

Please read and observe this Operating Instruction carefully.
A possible malfunction or failure of the clutch and any damage may be caused by not observing it.

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Manufacturer's declaration

The product is a component within the scope of the Machinery directive 98/37/EC for installation into machines or equipment.

An initial start-up is prohibited until it has been noticed that the machinery or the equipment into which this product has been incorporated correspond to the EC-guidelines.

Safety regulations

The submitted installation and operating instructions (E+B) is part of the clutch shipment.
Keep the E+B always well accessible near the clutch.



Danger!

- If the EAS[®]-clutches have been modified or reconverted.
- If the relevant standards of the safety or installation conditions are not observed.

Necessary protective measures to be undertaken by the user

- Cover all moving parts for protection against squeezing, seizing, dust deposit and hit of foreign objects.
- The clutches must not be put into operation without limit switch, unless with *mayr*[®] not otherwise agreed.

Only qualified and well-trained specialists should work on the units to avoid any personal injury or damage to machinery under observance of the valid standards and guidelines. The installation and operating instructions are to be read carefully before installation and operation

With these safety notes no claim on completeness is raised!

Attention:

Based on the guideline 94/9/EC (ATEX-guideline) this product is not suitable for the application in potential explosive areas without evaluation of the conformity.

Installation and Operating Instructions for EAS[®]-compact[®] clutch Type 493._ 4 _ .0 Sizes 01 – 1

(B.4.16.GB)

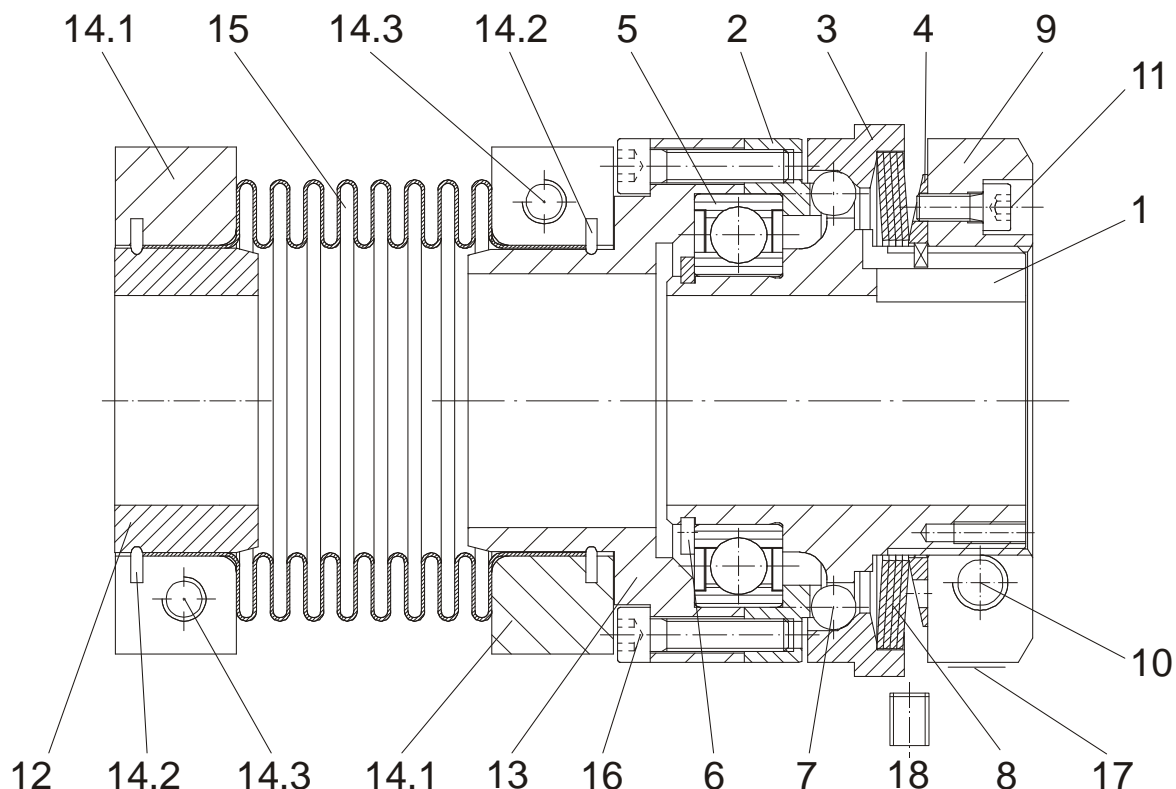


Fig. 1

Part List *(Only mayr[®]-original parts are to be used)*

1	Hub	11	Cap screw
2	Pressure flange	12	Bushing
3	Thrust washer	13	Connecting flange
4	Locking ring	14.1	Clamping ring
5	Deep groove ball bearing	14.2	Spring
6	Locking ring	14.3	Cap screw
7	Steel ball	15	Steel bellows
8	Cup spring	16	Cap screw
9	Clamping nut	17	Type tag
10	Cap screw	18	* Limit switch

* Limit switch doesn't belong to the delivery programme.

