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Worm Gears 58...

Service Guidelines

DOK-GEAR**-58*WORMGEAR-WAR1-EN-P

274388

Indramat

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The purpose of the documentation

This document supports

- the correct mounting of the plug-in shaft into the output hollow shaft
- maintenance procedures
- how to contact INDRAMAT customer service

Editing sequence

Document designations of previous editions	Status	Comments
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DOK-GEAR**-58*WORM GEAR-WAR1-EN-P	June '97	new layout and new type designations

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1 General Information

1.1 Technical Construction

Worm gears 58... have a single-stage structure. The gear ratio is speed reductive.

1.2 Manufacturer Guidelines

Worm gears 58... are a product of ATLANTA Gear Wheel and Tool Factory, Eugen Seidenspinner GmbH & Co. INDRAMAT sells and uses them and assumes responsibility when doing so.

1.3 Type Plate Information

The type plate is on the gear housing. The type plate contains the following information that apply to the state at delivery.

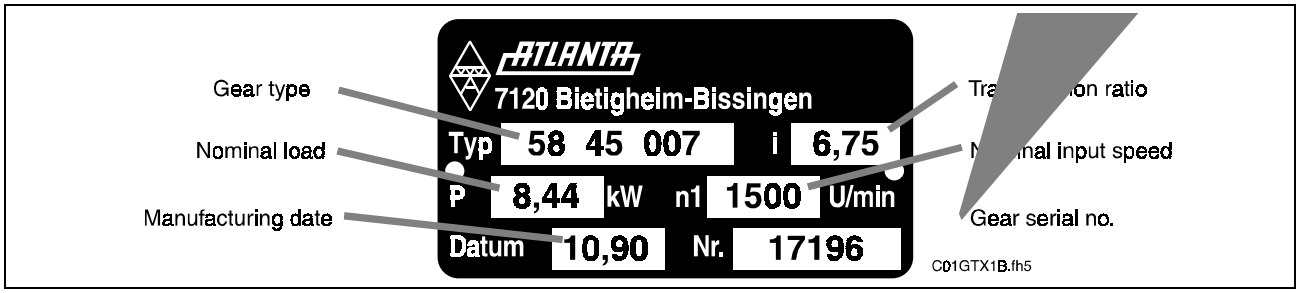

Fig. 1-1: Type plate of worm gear 58...

Notes

2 State at Delivery

Lubricant

INDRAMAT delivers a worm gear 58... completely assembled with motor mounted. The motor is filled at the factory with the synthetic lubricant Tivela WB made by Shell.

Storage and Transportation

The output hollow shaft and the surfaces of the machine have been treated with an anti-corrisive preservative. This protection, however, is not sufficient for outside storage. The gears can be stored for a maximum of two (2) years at a temperature of 0 °C to 30 °C, dry and horizontally in their original packaging.

Notes

3 Mounting Guidelines

Mounting pre-requisites

The following steps must first be conducted before mounting the gear/motor combination to the machine:

- remove lubricant from gear output hollow shaft
- output element (gear wheel, toothed-belt pulley) must be clean and free of burrs
- remove lubricant from all surfaces

Mounting guidelines

To mount the gear/motor unit, there are sufficiently dimensioned mounting and threaded holes to accomodate any mounting orientation. Make sure that the mounting does not result in any tension.

We recommend the following procedure for mounting the output plug-in shaft:

Key connection of the plug-in shaft

- Clean the seat of the hollow shaft and then grease or oil it.
- Insert snap ring into the keyway of the hollow shaft.
- Push pinion shaft with key into the bore hole.
- Insert mounting disc up to the snap ring in the hollow shaft and connect with the pinion plug-in shaft using a screw (tightening torque: for screws M8: 20 Nm, M12: 69 Nm).

Clamp connecton of the plug-in shaft

- Clean seat of the elongated hollow shaft and then lubricate or oil it.
- Push shrink disc onto hollow shaft (do not tighten the screw before hand!).
- Push pinion shaft into the bore hole and bring it into the desired position.
- Align the shrink disc, i.e., make sure both strain washers are plane-parallel by tightening the clamping screw.
- Fix into place by evenly tightening the screws one after the other (the sequence must be maintained, do not jump around). Generally, more than one adjustment runthrough will be necessary before the screws have been tightened with the specified torque (with M5 screws: 4 Nm, with M6 screws: 12 Nm).

