Installation and Operational Instructions for EAS®-synchronous/overload clutch Type 4_ _._03._ EAS®-overload clutch Type 4_ _._14._ (B.4.10.GB)

Please read the Operational Instructions carefully and follow them accordingly.
Ignoring these Instructions may lead to malfunctions or to clutch failure, resulting in damage to other parts.

Contents:

Page 1: - Contents
- Safety Regulations
- Safety and Guideline Signs

Page 2: - Design
- Parts List
- Function
- Re-engagement
  - EAS®-synchronous/overload clutch
  - EAS®-overload clutch
- Drive System Installation

Page 3: - Clutch Removal
- Limit Switch Installation
- Cup Spring Layering
- Torque Adjustment with Standard Adjusting Nut

Page 4: - Adjusting Nut for Radial Adjustment
- Maintenance
- Disposal

Safety Regulations

These Installation and Operational Instructions (I + O) are part of the clutch delivery.
Please keep them handy and near to the clutch at all times.

It is forbidden to start use of this product until the machine or system into which it should be built is operating in accordance with all applicable EC directives.
The EAS®-clutches have been developed in accordance with the latest technology at the time these Installation and Operational Instructions were printed and are, at the point of delivery, operationally safe.
Without a conformity evaluation, this product is not suitable for use in areas where there is a high danger of explosion. This statement is based on the ATEX directive.

Danger!

This warning applies if:

- ❒ the EAS®-clutches are modified.
- ❒ the relevant standards for safety and / or installation conditions are ignored.

User-implemented Protective Measures

- ❒ Cover all moving parts to protect against seizure, dust or foreign body impact.
- ❒ The clutches may not be put into operation without a limit switch unless *mayr*® has been consulted and has agreed otherwise.

To prevent injury or damage, only professionals and specialists should work on the devices, following the relevant standards and directives. Please read the Installation and Operational Instructions carefully before installation and initial operation of the device.

These Safety Regulations are user hints only and may not be complete!

Safety and Guideline Signs

Danger!
Danger of injury to personnel and damage to machines.

Please Observe!
Guidelines on important points.

Please Observe!
According to German notation, decimal points in this document are represented with a comma (e.g. 0,5 instead of 0.5).

Chr. Mayr GmbH + Co. KG
Eichenstraße 1
D-87665 Mauerstetten
Germany

Tel.: 08341 / 804-0
Fax: 08341 / 804-421
http://www.mayr.de
eMail: info@mayr.de

mayr® Antriebstechnik

Installation and Operational Instructions for EAS®-synchronous/overload clutch Type 4_ _._03._ EAS®-overload clutch Type 4_ _._14._ (B.4.10.GB)

Design

The EAS®-overload clutch and the EAS®-synchronous/overload clutch are designed as mechanically disengaging overload clutches according to the roller detent principle.

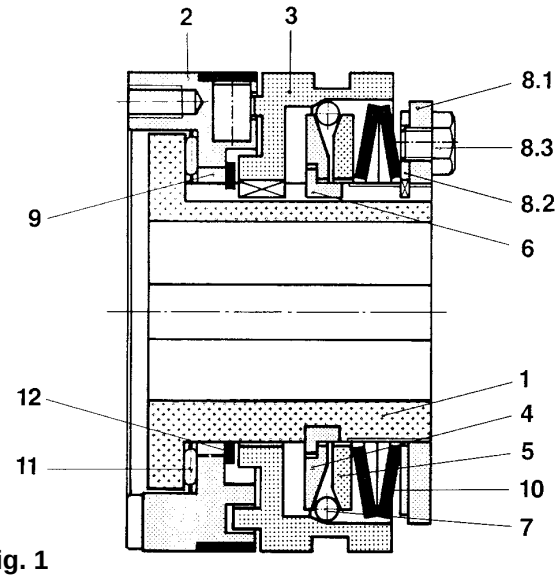

Fig. 1

Parts List

(Only use mayr® original parts)

1	Hub	8.1	Adjusting nut
2	Pressure flange	8.2	Lock washer
3	Control element	8.3	Hexagon head screw
4	Supporting ring	9	Bearing bushing
5	Thrust washer	10	Cup spring
6	Split ring	11	Thrust needle roller
7	Control segment	12	Locking ring

Function

When in operation, the EAS®-clutch transmits the set torque from the hub (1) (input) onto the pressure flange (2) (output).
If the set torque is exceeded (overload), the clutch disengages and remains disengaged. Therefore, after-acting masses can rotate freely.
The input and the output are separated residual torque-free. A limit switch can be used to emit a signal for drive switch-off.

