Installation and Operational Instructions for EAS®-HTL housed clutch Sizes 02 - 3

(B.4.15.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:

Safety and Guideline Signs

Danger!
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 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®-HTL 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®-HTL clutches are modified.
- ❒ the relevant standards for safety and / or installation conditions are ignored.
- ❒ Electronic devices cannot be guaranteed fail-safe. Please read and observe the Operational Instructions carefully in order to avoid malfunctions, failures or damage.

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!

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

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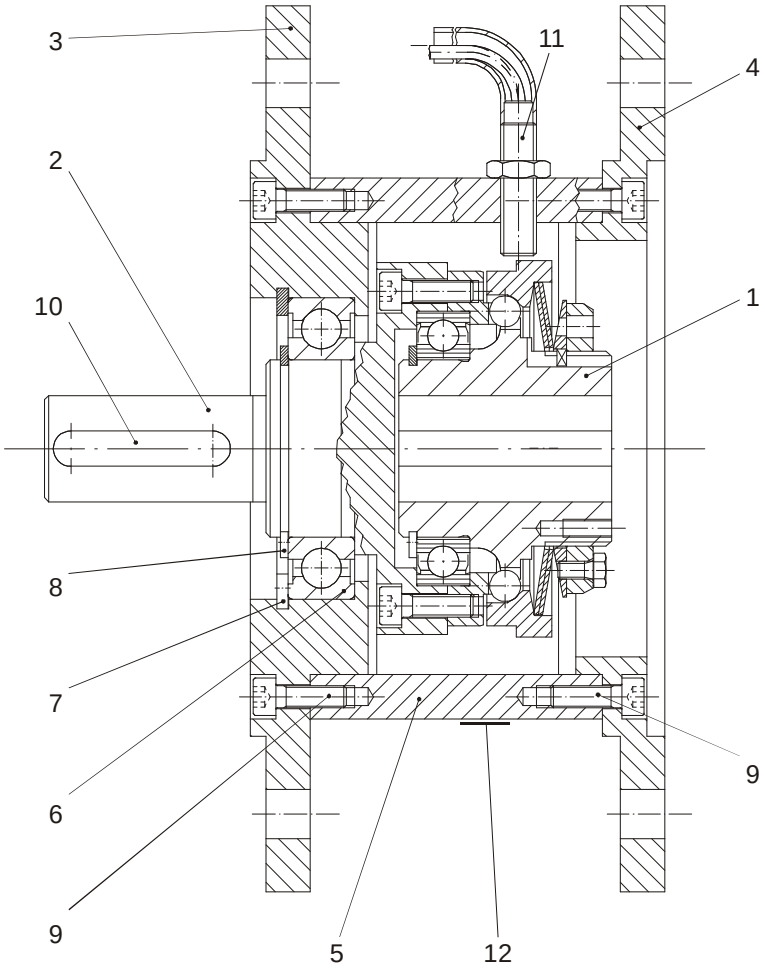

Fig. 1

Parts List
(Only use mayr® original parts)

Item	Name
1	EAS®-clutch assembly
2	Output shaft
3	Output-side flange
4	Input-side flange
5	Distance ring
6	Deep groove ball bearing
7	Locking ring DIN 472
8	Locking ring DIN 471
9	Cap screw
10	Key
11	Contactless limit switch
12	Type tag

Application – Operation – Function

EAS®-HTL clutches are EAS®-overload clutches designed as housed clutches (Protection IP 53) for attachment onto IEC B5 flanges acc. DIN EN 50347, or NEMA flanges.
EAS®-HTL clutches as a unit assembly offer overload protection between the motor and the gearbox.
The connection dimensions are designed according to the motor sizes 32, 71, 80, 90, 100, 160, 180 or 56 C, 143 TC, 184 TC, 215 TC and 256 TC.
If the set limit torque is exceeded (overload), the clutch ratchets. The residual torque is approx. 5 - 15 % (at approx. 1500 rpm).
This means that the EAS®-HTL clutches are only suitable as load-holding devices to a limited extent.
The integrated contactless limit switch emits a signal which can be used to stop the entire system or machine.

State of Delivery

- ❑ EAS®-HTL clutches are manufacturer-assembled.
- ❑ The limit switch is adjusted ready for operation manufacturer-side.
- ❑ The torque is set manufacturer-side according to the customer's stipulations.