Installation and Operating Instructions for EAS[®]-compact[®] clutch Type 493._ 4 _ .0 Sizes 01 – 1 (B.4.16.GB)

Design:

The EAS[®]-compact[®] clutch combined with a torsionally rigid smartflex[®]-steel bellows coupling is a torque limiter in combination with a steel bellows-shaft coupling for connection of two shafts with alignment ability of shaft misalignments. The steel bellows coupling compensates axial, radial and angular shaft misalignments (Table 2, Figs. 6 and 7). The total amount of misalignments must not exceed 100 %.

Supply condition:

The EAS[®]-compact[®] clutch is completely assembled, including the clamping nut (9) for backlash-free shaft fitting and is set to approx. 70 % of the corresponding max. torque, if the customer does not request any other torque adjustment.

The fits for the hub (1) and bushing (12) are H7 as standard. h6 fits are recommended for the shafts. Please contact the factory in case of other fits.

The locking screw (11) is not secured with Loctite in case of a preset clutch. Secure the locking screw (11) with Loctite 243 before an initial start-up of the clutch.

Check supply condition!

Function:

During operation the torque is transmitted from the motor shaft to the output shaft via the EAS[®]-clutch and all-steel bellows coupling. In case of an overload the clutch disengages, the thrust washer (3) moves axially, a limit switch (18) scans this movement and provides a signal to switch off the drive.

The residual torque amounts to approx. 5 – 15 % (with approx. 1500 rpm).

The EAS[®]-compact[®] clutch is consequently only conditionally load holding. The clutch is automatically ready for operation after removing the overload.

Re-engagement:

EAS[®]-compact[®] Ratcheting clutch Type 493._ 40.0 after 15°

EAS[®]-compact[®] Synchronous clutch Type 493._ 45.0 after 360°

Important mounting instructions

- ❑ Bores, shafts, hubs and steel bellows must not be oiled or greased.
- ❑ Cap screws (10 and 14.3) must be unscrewed.
- ❑ Avoid damages to the steel bellows (15) before and during assembly.
- ❑ Clamping ring (14.1) together with spring (14.2) must be engaged in the bushing (12).
- ❑ A smartflex[®]-unit (components 12, 14, 15) may be assembled or disassembled 5 times maximum (otherwise there are unacceptable deformations of the groove in the bushing (12)).
- ❑ Dismantling of the smartflex[®]-unit by simply pressing the bushing (12) out of the clamping ring (14.1) (manually or at a small hand-operated press).
- ❑ Dismantling of the EAS[®]- unit is made after unscrewing the cap screws (10) and (14.3 EAS[®]- side) by simply drawing off the shaft.

Assembly

- ❑ Fix the EAS[®]-compact[®] clutch axially after pushing the clutch onto the shaft which is made via tightening the cap screw (10) in the tightening nut (9) with the prescribed tightening torque (Table 1).
- ❑ Push the other shaft into the smartflex[®]-unit (components 12, 14, 15) until the required position is achieved and fix it axially by tightening the cap screw (14.3) with the prescribed tightening torque (Table 1).

Table 1

Size	01	0	1
Tightening torque Cap screw (10) [Nm]	16	40	79
Tightening torque Cap screw (14.3) [Nm]	17 ±5 %	17 ±5 %	41 ±5 %

Fitting the limit switch (Figs. 2 and 3):

The switch direction located at the housing cover of the mechanical limit switch points in the direction of the clamping nut (9) or in stroke direction of the thrust washer (3). Adjust the switch distances for the mechanical and contactless limit switch acc. to Figs. 2 or 3. The distance of the thrust washer (3) from the switch point can be sensitively adjusted with a hexagon head cap screw SW 7.

