

Translation of the Original Installation and Operational Instructions

**Please read these Installation and Operational Instructions carefully
and follow them accordingly.**

Ignoring these instructions may lead to malfunctions or to clutch failure, resulting in damage to other parts.

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Attachment:

- Adjustment Diagram

Safety and Guideline Signs

CAUTION



Danger of injury to personnel and damage to machines



Please Observe!
Guidelines on important points

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 initial operation of the product until you have ensured that all applicable EU directives and directives for the machine or system, into which the product has been installed, have been fulfilled.
At the time these Installation and Operational Instructions go to print, the EAS® clutches accord with the known technical specifications and are operationally safe at the time of delivery.
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.

CAUTION



- ☐ 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 impacts or foreign body impact.
- ☐ The clutches may not be put into operation without an overload detection provided by the customer unless mayr® has been contacted and has agreed otherwise.

**To prevent injury or damage, only specialist personnel are allowed to work on the components. They must be familiar with the dimensioning, transport, installation, initial operation, maintenance and disposal according to the relevant standards and regulations.
Please read the Installation and Operational Instructions carefully prior to installation and initial operation of the device.**

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

Clutch Illustrations

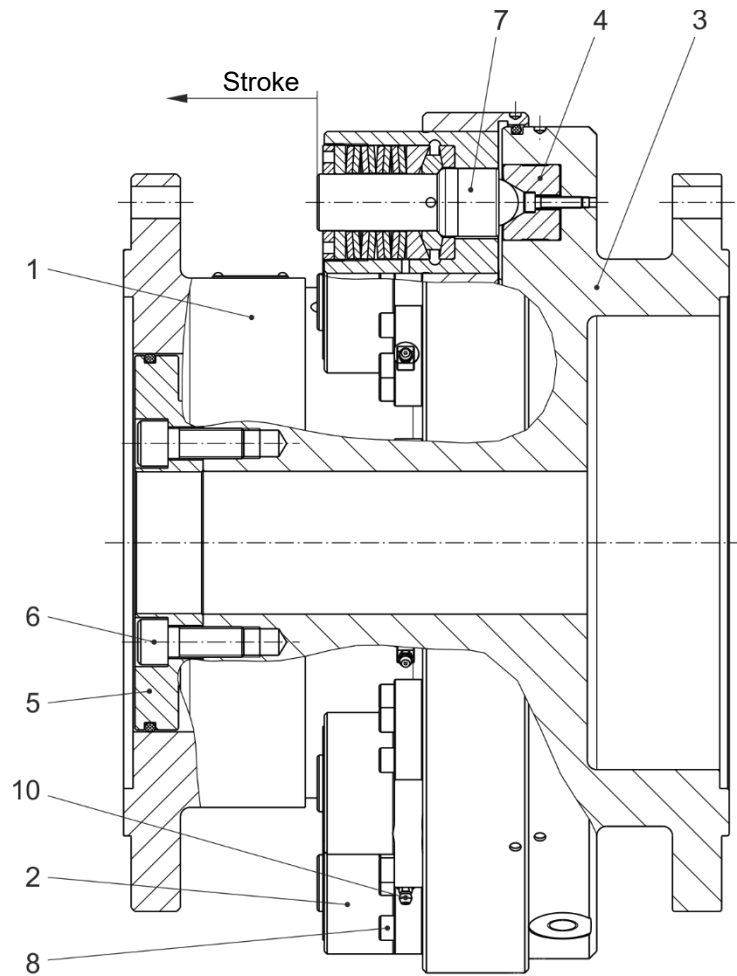


Fig. 1

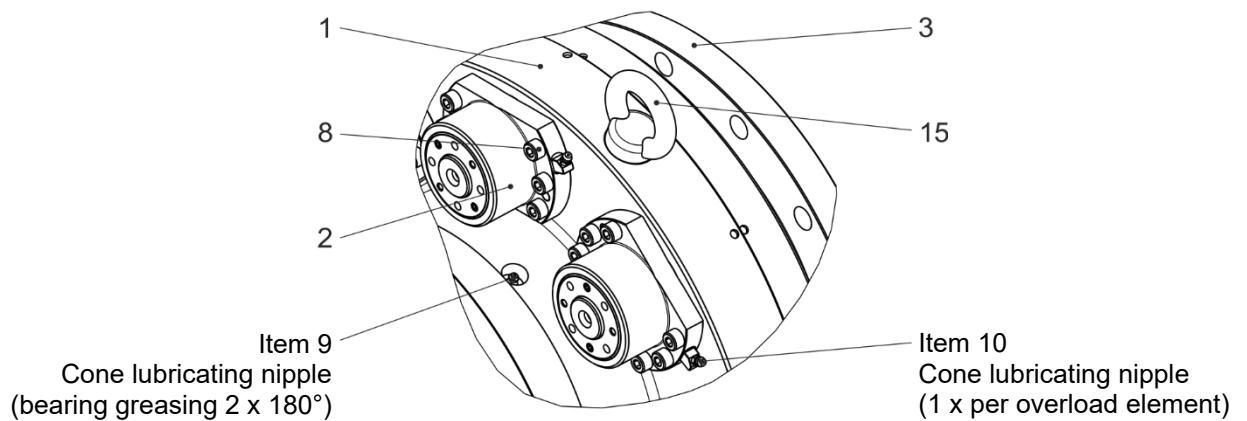


Fig. 2

Installation and Operational Instructions for EAS® HT clutch Type 4060._1400 Sizes 0 – 6

(B.4060.EN)

Table 1: Technical Data

Size	Limit torques for overload M_G [kNm] (number of overload elements per clutch)		
	Type 4060.51400	Type 4060.61400	Type 4060.71400
0	3.75 – 7.5 (3)	5 – 10 (4)	7.5 – 15 (6)
1	6.25 – 12.5 (4)	9.25 – 18.5 (6)	12.5 – 25 (8)
2	10 – 20 (3)	13.25 – 26.5 (4)	20 – 40 (6)
3	18.75 – 37.5 (4)	28.25 – 56.5 (6)	37.5 – 75 (8)
4	35 – 70 (6)	52.5 – 105 (9)	70 – 140 (12)
5	75 – 150 (6)	100 – 200 (8)	125 – 250 (10)
6	132.5 – 265 (6)	175 – 350 (8)	220 – 440 (10)

Table 2: Technical Data

	Size	0	1	2	3	4	5	6
Max. speed	[rpm]	2000	1750	1500	1250	1000	900	750
Bolt stroke on overload	[mm]	6	6	8	8	8	12	12
Tightening torque (Item 6)	[Nm]	44	44	76	182	182	416	630
Tightening torque (Item 8)	[Nm]	9	9	19	19	19	76	76
Weight	[kg]	56	77	142	212	303	627	814
Permitted ambient temperature		-20 °C to +80 °C						

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Design

