

# Mounting instructions for gears and geared motors

according to the machinery directive 2006/42/EC Appendix VI

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## Mounting instructions

These mounting instructions contain information on the successful and safe transport, assembly and startup of the gear and geared motor. In case of questions, please contact the company Reh fuss stating the number of the gearbox.

## Liability for defects

Compliance with these mounting instructions is a precondition for all liability claims.

## Non-warranty clause

Compliance with the mounting instructions is a basic requirement for achieving the stated product and performance characteristics. Reh fuss is not liable for damages to persons or property or financial loss caused by a non-compliance with the mounting instructions. The company Reh fuss is not liable for defects caused by a non-compliance.

	Danger!
	The gear and geared motor may not be used in a hazardous area.

## Intended use

The products are intended to create a rotary motion and were designed for industrial units. The products shall be used according to the technical documentation and nameplate.

The products may be used for no other purpose than intended. Overstressing the drives will be deemed as a use other than intended.

The company Reh fuss is not liable for damages caused by a non-compliance with the mounting instructions, unauthorized modifications of the products or the use of spare parts, which were not manufactured or approved by Reh fuss.

The system may only be started if conformity of the end product with the regulations of the EC machinery directive 2006/42/EC is guaranteed.

## Safety notes

In addition to the safety notes given in the mounting instructions, please follow the applicable national, local and system-specific regulations. Make sure that the products are free from defects (e.g. damages caused by transport or mounting) prior to operation.

	Danger!
	The products may only be mounted or maintained with the drive being switched off. De-energize the drive system and protect it against an unintended switch-on. Lock the feather key(s) prior to switch-on.

	Danger!
	Severe injuries and damages to property may result from an inexperienced installation, any use other than intended, false operation, neglect of safety notes, unauthorized removal of the housing or protective covers as well as modifications of the gearbox.

## Personnel requirements

All work on the machine may be carried out by skilled staff only. In case of failures, such as a higher power input, temperature or vibrations, unusual noises or odors, leakage or activation of the monitoring units, switch off the machine and contact the responsible technical staff.

## Transport, storage and preservation

Check the delivery for transport damages upon arrival. In case of damages, the defect shall be classified and removed, if necessary, prior to commissioning. Ensure not to damage the products during transport, e.g. as a result of collision. Store the products in a closed and dry room at mounting position. Make sure that the products cannot tilt. A direct solar radiation and ultraviolet light are not permissible. Do not store the products in the vicinity of aggressive or corrosive materials. Shocks and vibrations shall be prevented in any case. Remove all transport guards prior to commissioning.

	Danger!
	All means of transport and lifting devices shall be provided with the respective load bearing capacities.

## Assembly

	Caution!
	An improper assembly may cause damages to the product.

Check the drive prior to assembly. The drive may only be mounted if no damages due to the transport or storage and no leaks can be found. Check the shaft sealing rings and end caps for possible damages. In particular cases, a false sense of rotation may cause damages or risks. For this reason, the correct sense of rotation of the gearbox main shaft shall be tested by means of a drive test run in an uncoupled state. The test shall be repeated during normal operation. Remove the anticorrosive, dirt and other residues from the shaft extensions and flange surfaces by means of a commercial solvent. The sealing lips of the shaft sealing rings may not come in contact with the solvent.

	Note
	Make sure that the oil filling and draining plug as well as the bleeding valves are easily accessible.

The substructure for mounting the product shall be even and buckling resistant to exclude a deformation of the gearbox housing or shaft bearing.

	Caution!
	An improper assembly may cause damages to the bearings, gear wheels, housing or shafts. Do not apply any harmful axial forces (e.g. hammer strokes) on the drive during assembly.

The reaction moment shall be supported by means of a flange joint, foot mounting or torque support. In case of a flange joint, the rectangularity of the flange joint surface at the machine may have a maximum deviation of 0.03 mm towards the shaft axis. Check the alignment of the machine shaft and gear shaft. The hollow bore is designed as H7, the shaft extensions with a diameter of up to  $\varnothing 50$  as k6, while the shaft extensions with a diameter of more than  $\varnothing 50$  are designed as m6. The feather keys conform to DIN 6885/1.

	Danger!
	Provide the drive section and drive side with a protection against contact.

Slip on gear mechanisms are plugged on the driving shaft of the respective machine. The machine shaft shall be provided with a centering thread according to DIN 332/2 for the uptake and with a contact shoulder as well a central screw for the axial fixing.



