

Installation and Operational Instructions for EAS[®]-NC Lastic-Backlash-free clutch Type 454. _ _ . _ Sizes 01 to 3

(B.4.8.3.EN)

Please read these 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 and Guideline Signs
- Safety Regulations
- Page 2:** - Clutch Illustrations (Variants)
- Parts List
- Page 3:** - State of Delivery
- Function
- Temperature Resistance
- Design
- Limit Switch
- Page 4:** - Clutch Installation
- Installation of Both Clutch Halves
- De-installation
- Installation of the Clutch Halves with Keyway
- Joining Both Clutch Halves
- Page 5:** - Permitted Shaft Misalignments
- Clutch Alignment
- Maintenance
- Disposal
- Technical Data

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.

DANGER



- If the EAS[®]-clutches are modified.
- If 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 a limit switch 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!

Installation and Operational Instructions for EAS[®]-NC Lastic-Backlash-free clutch Type 454. _ _ _ . _ Sizes 01 to 3

(B.4.8.3.EN)

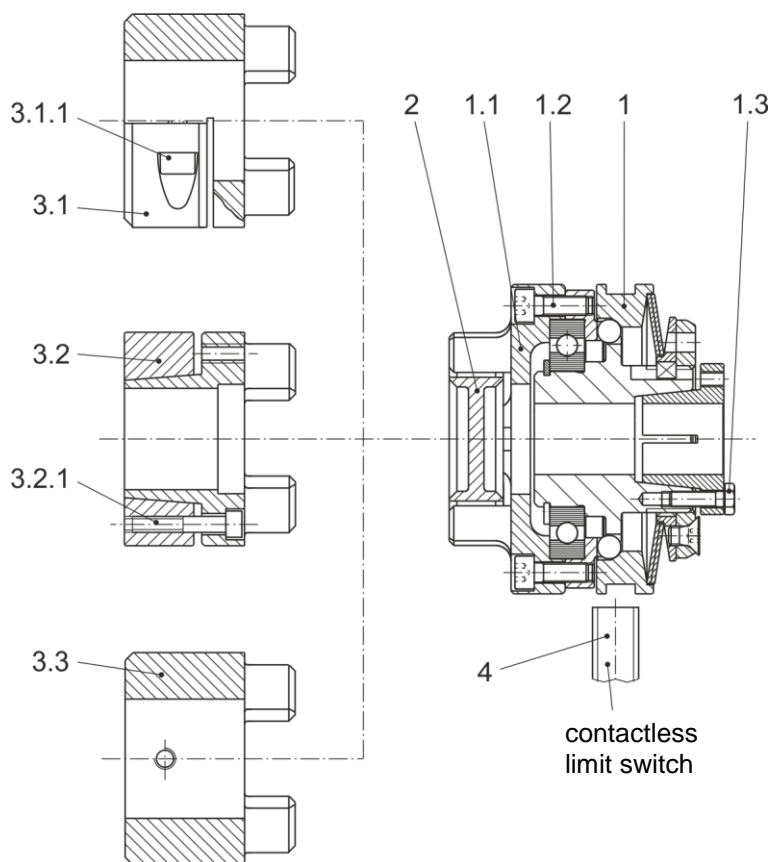


Fig. 1

Parts List (Only use *mayr*[®] original parts)

Item	Name
1	EAS [®] -NC clutch
1.1	Connection flange
1.2	Cap screw
1.3	Tensioning screw - cone bushing
2	Elastomeric element (red 98 Sh A / yellow 92 Sh A)
3.1	ROBA [®] -ES clamping hub
3.1.1	Tensioning screw - clamping hub
3.2	ROBA [®] -ES shrink disk hub
3.2.1	Tensioning screw - shrink disk hub
3.3	ROBA [®] -ES hub with keyway
4	Limit switch



- Please observe the Installation and Operational Instructions B.4.8.2.EN for the EAS[®]-NC clutch Item 1.
- The limit switch Item 4 is not included in the standard scope of delivery.

Installation and Operational Instructions for EAS[®]-NC Lastic-Backlash-free clutch Type 454. _ _ . _ Sizes 01 to 3

(B.4.8.3.EN)

State of Delivery

The clutch (EAS[®]-NC part and flexible part) is completely assembled and set to the torque stipulated in the order, if required.
Please check the state of delivery!

Function

EAS[®]-NC-Lastic-Backlash-free clutches are backlash-free, positive locking, torque-limiting overload clutches in combination with a flexible coupling for the connection of two shafts. While compensating for axial, radial and angular misalignments, the EAS[®]-NC-Lastic-Backlash-free transmits the torque reliably and safely from the input to the output in normal operation. In case of overload, i.e. when the set limit torque is exceeded, the clutch separates the input and the output. The mayr[®] limit switch registers the overload and transmits a signal to switch off the drive or any other control function.

Temperature Resistance

EAS[®]-NC clutches Type 454. can be operated in continuous use up to a temperature of -20 °C/ +80 °C; short-term temperature peaks of up to +120 °C are allowed.