The EAS® clutch in this delivery is designed as a mechanical disengaging overload clutch according to the ball-detent principle.



The combination of the EAS® HT clutch with other shaft couplings is possible. In this case, please also observe the Installation and Operational Instructions included in the delivery of the shaft coupling.

Function

The EAS® clutch protects the drive line from excessively high, unpermitted torque impacts which can occur due to unintentional blockages.

After overload has taken place, the transmitting mechanism is completely disconnected. Only the bearing friction continues to have an effect.

This means that no re-engagement impacts or metallic sliding movements occur on the clutch torque transmission geometries when using this clutch variant.

When in operation, the set torque is transmitted backlash-free from the flange hub (1) onto the pressure flange (3).

If the set limit torque is exceeded (overload), the clutch disengages.

On disengagement, the bolts (7) in the overload elements (2) perform an axial movement (stroke); a contactless limit switch provided customer-side can be used here for recognition of overload.

The bolts (7) remain disengaged. Input and output are separated residual torque-free.

After-acting masses can slow down freely.

CAUTION



After overload occurrence, the clutch has no load-holding function.



The run-out time after disengagement must be max. 10 minutes.

In order to prepare the clutch for renewed operation, the bolts (7) must be re-engaged manually (see section Re-engagement).

Scope of Delivery / State of Delivery

- ☐ The EAS® clutch is manufacturer-assembled ready for installation.
- ☐ The torque is set manufacturer-side according to the customer's request (please compare the torque stipulated in the order with the torque imprinted/engraved in the identification). Otherwise, the clutch must be adjusted to the required torque by using the Adjustment Diagram (attachment) (see section Torque Adjustment).

Please check the scope of delivery according to the Parts List as well as the state of delivery immediately after receiving the goods.

mayr® will take no responsibility for belated complaints. Please report transport damage immediately to the deliverer. Please report incomplete delivery and obvious defects immediately to the manufacturer.

Clutch Installation (Fig. 1)

Mount the EAS® HT clutch between the input and the output using a suitable device.

CAUTION



Before initial operation of the clutch, please remove the eyebolt (15) (installation aid).

For the screw connection of the flange connection, fit bolts according to DIN 609 with strength 8.8, according to Table 3, must be used. The load-bearing part of the screw shank must be at least 60 % of the flange thickness.