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	Note
	Always use a lubricant when plugging on the drive and transmission elements. Otherwise the joint may not be loosened anymore.

During the operation the special designs of geared motors might get a surface temperature of 110°C. This can result from construction type / operation mode or kind of cooling. In case that a person is nearby the geared motor it is necessary to assemble a suitable touch protection toward the hot surface. Please check norm EN ISO 13732-1.

	Danger!
	Hot surface. Assemble a suitable touch protection.

### Hollow shaft with shrink disc

The shrink discs are delivered ready for installation. If the shrink discs are disassembled prior to mounting, an additional risk of a false assembly is created.

	Caution!
	Do not tighten the clamping screws without the solid shaft being mounted.

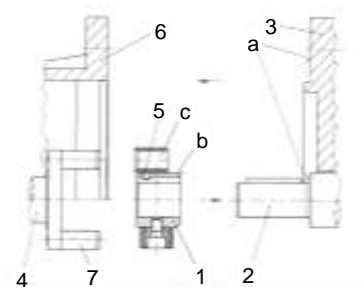
Degrease the hollow shaft and drive shaft. Mount the drive shaft and tighten the shrink disc at the hollow shaft collar as far as it will go. Tighten the clamping screws in a row (not crossing) by means of a torque wrench. The required tightening torque is stated on the shrink disc.

Demount the system by loosening the clamping screws one after the other. Do not remove the clamping screws from the thread. Loose the wheel flanges from the inner ring cone. Remove the drive from the drive shaft.

	Danger!
	Risk of injury due to an improper assembly and disassembly of the shrink disc. Provide the shrink discs and freely rotating shaft extension with a protection against contact to prevent injuries.

### Mounting the IEC coupling

Slide the coupling (1) up the motor shaft (2) until the hub rests against the shaft collar (a). Make sure that the shaft collar (a) and flange facing (a) are at the same level with the highly chamfered side (b) facing the motor flange (3). This guarantees the correct distance between the coupling and the coupling shaft (4). Tighten the



Place the motor on IEC-Adapter (6). Ensure that the socket pins (7) have been correctly inserted into the bore holes (c) of the coupling ring. Fix the motor at the IEC adapter.

	Note
	We recommend using an anti-corrosive on the motor shaft before mounting the coupling hub.

	Caution!
	Excessive overloads may result from the assembly of the motor. The following limits may not be exceeded:

IEC installation size	Max. admissible motor weight in kg
56	25
63/71	30
80/90	50
100/112	80
132	100
160/180	250

	Caution!
	If you wish to paint the gearbox, make sure that the shaft sealing rings, rubber parts, pressure bleeding valves, nameplates, stickers and motor coupling parts cannot come in contact with the paint, lacquer and solvents. Otherwise these parts may be damaged.

### Start-up

Worm gears have a warm-up time of at least 48 hours before their maximum efficiency is reached. If the gear shall be operated into both senses of rotation, the respective warm-up time is applicable for each rotating direction. The maximum efficiency of the worm gears is reached after the warm-up time. All electrical connections provided by the customer shall be in compliance with the applicable regulations.

	Note
	The wiring diagram for all factory-provided motors can be found in the terminal box.

	Danger!
	Prior to starting the machine, make sure that the start-up can not cause any damages to persons. In addition, make sure that all safeguards are installed properly, that the drive is not blocked and that the sense of rotation of the drive is correct. The same shall be checked during a test run of the drive.


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## Inspection / maintenance

	Danger!
	Danger of crushing due to an unintended start-up. Danger of burning due to hot gearbox and hot gear oil.

	Caution!
	All work on the drive may be carried out by qualified and skilled staff only. The use of an inappropriate gear oil may lead to a loss of the lubricant characteristics. Do not mix mineral and synthetic oil.

The gearboxes of the types SM(N) and SSM are lubricated for life. They are maintenance-free if used as intended. For all other gear types, change the oil every 10,000 hours. The amount and type of lubricant to be used is stated on the nameplate. The filling quantity is depending on the mounting position and shall not be modified without authorization by the company Reh fuss.

### Abbreviations:

CLP - Mineral oil

CLP PG – Gear oil on basis of polyglycol

CLP H1 – H1 compliant

### Spare parts

To order spare parts, please state the following:

Item number according to the spare parts list

Type designation according to the nameplate

Gearbox number according to the nameplate

Do not use spare parts supplied by companies other than Reh fuss.

### Disposal

Please follow the applicable legal norms and regulations.