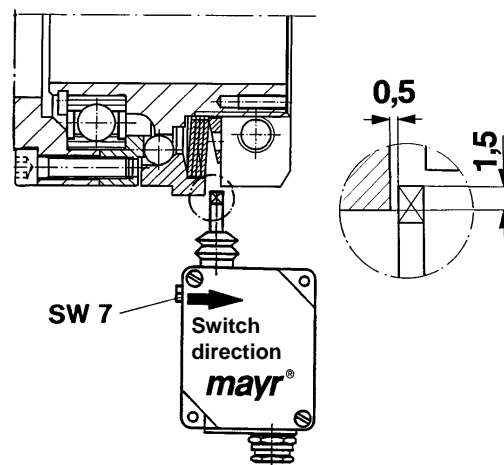


Fig. 2

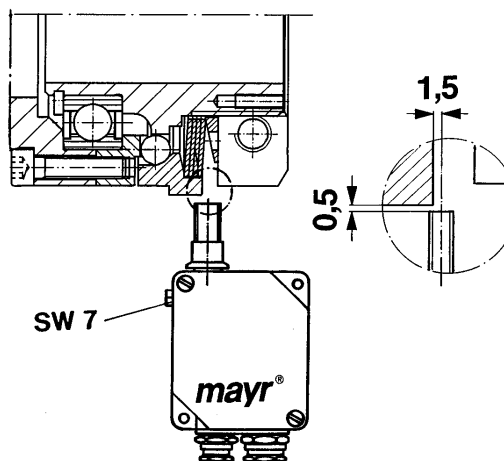


Fig. 3

Installation and Operating Instructions for EAS[®]-compact[®] clutch Type 493._ 4 _ .0 Sizes 01 – 1 (B.4.16.GB)

Torque adjustment (at the factory):

Torque is adjustable by turning the clamping nut (9). The cup springs (8) operate in the negative area of their characteristic (Fig. 5), i. e. tightening of the clamping nut (9) effects a decrease of the spring pressure, or a releasing of the clamping nut (9) an increase of the spring force.

An inspection „spring application in the setting range“ (Fig. 5) can be made via the **dimension „a“** (distance from hub front face (1) until clamping nut front face (9) (Fig. 4).

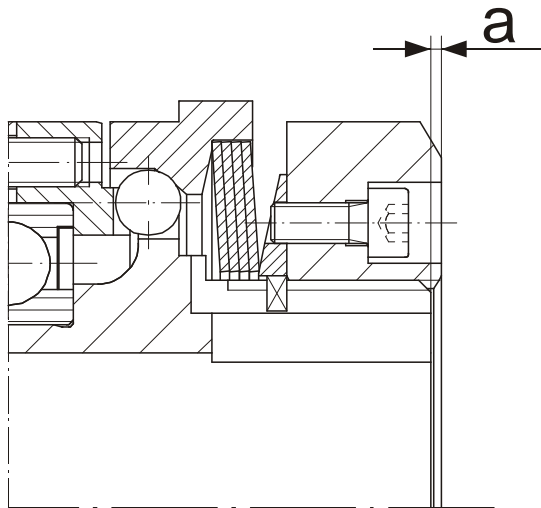


Fig. 4

Adjusting the torque (at the factory) (Figs. 1 and 4):

- Abolish locking piston:**
Unscrew cap screw (11) out of the locking ring (4) until it is flush with the clamping nut (9) at the front face.
- Abolish clamping safety device:**
Release cap screw (10) out of the clamping nut (9) until it can be turned.
- Adjusting the torque:**



Please observe!!
To avoid any unacceptable distortion (twisting between steel bellows and EAS[®]-clutch) and, therefore, a damage of the steel bellows (15), the EAS[®]-clutch must be secured against twisting on the shaft in case of a torque adjustment.

Turn clamping nut (9) to **dimension „a“** (the dimension „a“ can be taken from the attached „adjusting diagram“) with the use of a hook wrench – clockwise or anticlockwise – until the required torque is set.

- Tighten cap screw (10) again.
(Observe tightening torque acc. to Table 1).
- Remove cap screw (11) from the clamping nut (9). Put Loctite 243 glue on it and screw it into the clamping nut (9) or locking ring (4). The bores in the locking ring (4) must remain in the same position as the cap screws (11). If necessary a slight correction must be made.



Please observe
The clutch does not function any more, if the clamping nut (9) is adjusted or the cup springs (8) are distorted external of the service range of the cup spring characteristic (see Fig. 5).

After dismantling the clutch (e. g. due to change of the cup spring or cup spring layer) the clutch must be re-adjusted and calibrated via the **dimension „a“** (see „adjusting diagram“).