Re-engagement:

EAS®-synchronous/overload clutch:

Re-engagement can only take place within 360°, in the same position as the clutch disengaged. Therefore, the clutch must be turned to the correct angular position before engagement. The re-engagement position can be recognized via the marking bores on the outer diameter of the pressure flange (2) and the control element (3). When in operation, the input and output sides always have the same angular position to one another (synchronous clutch).

EAS®-overload clutch:

In contrast to the EAS®-synchronous/overload clutch, re-engagement can take place in any position.
Slight turning between the control element (3) and the pressure flange (2) may be necessary.
The EAS®-clutch is re-engaged by applying axial pressure onto the control element (3) (Fig. 2).

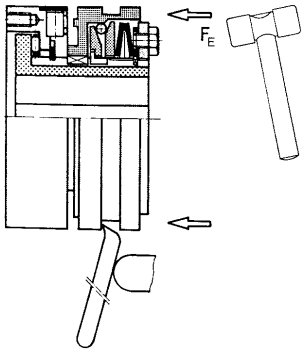

Fig. 2

Re-engagement can be carried out in different ways, depending on the means available, the accessibility of the installation space etc.:

- ❑ Manually, e.g. using a plastic hammer or installation levers (Fig. 2).
- ❑ Using an engagement device. The engagement procedure can also be automated using pneumatic or hydraulic cylinders.

Drive System Installation

On the designs “EAS®-short supported hub” and “EAS®-long projecting hub”, the input elements are installed onto the clutch hub and screwed together with the EAS®-clutch pressure flange (2).
The clutch is then mounted onto the shaft using a suitable mounting device. On the EAS®-flanged version, first mount the input element with the bearing onto the shaft, then mount the clutch onto the shaft and screw it together with the drive element (Fig. 3). In operation which involves impacts and shaking, an additional transverse key should be installed between the drive element and the pressure flange (2) (Fig. 6).

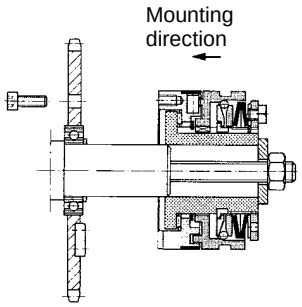

Fig. 3

Chr. Mayr GmbH + Co. KG
Eichenstraße 1
D-87665 Mauerstetten
Germany

Tel.: 08341 / 804-0
Fax: 08341 / 804-421
http://www.mayr.de
eMail: info@mayr.de

mayr® Antriebstechnik

Installation and Operational Instructions for EAS®-synchronous/overload clutch Type 4_ _._03._ EAS®-overload clutch Type 4_ _._14._ (B.4.10.GB)

Please Observe!
Please observe the following for all EAS®-designs:

- ❑ Do not install the clutch by hitting it with a hammer.
- ❑ Install the clutch axially backlash-free, e.g. using a press cover (Fig. 4) (because of the limit switch accuracy).
- ❑ Do not place axial pressure onto the clutch, e.g. using an offset chain hoist or axial bracing during installation of the drive element (Fig. 4).
- ❑ The resulting radial force on the drive element should be at the level of the bearing, in order to prevent the drive element and therefore the pressure flange (2) from tilting. Fig. 5 shows an unpermitted design.