Notes

4 Maintenance

4.1 Maintenance Intervals / Oil Types

Maintenance intervals:	5000 to 6000 hours
Synthetic oils used:	**Supplier:**
Tivela WB	Shell
Energol SG-XP 220	BP
Degol GS 220	Aral
Syntheso HT 220	Klüber

Fig. 4-2: Maintenance intervals / types of oil

The oil types listed apply to use at ambient temperatures up to 45 °C.

It is advisable to check the oil at least once a month; several times a week during the first few weeks of operation.

4.2 Oil Amounts

The amount of oil depends on the type of gear. The listed amounts of oil apply to operations at ambient temperatures up to 45 °C.

Gear types	**Oil amounts in liters**
axis distance a = 50 mm; type: 58*3...	0.3
axis distance a = 63 mm; type: 58*4...	0.5
axis distance a = 80 mm; type: 58*5...	1.2
axis distance a = 100 mm; type: 58*6...	2.0

Fig. 4-3: Oil amounts

4.3 Oil Changes

- Oil should be changed when machine is warm.
- Remove the oil filler and drain screw of the gears.
- Empty gears and rinse (use the oil to be filled as the rinsing oil).
- Oil drain screw must be tightened so that oil cannot leak.
- New oil must be filled up to the middle of the gear using the control opening (for amount of oild see above).
- Do not mix different oils (rests of low-quality oils can cause damage!).
- Synthetic oils may not be mixed with mineral oils.
- Make sure the oil fill screw is tightened so that oil cannot leak.

4.4 Adjusting Backlash

The manufacturer sets the gears to the smallest possible backlash. After extended periods of operation, however, backlash increases because of wear (guideline value >15'). By adjusting the excentrically supported hollow output shafts, it is possible to regulate the backlash. The following should be noted:

- Hexagon-socket screw on both sides of the lid must be removed without removing the lid as otherwise oil will leak.
- Turn **both** lids to the next highest number on the housing making sure that both sides are set the same.
- Turn the worm wheel by at least one complete turn thus checking the backlash.
- If necessary, move the lids up one more step.
- Now, tight the nexagon-socket screws evenly and in a crosswise fashion.
- Change the gear/axis distance to the complete operating conditions of the installation by possibly correcting the gear mounting.

5 Service Guidelines

5.1 Contacting Customer Service

During usual European office hours, contact your nearest Indramat branch or office. Outside of the usual hours, Indramat Customer Service can be reached at the following Service Hotline numbers at the hours as listed below:

Service Hotline

Tel. **0172 - 660 040 6** or **0171 - 333 882 6**

Monday - Friday	17 ^{00} - 23 ^{00} CET
Saturday	8 ^{00} - 20 ^{00} CET
Sundays and holidays	9 ^{00} - 19 ^{00} CET

Prior to calling, please make a note of the following and have ready:

- the type designatoins of the controller, motor and gears
- the problem(s)
- any fault and diagnostic displays.

This ensures a quick and rapid elimination of the fault.

If the gears are returned, then please fill out the Fault Report which is part of this document (Section 5.2). This helps locate the problem.

5.2 Fault Report

Completed by:	Co. / Loc.	Date
Gear type:		Serial no.:
Motor type:		Serial no.:
Machine type	Machine no.	Mach. manuf.
Startup date	Down date	Oper. time

State

- ☐ increased noise
- ☐ gear untight
- ☐ gear blocked
- ☐ break in output shaft
- ☐ other

Cause

- ☐ unknown
- ☐ incorrect use
- ☐ collision
- ☐ other

Description of the problem:

Operating conditions:

average on time/day: ☐ hours
cycles/hours ☐
Orientation:

- ☐ horizontal
- ☐ vertical, output shaft down
- ☐ vertical, output shaft up
- ☐ other

Oper. mode: S ☐

- ☐ Reverse operation

Ambient temperature: ☐ ° C
Output situation:

- ☐ pinion for rack-and-pinion rive
- ☐ belt pulley
- ☐ customer output element
- ☐ other

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Fig. 5-1: Fault Report


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