



GTS Planetary Gearboxes

Service Guidelines

DOK-GEAR**-GTS*****-WAR1-EN-P

Title GTS Planetary Gearboxes

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The purpose of this document This document assists

- in mounting the GTS Planetary Gearboxes in their various orientations
- when performing maintenance work
- and when getting in touch with INDRAMAT Customer Service

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1. General Information

1.1. Technical Structure

GTS planetary gearboxes with ratios of $i=4,5,7$ and $i=10$ are single-staged. They have two-stages to accommodate the ratios $i=20$ and $i=50$. The stages in the latter are connected in series. The gear ratios bring about a reduction in speed.

1.2. Reference to Manufacturer

The planetary gearboxes are a product of Alpha Getriebbau GmbH. INDRAMAT sells and implements these as part of their own systems, for which they assume full responsibility.

1.3. Name Plate Specifications

The name plate is mounted to the adapter panel between gear and motor. It outlines the following information which applies to condition at delivery.

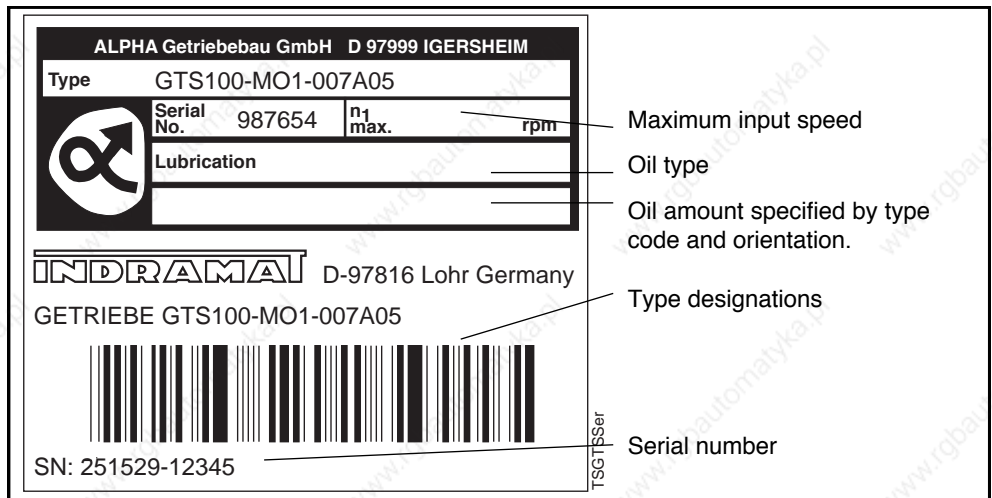


Fig 1.1: Name plate of GTS gearbox

2. Condition at Delivery

Gearbox oil INDRAMAT supplies GTS planetary gearboxes with mounted motors. The gears are filled at the factory with the silicone-free oil Renolin PG 220 manufactured by Fuchs.

Mounting orientation and operating mode INDRAMAT GTS planetary gearboxes are manufactured to accommodate design B5 type mounting, e.g., flange mounting. As per DIN IEC 34-7 (edition dated 12/92), it is possible to operate them in mounting orientations IM B5, IM V1 and IM V3.

The amount of oil depends on the mounting orientation which should be specified at the time of delivery. If the gearboxes are to be operated in an orientation other than the one ordered, then the oil amount in the gears has to be adapted to this new orientation (see Section 4). The oil amounts of the single-staged gears for orientations IM B5 and IM V1 are identical. For single and two staged gears of the types GTS 060 through GTS 140, the amount of oil in orientations IM V1 and IM V3 is identical.

GTS planetary gears are suited for operating mode S5 (intermittent with decel) as per DIN VDE 0530. For further information, please see document entitled "Planetary Gears GTS for Mounting to AC Motors - Project Planning" (DOK-GEAR**-GTS*****-PRJ1-EN-P).

Storage and transportation The output shaft of the gears, the centering diameter and all those surfaces that have contact with other surfaces have been treated, before delivery, with an anti-corrosion agent. This does not protect in the case of open-air storage. The gears can be stored for a maximum of two years at temperatures of 0°C through 30°C. They must be stored dry and in a horizontal position in the original packaging. The gear unit output shaft is additionally covered with a plastic cap to protect it against mechanical damage.

3. Mounting Guidelines

Mounting prerequisites The following work must be performed prior to mounting the output drive elements (pinions, belt pulleys and so on) to the gearbox/motor unit:

- remove the protective cap on the shaft,
- make sure that the gear output shaft and all output drive elements are free of burrs and grease.