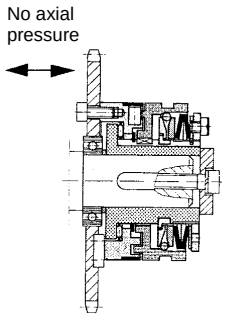

Fig. 4

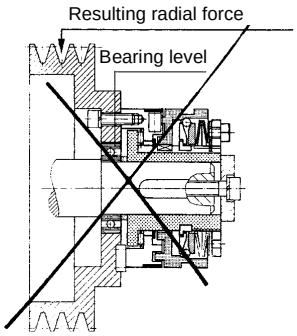

Fig. 5

Clutch Removal

When removing the clutch, either use the threaded holes in the adjusting nut (8.1) or in the pressure flange (2), dependent on the installation position. On the EAS® flange design, the input element must be removed from the pressure flange (2) before the clutch is removed (Fig. 6).

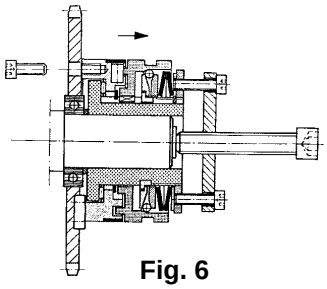

Fig. 6

Limit Switch Installation

The switching direction of the switching lever on the mechanical limit switch is to the **right** when facing the housing cover or the *mayr*®-logo (see Fig. 7).

- ❑ Set the switching distances for the mechanical and contactless limit switch acc. Fig. 7 or Fig. 8.
- ❑ The distance from the control element (3) (see Fig. 10) to the switching point can be finely adjusted using a hexagon head screw SW7 (Figs. 7 and 8).

Mechanical limit switch

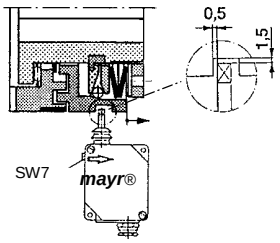

Fig. 7

Contactless limit switch

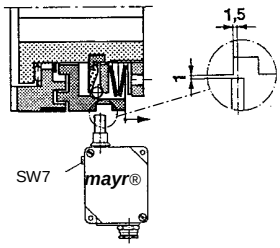

Fig. 8

Cup Spring Layering

The correct cup spring layering is a prerequisite for problem-free clutch function. Only the manufacturer-side installed cup spring layering guarantees that the torques indicated in the Catalogue are reached and that the torque is adjusted problem-free.
The cup springs are layered 2x in single layers on sizes 1 to 5 (Fig. 9).

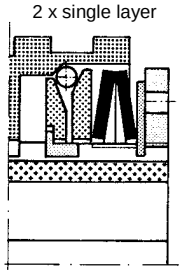

Fig. 9

(On Size 0: Type 4__.4__._ 3 x single layer,
Type 4__.5__._ 3 x single layer,
Type 4__.6__._ 2 x double layer).

Torque Adjustment with Standard Adjusting Nut

Adjustment takes place by turning the adjusting nut. Turning it clockwise produces an increase in torque; turning it anti-clockwise produces a decrease in torque (facing the adjusting nut, as in Fig. 10).

1. Adjust the torque after clutch installation.
2. Grease the threads and the contact surfaces of the adjusting nut (8.1), the lock washer (8.2) and the hub (1).
3. Adjust the adjusting nut (8.1) manually up to the cup spring contact (10).
4. Continue to turn until the 4 notches in the adjusting nut (8.1) and the notches in the control element (3) align (Fig. 10).
5. Continue to turn the adjusting nut (8.1) with a face wrench by the number of graduation lines equalling the required torque (Fig. 10). (Number of graduation lines shown in Adjustment Diagram).
6. Screw in the hexagon head screw (8.3) (the notches on the adjusting nut (8.1) and the control element (3) must be in the same position).