Table 3: Fit bolts DIN 609 / 8.8

Size	Thread	Tightening torque	Bores / Fit tolerance in the flange hub (1) in the pressure flange (3) in the customer flange *
0	M10	47 Nm	Ø 11 C10
1	M12	80 Nm	Ø 13 C10
2	M12	80 Nm	Ø 13 C10
3	M16	195 Nm	Ø 17 C10
4	M16	195 Nm	Ø 17 C10
5	M20	395 Nm	Ø 21 C10
6	M24	675 Nm	Ø 25 C10

* The required positional tolerance of the bores in the customer flange must not exceed Ø0.08 mm relative to the centering diameter of the flange connection.

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(B.4060.EN)

Re-engagement (Figs. 3 and 4)

In order to make the clutch ready for operation again after overload occurrence, the bolts (7) in the overload elements (2) must be re-engaged.

The marking bores on the outer diameters of the flange hub (1) and the pressure flange (3) must align with each other (Fig. 3). Re-engagement takes place by placing axial pressure on the bolt (7) end of each overload element (2).

Depending on the equipment available, the accessibility of the installation point etc., re-engagement can be carried out in the following ways:

- ☐ Manually, using a suitable tool (e.g. pry bar or plastic hammer).
- ☐ By using an engagement mechanism. The engagement procedure can also be automated using pneumatic or hydraulic cylinders.

The level of engagement force depends on the set limit torque for overload and can be roughly calculated using the formula below.

$$F_E = k \times M_G \text{ [kN]}$$

k = Calculation factor [1/m] acc. Table 4

M_G = Set limit torque for overload [kNm]

F_0 = Engagement force per overload element [kN]

$$F_0 = \frac{F_E}{n}$$

n = Number of overload elements

Table 4: Calculation factor k

Size	Calculation factor k [1/m]
0	1.1
1	0.9
2	0.8
3	0.6
4	0.5
5	0.4
6	0.4

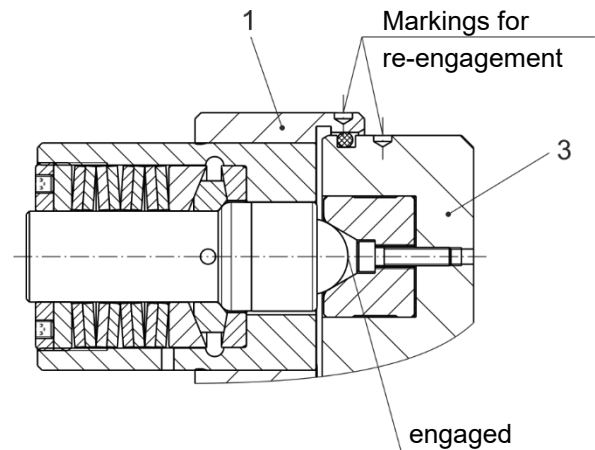


Fig. 3

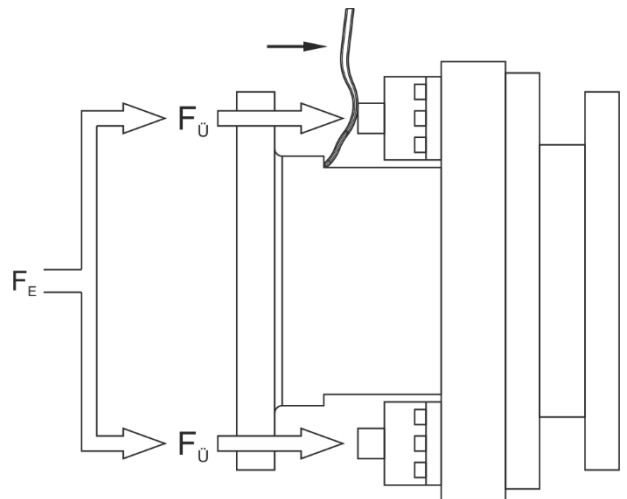


Fig. 4

Installation and Operational Instructions for EAS® HT clutch Type 4060._1400 Sizes 0 – 6

(B.4060.EN)

Torque Adjustment (Figs. 1, 5 and 6)

Set the limit torque M_G for overload on the clutch by changing the cup spring pre-tension on each overload element (2) according to the Adjustment Diagram.

On the clutch Sizes 0 – 4, the adjusting nut (11) is adjusted by turning it in the overload element (2) using a face wrench. On Sizes 5 – 6, adjustment takes place via 4 set screws (14).



During torque adjustment, please ensure that all overload elements (2) on the clutch are evenly adjusted!

