

# Installation and operating instructions for alpha - Elastomer couplings ELC, ELP and EL 6



Please carefully and completely read the following installation, operation and maintenance procedures for the alpha elastomer couplings. Failure to comply with these procedures may result in the failure of the coupling. Installation of the couplings should be performed by a qualified technician. alpha couplings may only be used in accordance with the technical data supplied in the catalog.

## General functioning

alpha elastomer couplings are flexible shaft couplings. Backlash free torque transmission is achieved through a pre-tensioned elastomer insert. The coupling compensates for lateral, axial, and angular misalignment. It is also possible to vary the stiffness and dampening effect of the coupling by using inserts with different derometers (hardness).

A number of different hub designs have been created to accommodate numerous applications.

clamping hub connection

tapered clamping ring connection

## Models

ELC	Parts list	ELP	Parts list	EL 6	Parts list
	2 x ELC-Hub 1 x Elastomer insert 2 x Set screw ISO 4762		2 x ELC-Hub 1 x Elastomer insert 2 x Threaded pin DIN EN ISO 4029		2 x Conical clamping ring 2 x Conical clamping hub 1 x Elastomer insert 12 -16 x Set screw ISO 4762

## General Information

alpha couplings are delivered ready for installation. After incoming inspection the coupling should be stored in its original packaging until it is ready for installation. A copy of this installation, operation, and maintenance manual should be kept with the coupling.



### Safety warning

alpha couplings are delivered ready for installation. After incoming inspection the coupling should be stored in its original packaging until it is ready for installation. A copy of this installation, operation, and maintenance manual should be kept with the coupling.

### Manufacturer's declaration

#### According to EG guidelines for machinery 2006/42/EG Appendix IIB

In the sense of machine guidelines (MR) shaft couplings are no machines, but components for the installation in machines. Their putting into operation is subject to the fulfillment of all requirements of machine guidelines by or after integration in the final product.



Indicates important points

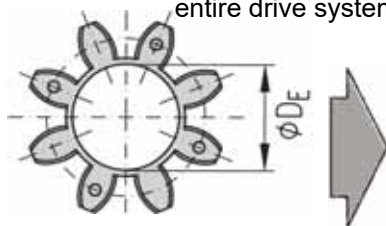


Warning against danger

## Elastomer inserts



The equalizing element of an elastomer coupling is the elastomer insert. It transmits the torque without backlash and vibration. The elastomer insert defines the features of the entire coupling and/or of the entire drive system. The insert is available in 3 different shore values.



Picture 2

Type	Color	Shore hardness	Material	Temperature range	Features
A	red	98 Sh A	TPU	-30°C - +100°C	high damping
B	green	64 Sh D	TPU	-30°C - +120°C	high torsional stiffness
C	yellow	80 Sh A	TPU	-30°C - +100°C	very high damping

Table 1



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alpha

Series		2			5			10			20			60			150			300			450			800		
Design (elastomer ring)		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Nominal torque	$T_{KN}$	2	2.4	0.5	9	12	2	12.5	16	4	17	21	6	60	75	20	160	200	42	325	405	84	530	660	95	950	1100	240
Max. torque	$T_{Kmax}$	4	4.8	1	18	24	4	25	32	6	34	42	12	120	150	35	320	400	85	650	810	170	1060	1350	190	1900	2150	400
Distance	A	7			9			11.5			16			18			20			24			26			31		
Diameter (elastomer ring)	$D_e$	6.2			10.2			14.2			19.2			26.2			29.2			36.2			46.2			60.5		
 lateral angular axial	max. values	0.08	0.06	0.1	0.08	0.06	0.1	0.1	0.08	0.12	0.1	0.08	0.15	0.12	0.1	0.15	0.15	0.12	0.2	0.18	0.14	0.25	0.2	0.18	0.25	0.25	0.2	0.3
		1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2	1	0.8	1.2
		± 1			± 1			± 1			± 2			± 2			± 2			± 2			± 2			± 2		

Table 2



**CAUTION!** The maximum permissible misalignment values in the chart are based on the following parameters: Nominal torque  $T_{KN}$ , rational speed  $n = 1500$  rpm- and a ambient temperature of  $10\text{ }^{\circ}\text{C}$  to  $30\text{ }^{\circ}\text{C}$ .

## Mounting preparation



All mounting surfaces including shafts, bores, keys and key ways, must be clean and free of burrs, nicks and dents. Inspect shaft diameters, coupling bore diameters, key and key-way dimensions and tolerances. All alpha coupling bores are machined to ISO tolerance H7. Clearances between the shaft and hub are maintained to be within 0.01 and 0.05 mm. A light coating of oil is recommended to ease the mounting process and will not affect the clamping force of the hub.