Mounting notes When mounting the output drive elements to the gearbox/motor unit please note:

- Mount the gearbox/motor unit so that they are stress-free.
- Output drive elements (e.g., pinions and belt pulleys) should, in no case, be mounted to the drive shaft by hammering.
- A centering thread is located at the end of the drive shaft so that appropriate tools for drawing up and off may be used.
- The “bearing clamp ring” for prestressing the gearbox output shaft should not serve as a buffer for the output drive elements (see Figure 3.1). All axial forces must be fed over the drive shaft into the gearboxes.

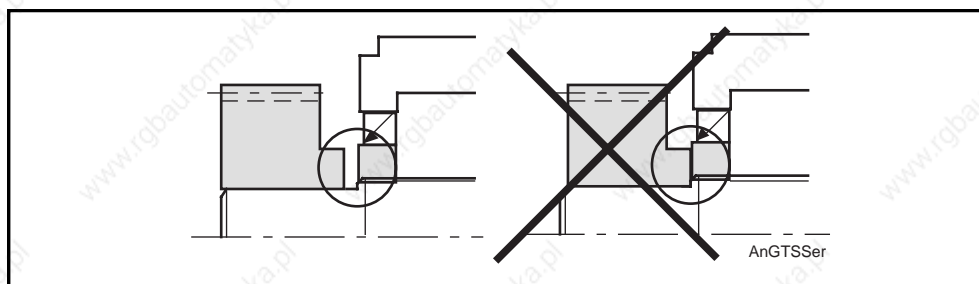


Fig 3.1: Mounting drive elements

- Existing bases on motors should only be used to support the gearbox/motor unit. Stresses resulting from operation should be fed over the gear flange into the machine understructure (see Figure 3.2).

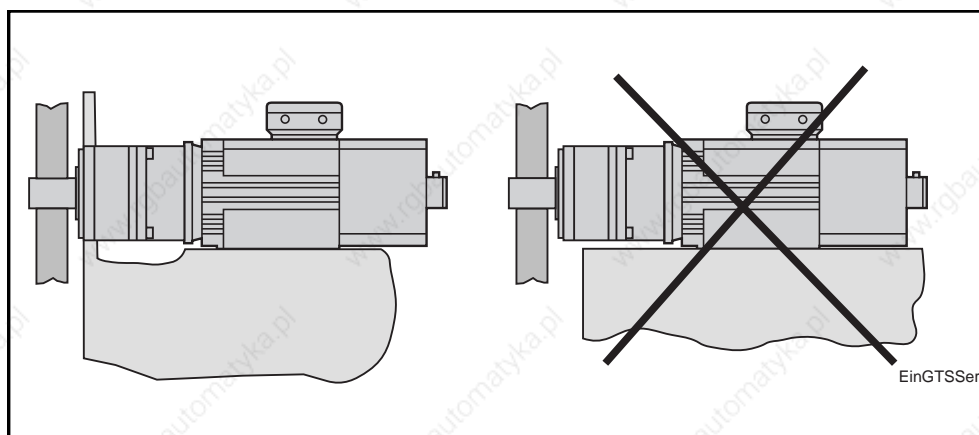


Fig 3.2: Mounting the motor-gear unit

4. Maintenance

4.1. Oil Change Schedule - Types of Oils

GTS planetary gearboxes are lubricated for life. We, nonetheless, recommend an oil change every 10,000 working hours. This also applies in the case where a synthetic oil is used.

Adjusting oil amounts

The oil in the GTS planetary gearboxes is filled at the factory to the required amount and determined by the mounting orientation indicated on the order. In the case of a different application, i.e., mounting, it becomes necessary to adjust the amount of oil to correspond to the desired orientation. See Table 4.2 for the correct oil amount.

The following must be taken into consideration when adjusting the amount of oil:

- When adding oil to accommodate a different orientation, use only Renolin PG 220 manufactured by Fuchs. The GTS planetary gearboxes are filled with this oil at the time of delivery, and it is not advisable to mix different oils. The amount of oil needed is listed in Table 4.2.

Oil change

Note the following when changing the oil:

- Oil change must be performed at working temperature.
- Do not use flushing oils. Use the same oil for flushing as is used for operation.
- Residues of inferior quality oils cause damage!
- Do not mix different oils.
- In the vertical mounting position, it is not possible to change the oil without appropriate tools as, for example, a suction device.

