two diametrically opposing points, and must never act on one point only, thus ensuring smooth clutch engagement. The engaged and disengaged positions of the lever must be set by stops or limit switches, to prevent partial clutch engagement which in turn would lead to slipping and overheating of the unit. The actuator ring/actuating fork must not be under load in either the engaged or disengaged positions. When the unit has been installed it should be checked for smooth and correct operation. If the unit fails to engage properly, it must be adjusted (para. 5).

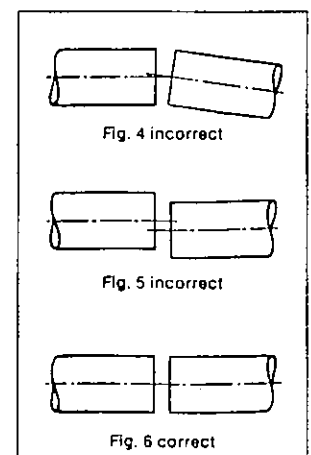


Fig. 4 incorrect

Fig. 5 incorrect

Fig. 6 correct

5. Adjustment

Double Nut (fig. 7/8).

To adjust the clutch, slacken the locking screws in the double nut, and turn the latter in steps of 1/20 to 1/30 rev according to the size of the unit. Check the operation of the unit, then re-tighten the locking screws.

Split nut (fig. 9/10).

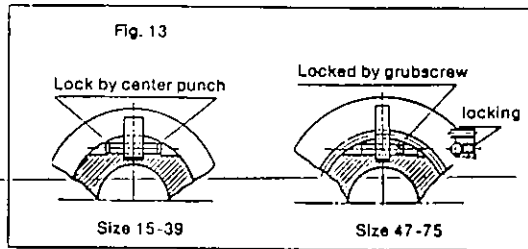
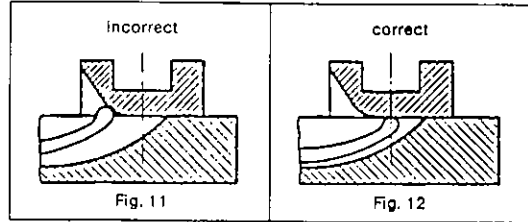
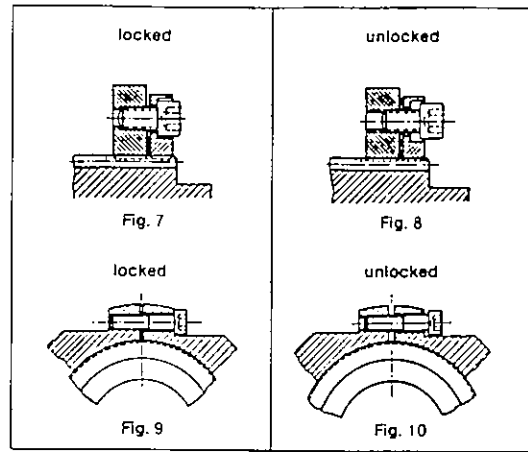
Loosen the locking screw and turn the split nut in steps of 1/20 to 1/30 rev depending on the size of the unit. Check the operation of the unit. Repeat until the correct adjustment is obtained, then re-tighten the locking screw.

Turning the adjusting nut clockwise increases the torque – anti-clockwise decreases the torque. The clutch should be adjusted such that it will transmit rated torque without slipping, but the housing must rotate freely relative to the hub when the unit is disengaged. Care must be taken to ensure that when the unit is engaged, the lever heads are on the flat position of the sliding sleeve and not in the curve. If the lever heads are in the curve, due either to over-adjustment or to a restricted stroke, the unit will not transmit full rated torque, neither is it self engaging. This means that the sliding sleeve will still be under load, and will wear and overheat.

6. Changing the plates

Clutches used on low and medium speed applications are fitted with a split plate to facilitate quick and easy replacement. Detach the housing from its mating part, and move it to one side to allow access to the plates. Split plates can now be removed and changed. From sizes 39 upwards, the friction material can be renewed by removing the old riveted linings and riveting new ones to the base plate. Replace the plates and re-position and secure the housing.

High speed clutches are fitted with solid plates. To replace these plates, remove the lever pins (remove the grub screw first on sizes 47 upwards) and remove the levers and plate pack. Replace the plates and levers and reposition and secure the pins. An alternative method for sizes upwards of 47 is to remove the sliding sleeve from the hub, release and unscrew the adjusting nut and remove the plates. Replace the plates, adjusting nut and sliding sleeve, and re-adjust the clutch.



7. Fault check

Fault	Cause	Cure	
Clutch slips and does not engage fully	clutch is under adjusted	see 5 – adjustment	
	clutch does not engage fully	check stroke (fig. 11/12)	
Clutch drags when idling	clutch is over adjusted	see 5 – adjustment	
	clutch does not disengage fully	check stroke limit	
Clutch overheats when engaged	clutch is under adjusted	see 5 – adjustment	
	clutch does not engage fully	check stroke (fig. 11/12)	
	shafts are misaligned	see figs. 4-6	
Clutch overheats when disengaged	housing	insufficient bearing lubrication	improve lubrication
	sliding sleeve	sliding sleeve is underload	check stroke (fig. 11/12)
		insufficient lubrication at sliding sleeve	improve lubrication
	plates	clutch is over adjusted	see 5 - adjustment