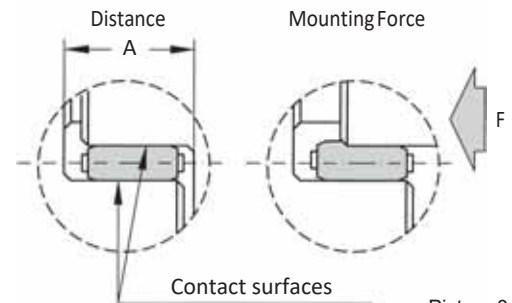
### CAUTION:

Do not use sliding grease, or oils or grease with molybdenum disulfide or other high-pressure additives. To achieve zero backlash the coupling hubs must be pressed together with an axial force (F) compressing the elastomer ring. Cleaning the elastomer ring and hubs and applying a light film of oil will aid in the assembly process. (Picture 3).



### Caution!

Use PU – compatible greases such as e.g. vaseline.



Picture 3

## Screws / Tighthening torque

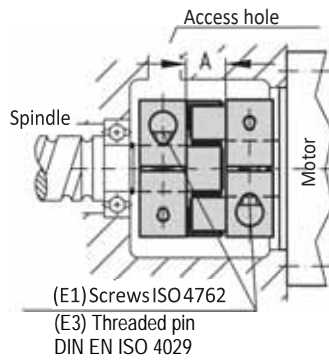
Series		2	5	10	20	60	150	300	450	800
Clamping model ELC	E1	M 2 / 0,6 Nm	M 3 / 2 Nm	M 4 / 4 Nm	M 5 / 8 Nm	M 6 / 15 Nm	M 8 / 35 Nm	M 10 / 70 Nm	M 12 / 120 Nm	M 16 / 290 Nm
Conical clamping hub EL6	E2	–	–	M 3 / 2 Nm	M 4 / 3 Nm	M 5 / 6 Nm	M 5 / 7 Nm	M 6 / 12 Nm	M 8 / 35 Nm	M 10 / 55 Nm

Table 3

	Clamping model ELP						
	$D_1/D_2$	- $\emptyset 10$	$\emptyset 10,1 - 12$	$\emptyset 12,1 - 30$	$\emptyset 30,1 - 60$	$\emptyset 60,1 - 95$	$\emptyset 95,1 - 130$
E3	M3	M4	M5	M8	M10	M12	M16

Table 4

## Mounting ELC / ELP



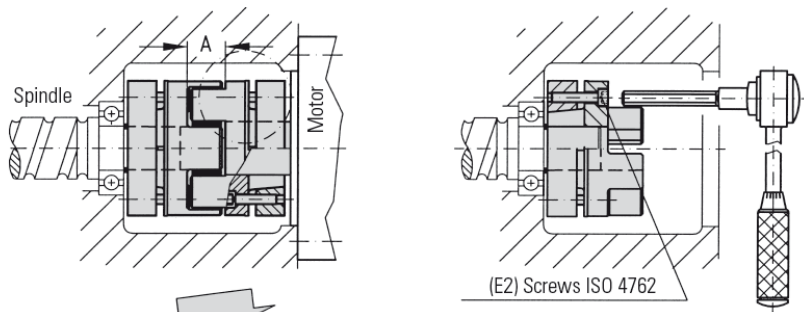
Picture 7

- Slide a coupling half onto the shaft to the correct axial position.
- **Only applies for ELC:** Using a torque wrench, tighten the clamp screw (E1) to the appropriate torque indicated in Table 3.  
**Only applies for ELP:** Tighten the threaded pin E3. For the threaded pin size, see table 4.
- Insert the elastomer ring and press the two coupling halves together. Ensure that the fit length (A) is maintained. (See table 2). Mount the assembled coupling onto the second shaft and tighten the clamp screw (E1) / threaded pin (E3).

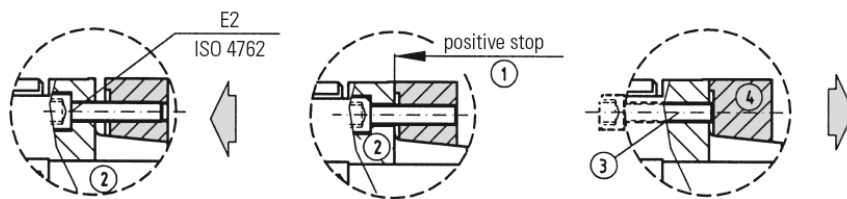
### Dismounting:

Simply loosen the clamp screw (E1) / threaded pin (E3) and remove the coupling. Use an appropriate tool that will not damage the coupling to pry the coupling halves apart.