Designs

1. EAS[®]-NC-Lastic-Backlash-free Ratchetting Clutch Type 454. _ _ 0. _

ratchets on overload and emits an electrical signal (via the limit switch) to switch off the drive. The detent torque is substantially lower than the set disengagement torque. Re-engagement takes place automatically.

2. EAS[®]-NC-Lastic-Backlash-free Synchronous Clutch Type 454. _ _ 5. _

emits an electrical signal (via the limit switch) on overload to switch off the drive, releases it mechanically and re-connects the drive elements after one turn (360°). The residual torque in a disengaged condition is substantially lower than the set disengagement torque. Re-engagement takes place automatically at the same point at which it disengaged.

Limit Switch

In case of overload, the mayr[®] limit switch registers the clutch disengagement quickly and precisely and emits a signal to switch off the drive or other control functions.

Installation and Operational Instructions for EAS[®]-NC Lastic-Backlash-free clutch Type 454. _ _ . _ Sizes 01 to 3

(B.4.8.3.EN)

Clutch Installation

EAS[®]-NC clutches include cone bushings, shrink disks, clamping hubs or keyways as part of the standard delivery. The EAS[®]-NC clutch (1) and the ROBA[®]-ES-coupling hub (3) are mounted onto the shafts and secured axially (example Fig. 2). After this, both clutch halves can simply be pushed together.

Please Observe!

Do not put any axial pressure onto the elastomeric element (2). The distance dimension "E" acc. Table 1 and Fig. 2 must be observed!

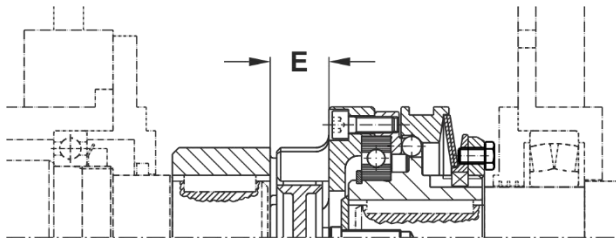


Fig. 2

Installation of Both Clutch Halves

Installation of the clutch halves Type 454. _0/1 _ _

EAS[®]-NC side (1) cone bushing
ROBA[®]-ES-side clamping hub (3.1) or shrink disk hub (3.2)

During installation, please observe the following:

- The shafts must not have a keyway.
- Shaft tolerances: EAS[®]-NC-side up to diameter 38 h6, ROBA[®]-ES-side over diameter 38 h8 or k6.
- Shaft surface: finely turned or ground (Ra = 0.8 µm).
- Shaft material: yield point at least 400 N/mm², e.g. C45 +QT, 42CrMoS4 +QT.
- Degrease or remove conserving layers on the shafts and bores before installing the clutch.
- Greasy or oily bores or shafts do not transmit the torques defined in the catalogue.**
- Mount both shaft ends and bring them into the correct position.

On Type 454. _0 _ _

- Tighten the tensioning screw (3.1.1) on the ROBA[®]-ES-side using a torque wrench to the required torque stated in Table 1.
- Tighten the tensioning screw (1.3) on the EAS[®]-NC-side stepwise (in 3 to max. 6 tightening sequences) and cross-wise evenly using a torque wrench to the required torque stated in Table 1.

On Type 454. _1 _ _

- Tighten the tensioning screws (3.2.1) on the ROBA[®]-ES-side stepwise (in 3 to max. 6 tightening sequences) and cross-wise evenly using a torque wrench to the required torque stated in Table 1.
- Tighten the tensioning screws (1.3) on the EAS[®]-NC-side stepwise (in 3 to max. 6 tightening sequences) and cross-wise evenly using a torque wrench to the required torque stated in Table 1.

De-installation

- Loosen all tensioning screws by several thread turns.
- Screw out the tensioning screws located next to the tapped extracting holes and screw them into the tapped extracting holes up to their limits. Then tighten these screws until the tensioning connections loosen.

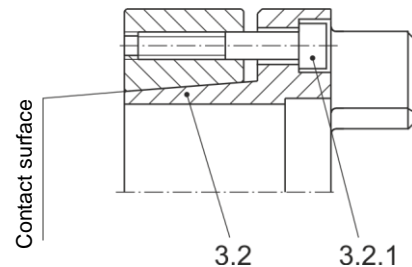


Fig. 3

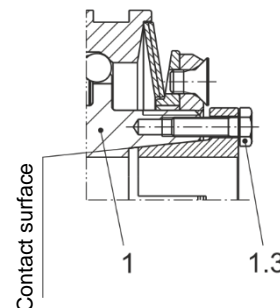


Fig. 4

Installation of the Clutch Halves with Keyway Type 454. _2 _ _

- Mount the clutch halves (1 or 3.3) onto both shaft ends using a suitable device and bring them into the correct position.
- with a press cover and a screw, screwed into the shaft threaded center hole and/or a locking set screw (see Fig. 2).

Joining Both Clutch Halves

Due to the pre-tension on the flexible elastomeric element (2), an axial installation force is required when joining the clutch hubs (1 and 3. _). The force required can be reduced by lightly greasing the elastomeric element.