Installation Preparations (Customer-side)

- ❑ Bore and shaft surface quality:
  Ra = 1,6 µm acc. DIN EN ISO 4287.
- ❑ Bore tolerance: F7
- ❑ Shaft tolerance: k6.
- ❑ Shape and position tolerances (flange geometry):
  Manufactured for clutch transmission part acc. Fig. 2 on page 3.

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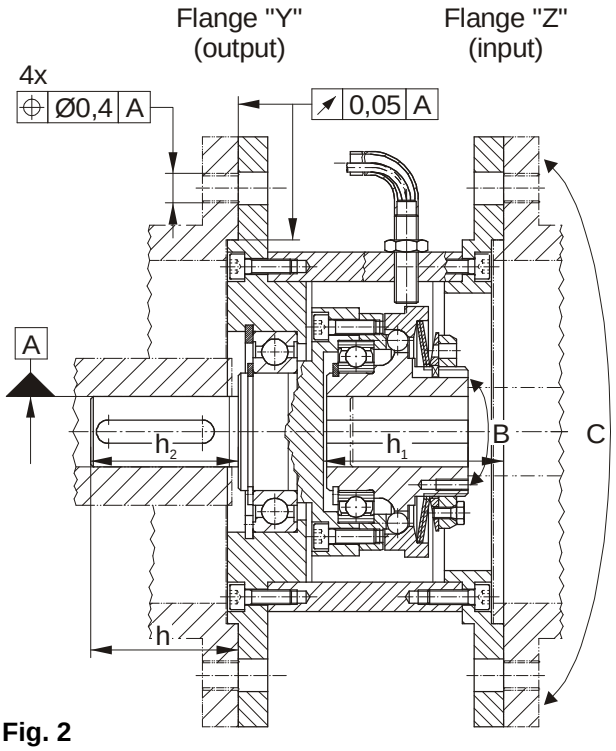

Fig. 2

General Installation Guidelines

- ❑ **Important!**
  EAS®-HTL clutches do not compensate for shaft misalignments.
- ❑ Do not introduce radial / axial forces onto the clutch bearing due to component distortion.
- ❑ Minimum screw quality 8.8 for customer-side attachment.
- ❑ Please observe the max. permitted bearing loads acc. Tables 1 and 2.

The definition of the max. permitted bearing load is based on a nominal lifetime estimation of 32000 h according to the usual specifications provided by the bearing manufacturer.
Possible bearing distortion must be ruled out by measuring the temperature on the housing in the deep groove ball bearing (6) area during initial operation: **ΔT ≤ 40 °C**
The average permanent temperature must be evaluated.

Table 1: Max. permitted bearing loads

Motor size	Axial forces [N]	Radial forces [N]
32	100	200
71	100	200
80	200	400
90	300	600
100	350	700
132	350	700
160	500	1000
180	500	1000
56C	100	200
143TC	200	400
184TC	350	700
215TC	350	700
256TC	350	700

Table 2: Max. permitted bearing loads

Motor size	Breakdown torque B (Fig. 2) referring to the clutch flange [Nm]	Breakdown torque C (Fig. 2) referring to the housing [Nm]
32	2,5	35
71	2,5	76,5
80	5	318
90	10	495
100	20	765
132	30	1568
160	40	1872
180	40	2912
56C	5	318
143TC	5	318
184TC	20	995
215TC	30	995
256TC	30	995

Installation (Figs. 1 and 2)

a) Insert the completely assembled and set clutch (e.g. output-side) into the customer-bore or flange "Y", bring it into the correct position (must align to the fixing thread) and screw it together with the mounting part (flange "Y") using four screws.

Please Observe!
Please observe the respective clutch dimension "h" (Fig. 2) acc. Table 3.

b) Insert flange "Z" (input-side) with the shaft into the clutch hub bore (Item 1) or the flange inner centring (Item 10), turn it to the correct position (must align to the fixing holes) and screw it together with the mounting part (flange "Z") using four cap screws.

Please Observe!
Please observe the maximum shaft length "h_1" acc. Table 3.