## Mounting EL 6



Pictures 10



The EL6 uses a clamping ring with axial fastening screws (E). Slide the coupling hub onto the first shaft, using a torque wrench, uniformly tighten the clamping screws (E) using a cross-wise tightening pattern until all the clamping screws are evenly tightened to the correct tightening torque as given in table 3. The clamping ring will come to a positive stop (1). This avoids excessive loading of the clamping ring and improves the TIR (Total Indicator Run-out) of the coupling on the shaft. Insert the elastomer ring. The other coupling hub is mounted onto the second shaft end using the same procedure. Press the two coupling halves together and ensure that the fit length (A) is maintained (See Table 1).

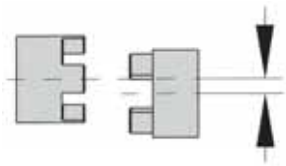
### Dismounting:

Pull the coupling halves apart and remove the axial fastening screws (E2). Threaded holes have been machined into the hub to accept the fastening screws which will now be used to push off the tapered ring (picture 4). **CAUTION:** Prior to re-assembly make sure the fastening screws are in the proper holes to draw in the taper ring.

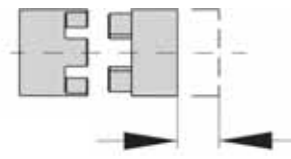


## Maximum shaft misalignment

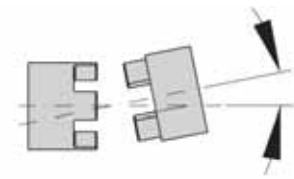
alpha elastomer couplings compensate for lateral, axial, and angular shaft misalignment.



Lateral misalignment



axial misalignment



angular misalignment



In Table 2 you will find the maximum permissible values for the three axis of misalignment. It is important to remain within these limits to ensure long life and proper operation of the coupling. If several misalignment types occur at the same time, it is necessary to reduce the maximum permissible misalignment values. The percentage of the maximum value summing up actual misalignments must not exceed 100 %.



### CAUTION:

Lateral misalignment has a negative effect on the service life of the elastomer. Exact alignment of the coupling considerably increases the service life of the elastomer. By reducing or eliminating lateral misalignment the radial load of the adjacent bearings is eliminated, increasing service life and reducing heat. For drives running at high speed we recommend the alignment of the alpha with a dial indicator (Picture 23/24).

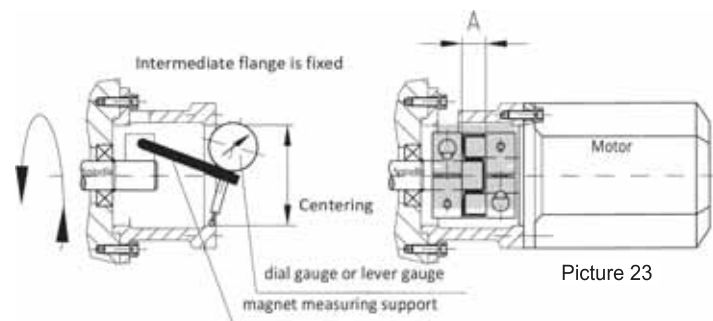
## Mounting with intermediate flange

If an alpha coupling is to be installed within an intermediate flange, it is important that the drive and driven shafts align as precisely as possible. The flange must be precision machined with centering pilots, and the mounting surfaces must be parallel to each other and perpendicular to the shaft axis.



### Caution!

Do check fit length (A) indicated in table 1. The elastomer insert must be axially movable.



Picture 23

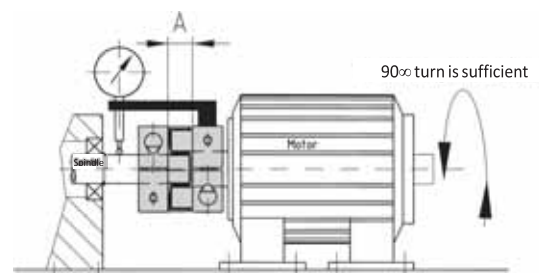
## Open installation

If the alpha coupling is to be mounted between a foot mounted motor and a gearbox for example, care must be taken to ensure that the gearbox and motor shafts are in alignment and the devices are permanently mounted.



### Caution!

Do check the fit length A indicated in table 1. The elastomer insert must be axially movable.



Picture 24

## Maintenance



alpha couplings are maintenance-free as long as they are properly mounted and the maximum misalignment values are not exceeded. Extreme ambient or installed conditions such as very high or low temperatures, acidic or basic solutions, cutting fluids, etc. may cause wear and tear on the elastomer insert. Regular inspection of the insert is recommended. If replacement is required use only alpha original spare parts.

The above-mentioned information is based on our present knowledge and experiences and does not free the user of his own regular checks. A legally binding guarantee is not given even in regard to protection rights of Third parties.

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