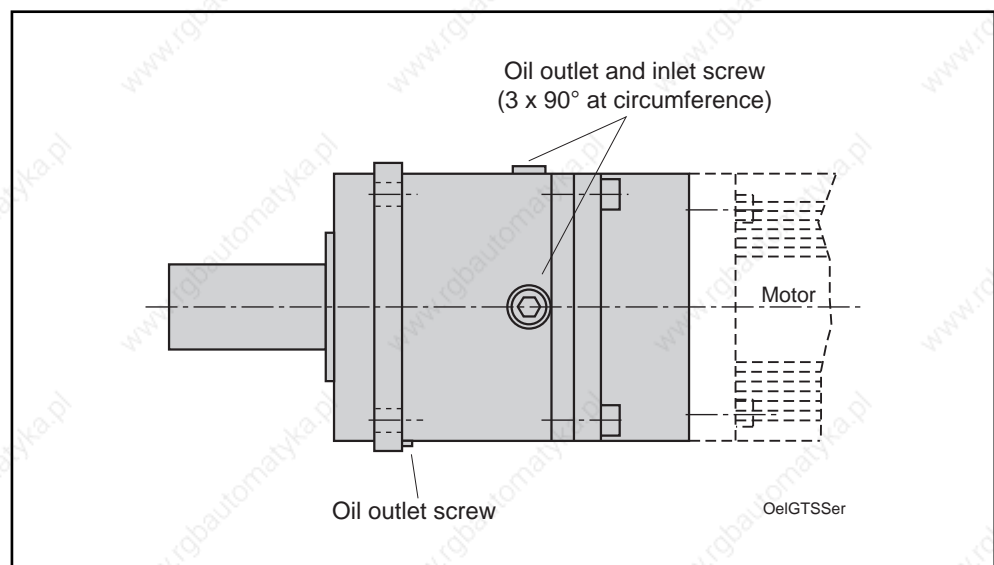


Fig 4.1: Position of the oil inlet and outlet screws on the GTS planetary gearbox

4.2. Types and Amounts of Oils

Types of oils A high-quality synthetic oil with a viscosity of ISO VG 220 is used to lubricate the gearboxes. GTS planetary gearboxes are filled at the factory with the synthetic, silicone-free oil Renolin PG 220 manufactured by Fuchs. The following table lists the product names and manufacturers of additional, alternative oils which can be used for an oil change. Again, it must be emphasized that oils should not be mixed.

Gear Oils	Manufacturer
Degol GS 220	Aral
Energol SG-XP 220	BP
Polydea CLP 220	DEA
Renolin PG 220	Fuchs
Klübersynth GH 6-220 Syntheso HT 220 or D 220 EP	Klüber
Glygoyle 30 or HE 220	Mobil
Syntholube G 220 EP	Molyduval
Optiflex 220	Optimol
Tivela oil WB (PG 220)	Shell
800/220	Tribol

Fig 4.2: Gearbox oils which may be used for an oil change

Oil amounts The amount of oil needed is dependent on the mounting orientation of the gearbox. The gearboxes are filled at the factory to the amount required for the specific orientation indicated in the order.



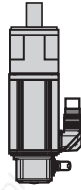
Mounting direction Gearbox type	 IM B5 B5 horizontal			 IM V1 V1 vertical output shaft downward		 IM V3 V3 vertical output shaft up	
	Oil amounts for mounting orientations in cm ³						
	single-stage	two-stage	single-stage	two-stage	single-stage	two-stage	
GTS 060	18	30	18	40	18	40	
GTS 075	35	45	35	65	35	65	
GTS 100	75	120	75	160	75	160	
GTS 140	150	250	150	335	150	335	
GTS 180	450	500	450	800	580	600	

Fig 4.3: Required amounts of gearbox oil

5. Service Guidelines

5.1. Contacting Customer Service

During normal office hours, please contact your local Indramat office. At any other hours, contact Indramat Customer Service at the following Hotline phone number at the times indicated.

Service-Hotline

Phone no. **0049-172- 660 040 6** or **0049-171 - 333 882 6**

Mondays - Fridays	5 p.m. to 11 p.m. CET
Saturdays	8 a.m. to 8 p.m. CET
Sundays and holidays	9 a.m. to 7 p.m. CET

We would request that you make a note of the following information prior to contacting INDRAMAT Customer Service:

- the type codes of the drive controller, motor and gearboxes,
- the problem,
- any fault and diagnostics displays.

This will help ensure a quick and efficient problem-solving.

If a gearbox is to be returned, then please copy and fill out the fault report (see section 5.2). This will facilitate the location of the problem.

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