Table 3: Dimensions

Motor size	Dimension "h"	Dimension "h2"	Maximum shaft length "h1"
32	23 mm	23 mm	33 mm
71	30 mm	30 mm	36 mm
80	40 mm	40 mm	52 mm
90	50 mm	50 mm	61 mm
100	60 mm	60 mm	73 mm
132	80 mm	80 mm	85 mm
160	110 mm	110 mm	111 mm
180	110 mm	110 mm	111 mm
56C	2,06"	2,06"	2,20"
143TC	2,12"	2,12"	2,20"
184TC	2,87"	2,87"	2,92"
215TC	3,37"	3,37"	3,39"
256TC	4,00"	4,00"	4,02"

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Contactless Limit Switch (Item 11, Fig. 1)

Technical Data

Characteristic Data:

Actual distance S_r:	1,5 mm ± 10 %
Working distance S_a:	0 – 1,2 mm
Switching hysteresis H:	1 – 1,5 % of S_r
Repeatability R:	≤ 5 % of S_r
Repeatability R: (at constant operating voltage and temperature)	± 0,01 mm
Ambient temperature T_a:	-25 °C / +70 °C
Temperature drift of the switch-on point:	≤ 10 % of S_r

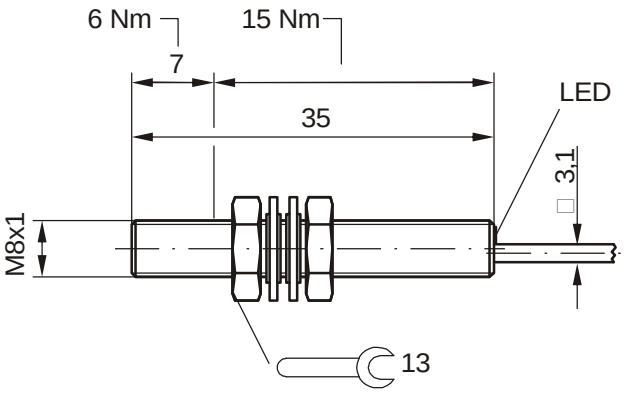
Electrical Data:

Nominal voltage:	24 VDC
Operating voltage U_b:	10 V – 30 V
Incl. residual ripple content SS:	≤ 15 %
Current load capacity I_a:	≤ 200 mA
Permitted load capacity:	≤ 1,0 µF
Output resistance R_a:	1,9+D+LED [kΩ]
Residual current I_r:	≤ 80 mA
Line voltage drop Uσ at I_a max. :	≤ 2,5 V
Switching frequency f:	≤ 1500 Hz
Inherent energy consumption damped / undamped:	≤ 25 mA / ≤ 12 mA

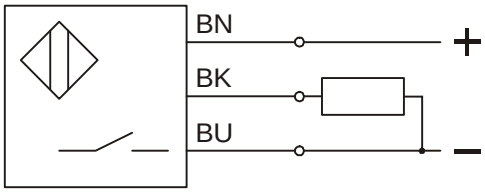
Mechanical Data:

Housing material:	Stainless steel
Connection type:	LIFY-11Y.O 3x0,14 mm²
Protection acc. DIN 40 050:	IP 67
Weight:	65 g

Dimensions:



Wiring Diagram:



Adjustment (Limit Switch):

The EAS®-HTL clutch limit switch (PNP NO contact; Item 11) has been set and countered manufacturer-side.
Re-adjustment may be necessary, as the final clutch position is defined via the customer-side attachment.

This is carried out as follows:

Please Observe!
When screwing the limit switch onto the switching point, please take into account the fact that the backlash on the limit switch will be eliminated if the counter nut turns even slightly.

- ❒ Loosen the counter nut on the limit switch.
- ❒ Screw in the limit switch up to contact (limit switch damped).
- ❒ Unscrew the limit switch until it switches (limit switch undamped).
- ❒ Screw in the limit switch carefully again until it switches, (limit switch is damped again), then screw in for another 90°.
- ❒ Counter the limit switch using the tightening torque.
- ❒ Check the switching function by disengaging the clutch.

Please Observe!
In order to secure limit switch function, please keep it free from oil, grease and other dirt particles.

Temperature Resistance (Limit Switch):

From -25 °C to +70 °C

Torque Adjustment

The torque is set manufacturer-side according to the customer's stipulations.
However, if a different torque adjustment is required customer-side, it can be changed following the attached Installation and Operational Instructions B.4.14.GB for EAS®-Compact clutches or B.4.8.2.1.GB for EAS®-NC clutches (only for Size 02).
For this, the clutch must be removed from the housing.

Maintenance

The EAS®-HTL clutch is mainly maintenance-free. Special maintenance work is necessary should the device be subject to extreme ambient conditions.
In these cases, please contact the manufacturer.

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)

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