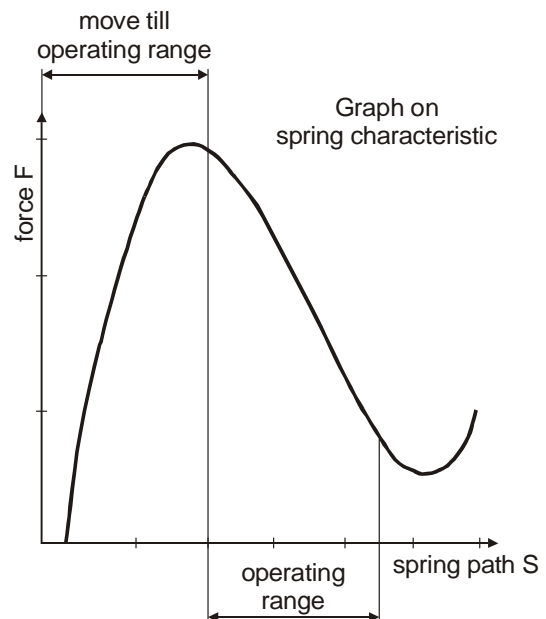


Fig. 5

Installation and Operating Instructions for EAS[®]-compact[®] clutch Type 493._ 4 _ .0 Sizes 01 – 1 (B.4.16.GB)

Permissible shaft misalignments

The smartflex[®]-unit compensates axial, radial and angular shaft misalignments maintaining its backlash-free torque transmission. The permissible shaft misalignments indicated in Table 2 must not simultaneously achieve the max. value. If there are several kinds of simultaneous misalignments they influence each other, i. e. the permissible values of the misalignment depend on each other. The amount of the actual misalignments in percentage of the maximum value must not exceed 100 % (Fig. 7).

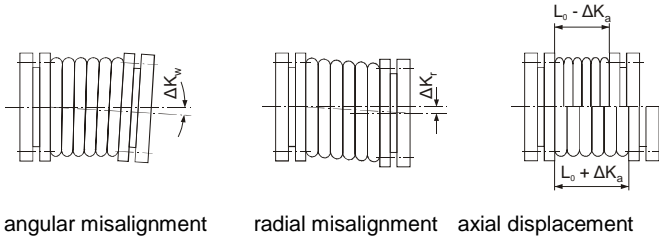


Fig. 6

Table 2

Size	01	0	1
Axial displacement ΔK_a [mm]	$\pm 0,8$	$\pm 0,8$	$\pm 0,8$
Radial misalignment ΔK_w [mm]	0,5	0,5	0,6
Angular misalignment ΔK_r [°]	2	2	2

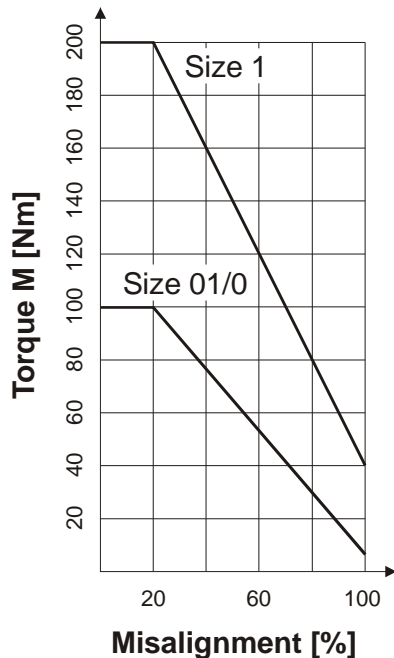


Fig. 7

Alignment of the coupling

An exact alignment of the coupling increases the service life of the coupling considerably and reduces the load for the shaft misalignments. For very high speed drives an alignment of the coupling with a dial gauge is recommended. Normally, however, an alignment of the coupling with a straight-edge in two levels being vertically to each other is sufficient.

Maintenance

The EAS[®]-compact[®] clutch is nearly maintenance-free. Special maintenance work may become necessary only where there is considerable amount of dust and dirt or under extreme ambient conditions. In this case please contact the factory.

Disposal

Electronic components

(Limit switch):

The undismantled products can be brought to the material utilization according to EAK 150106 (mixed materials) or to the disposal via the domestic refuse (Code No. 200301).

All steel components:

scrap (Code No. 160117)

All aluminium components:

Non-ferrous metal (Code No. 160118)

Seals, O-rings, V-Seal, Elastomers:

plastic (Code No. 160119)