Torque Adjustment:

1. Determine the limit torque M_G for overload.
2. Please determine dimension "a" using the Adjustment Diagram included in the clutch delivery. This dimension is equal to the required limit torque M_G .
3. Loosen the locking set screws (12) on Sizes 0 – 4 or the hexagon nuts (13) on the Sizes 5 + 6.
4. Set all overload elements (2) by turning the adjusting nut (11) or by turning the set screws (14) to the dimension "a" (Fig. 6) found in the Adjustment Diagram.
5. Tighten the set screws (12) again in the adjusting nuts (11) or counter the set screws (14) using hexagon nuts (13).



In order to guarantee low-wear clutch operation, it is essential that the clutch torque is set to a sufficiently high service factor (overload torque to operating torque). Our experience has shown that an adjustment factor of 1.5 to 4 gives good results. In case of very high load alternations, high accelerations and irregular operation, please set the adjustment factor higher.

Sizes 0 – 4

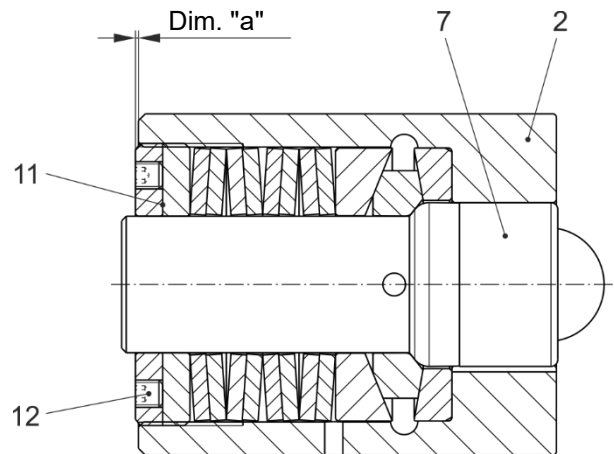


Fig. 5

Sizes 5 + 6

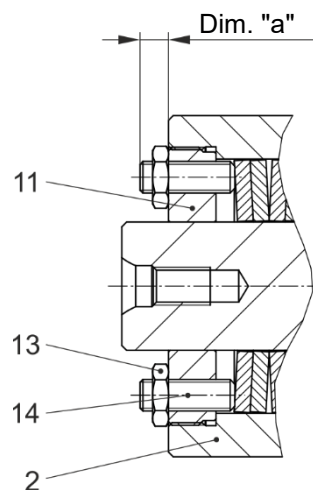


Fig. 6

Installation and Operational Instructions for EAS® HT clutch Type 4060._1400 Sizes 0 – 6

(B.4060.EN)

Maintenance and Maintenance Intervals

- ❑ Re-greasing the overload elements (2) via the cone lubricating nipples (Item 10 / Fig. 2) and the bearings via the cone lubricating nipples (Item 9 / Fig. 2) at least every 20 overload occurrences or 1x per year, with approx. 3 – 4 thrusts of grease (approx. 5 ccm) from a grease gun.
- ❑ Maintenance work, which should be carried out after approx. 2000 operating hours, after 100 disengagements or at the latest after 1 year, includes:
 - ➔ Visual inspection
 - ➔ Functional inspection
 - ➔ Inspection of the shaft-hub connection
 - ➔ Inspection of the screw tightening torques
The specified tightening torques (see Technical Data / page 3) must be maintained.
 - ➔ Set torque inspection
 - ➔ Clutch release inspection
 - ➔ Inspection of the bearing or bearing pre-tension
 - ➔ Re-greasing of the bearings via the cone lubricating nipples (Item 9 / Fig. 2) in the flange hub (1), 2 x 180° offset
 - ➔ Re-greasing of the contact components of the overload elements (2) via the cone lubricating nipples (10) on each overload element (2), see Fig. 2

Clutch re-greasing must only be carried out by specially trained personnel.

For greasing, please use NLGI Class 1.5 grease with a basic oil viscosity of 460 mm²/s at 40 °C, e.g. Mobilith SHC460.

When re-installing the clutch, please secure all screws with Loctite 243 (medium hard).

If large amounts of dirt or dust are present or in extreme ambient conditions, it may well be necessary to carry out inspections at shorter maintenance intervals.

We recommend that maintenance work is carried out at the site of manufacture.

Disposal

Electronic components (Limit switch):

Products which have not been disassembled can be disposed of under Code No. 160214 (mixed materials) or components under Code No. 160216, or can be disposed of by a certified disposal firm.

All steel components:

Steel scrap (Code No. 160117)

Seals, O-rings, V-seals, elastomers:

Plastic (Code No. 160119)