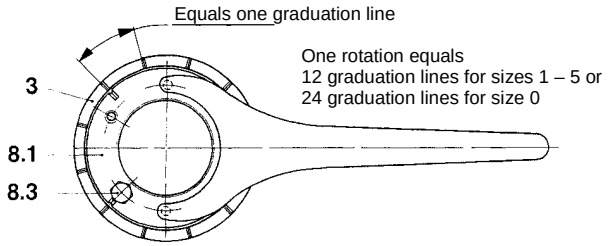

Fig. 10

Torque Re-adjustment:

The overload torque on the clutch is set to e.g. 300 Nm. Now the overload torque must be increased to 350 Nm. If, in accordance with the Torque Adjustment Diagram, an overload torque of 300 Nm is achieved at 36 graduation lines, and 350 Nm is achieved at 46 graduation lines, the adjusting nut (8.1) must be re-adjusted by 10 graduation lines, turning clockwise.
In order to do this, please remove the hexagon head screw (8.3) and adjust the graduation lines using a face wrench (Fig. 10). Finally, the hexagon head screw (8.3) is screwed in again, whereby the 4 notches in the adjusting nut (8.1) and the notches in the control element (3) must be in the same position.

Chr. Mayr GmbH + Co. KG
Eichenstraße 1
D-87665 Mauerstetten
Germany

Tel.: 08341 / 804-0
Fax: 08341 / 804-421
http://www.mayr.de
eMail: info@mayr.de

mayr® Antriebstechnik

Adjusting Nut for Radial Adjustment

On this design, the control element (3) must be shortened. Should the device be retrofitted, please contact the manufacturers. Adjustment takes place using a hook wrench (Fig. 11).

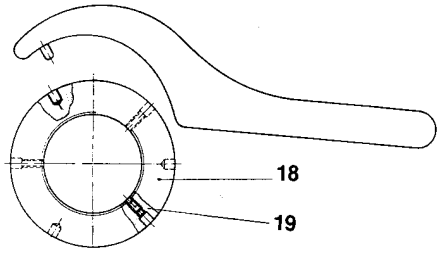

Fig. 11

Torque Adjustment:

1. Remove the set screw (19).
2. Using the Adjustment Table, find dimension "a" according to the required torque.
3. Set dimension "a" by turning the adjusting nut (18) according to Fig. 12.
4. Correct the adjustment if necessary, until a threaded hole for the set screw (19) meets one of the 4 hub keyways.
5. Screw the set screw (19) into the hub keyway.

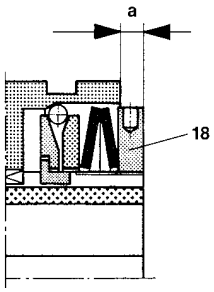

Fig. 12

The hub and the adjusting nut are connected via positive locking with the set screw. Clamping onto the hub thread, as shown in Fig. 13, is not permitted.

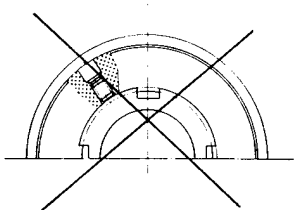

Fig. 13

Maintenance

The EAS®-overload clutch and the EAS®-synchronous/overload clutch are mainly maintenance-free.

However, we recommend a yearly functional inspection of the clutch.

In ambient and operating conditions which do not have a negative effect on clutch aging and wear behaviour, the maintenance intervals can be increased accordingly.

Special maintenance work may be necessary should the device be subject to very dirty, dusty or extreme ambient conditions. These include:

- ❑ Functional inspection
- ❑ Bearing inspection
- ❑ Tightening torques inspection
- ❑ Lubrication of the transmission geometries, rollers, recesses and sealing elements
- ❑ Limit switch functional inspection and switching behaviour

In these conditions, it may be necessary to carry out inspections at much shorter intervals.
We recommend that the maintenance work is carried out at the site of manufacture.

Disposal

Electronic components
(Limit switch):
Products can be disposed of under Code No. 160214 (Mixed Materials) or Components under Code No. 160216; or the objects can be disposed of by a certified waste disposal firm.

All steel components:
Steel scrap (Code No. 160117)

Seals, O-rings, V-seals, elastomers:
Plastics (Code No. 160119)

Chr. Mayr GmbH + Co. KG
Eichenstraße 1
D-87665 Mauerstetten
Germany

Tel.: 08341 / 804-0
Fax: 08341 / 804-421
http://www.mayr.de
eMail: info@mayr.de

mayr® Antriebstechnik