Attention! Use PU-compatible lubricants (e. g. Vaseline)!

Please Observe!

Do not put any axial pressure onto the elastomeric element (2). The distance dimension "E" acc. Table 1 and Fig. 2 must be observed!

Installation and Operational Instructions for EAS[®]-NC Lastic-Backlash-free clutch Type 454. _ _ _ . _ Sizes 01 to 3

(B.4.8.3.EN)

Permitted Shaft Misalignments

The EAS[®]-NC-Lastic-Backlash-free clutch compensates for angular, axial and radial misalignments (Fig. 5) without losing its backlash-free function. However, the permitted shaft misalignments stated in Table 1 must not simultaneously reach their maximum value. If more than one kind of misalignment takes place simultaneously, they influence each other. This means that the permitted misalignment values are dependent on one another, see Fig. 6. The sum total of the actual misalignments in percent of the maximum value must not exceed 100 %.

The permitted misalignment values stated in Table 1 refer to clutch operation at nominal torque, an ambient temperature of +30 °C and an operating speed of 1500 rpm.

If the clutch is operated in other or more extreme operating conditions, please contact the manufacturers.

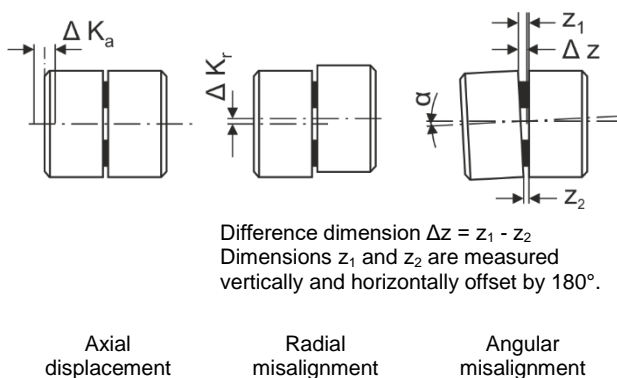


Fig. 5

Clutch Alignment

Exact alignment of the clutch improves the running smoothness of the clutch substantially, reduces the load on the shaft bearings and increases the clutch service lifetime.

We recommend alignment of the clutch using a dial gauge or special laser on drives operating at very high speeds.

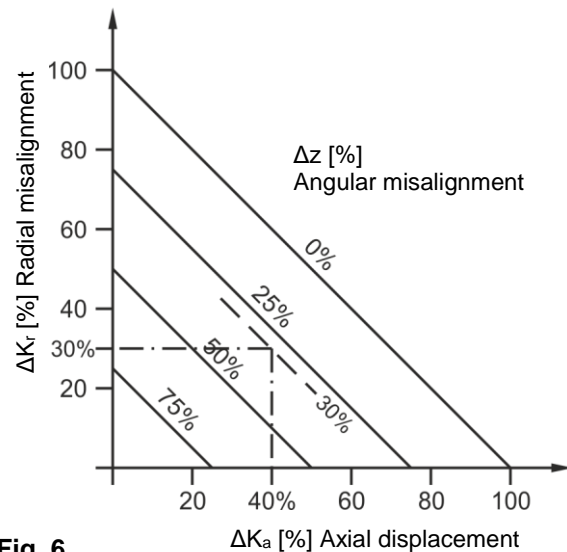


Fig. 6

Maintenance

EAS[®]-NC-Lastic-Backlash-free clutches are largely maintenance-free, only extreme ambient conditions or clutch operating conditions may lead to wear of the elastomeric element (2). It is recommended to carry out a visual inspection within the scope of the inspections carried out at regular intervals.

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.

Steel components:
Steel scrap (Code No. 160117)

All aluminum components:
Non-ferrous metals (Code No. 160118)

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

Table 1: Technical Data

EAS [®] -NC-Lastic-Backlash-free	Size	01	0	1	2	3
Distance Dimension "E"	[mm]	16	18	20	24	26
Axial displacement ΔK_a	[mm]	1.2	1.4	1.5	1.8	2.0
Radial misalignment ΔK_r , 92 Sh A / 98 Sh A	[mm]	0.1 / 0.06	0.14 / 0.1	0.15 / 0.11	0.17 / 0.12	0.19 / 0.14
Angular misalignment α 92 Sh A / 98 Sh A	[°]	1.0 / 0.9	1.0 / 0.9	1.0 / 0.9	1.0 / 0.9	1.0 / 0.9
Angular misalignment Δz 92 Sh A / 98 Sh A	[mm]	0.35 / 0.31	0.39 / 0.35	0.57 / 0.51	0.70 / 0.63	0.83 / 0.75
Tightening torque Tensioning screw - cone bushing (1.3)	[Nm]	3	3	5.5	9.5	9.5
Tightening torque Tensioning screw - clamping hub (3.1.1)	[Nm]	10.5	10.5	25	25	70
Tightening torque Tensioning screw - shrink disk (3.2.1)	[Nm]	3	6	6	10.5	30