

INSTRUCTIONS USE, INSTALLATION AND MAINTENANCE



1 General safety

The person making any work throughout the lifetime of the gearbox must have precise technical skills, special abilities and experience and recognized industry specific and be provided and be able to use the necessary tools and appropriate protections safety equipment (as D.Lgs.81/08). The lack of these requirements may result in damage to the health and safety of people.

Gearboxes from RUGGERI Mechanical Workshops are intended to be incorporated into equipment or complete systems and it is prohibited to service until the equipment or system in which the component has been incorporated declared in conformity with the Machinery Directive 98 / 37/CEE, as the only gearbox does not fall within the scope of that directive.

Keep the gear unit by performing maintenance operations. A good maintenance ensures optimum performance, longer service life and a constant maintenance of safety requirements.

Any type of operation on the gear unit or connected to it must be at a standstill. Disconnect the motor from the gearbox on the load and ensure that systems are on security against any accidental starting.

In case of abnormal operation (temperature increase, unusual noise, etc..) Immediately stop the machine.

In conformity with Environmental Certification ISO14001, we recommend the following guidelines for the disposal of

- Gearbox components are scrapped; forwarded to authorized centers for metal
- Oils and lubricants drained from the gearbox, dispose of at Exhausted Oil Unions.

2 Identification of product

All gearboxes are cataloged in a special register, which reports the structural characteristics and assigned serial number.

Each gearbox has a nameplate containing the main technical information concerning its operation and construction.



T - Designation of the product

N° - Serial Number

D - Date of construction

R - Reduction ratio

The plate must never be removed and must be kept intact and identifiable.

Use the identification data reported for the same relationship with the manufacturer, for example, required spare parts, information and assistance

3 Responsibility of the manufacturer

The Mechanical Workshops RUGGERI disclaim any responsibility in case of:

- Use of the gearbox violation of local laws on safety and accident
- Faulty installation, lack of or incorrect compliance with the instructions provided in this manual
- Modifications or tampering
- Operations performed by untrained or person

The safety step also depends on scrupulous observance of the instructions given in the manual, and in particular:

- Operate within the limits of use of the gearbox
- Always make a diligent maintenance
- Assign to the stages of inspection and maintenance operators trained for the purpose
- Use only original spare parts

4 Operating conditions

The gearboxes are designed for use in applications that conform to the technical data provided by the Mechanical Workshops RUGGERI (powers applicable, ratio, time left, etc. sales catalogue).

Ambient temperature range: min. -20°C to max. $+40^{\circ}\text{C}$.

5 Scope of delivery

On receipt verify that the goods correspond to the ordered and that no damage has occurred during transportation or challenge them immediately to the shipping company.

Avoid putting in reduced service even if slightly damaged.

6 Storage

The gearboxes need to be maintained in a dry and dust-free, avoid direct contact with the ground and arrange them so that they have a stable base of support.

For prolonged stays before use, it is recommended to cover all machined external surfaces with protective antioxidant and make the total filling of lubricant in the gear unit in order to avoid the formation of condensation which causes the oxidation of the bearings and of all the mechanical parts are not immersed.

This must be respected not only for new gear in stock or for gearboxes fitted on crane deposit but also for machines in the yard. The oil level must be restored when the group will be returned to service.

7 Installation

Before painting it is advisable to protect all machined parts and the outer edge of the seal rings to prevent the paint from drying of rubber compromising the sealing function the same.

Prior to assembly, clean and lubricate the surfaces in order to avoid the risk of scuffing and oxidation, make sure that the components to installation are machined with tolerance h6 and ISO SHAFT HOLE ISO H7.

Place the reducer on the structure having the support surface worked such as to ensure the perfect alignment of all its organs to prevent the occurrence of vibration in the toughest conditions of exercise.

The correct assembly of the drum winder rope on the output shaft must be made without any exaggeration or interference, and then check the diameter of fitting and alignment of the keys. The use of the hammer in this operation is always recommended in order to avoid damage to the shaft or bearings.

To avoid abnormal and harmful loads on shafts and bearings, make sure that the outside of the gearbox is well aligned to the same.

In shaft assembly, the gear unit must be radically and axially supported by the pin of the machine and anchored against rotation only with a constraint axially free and with coupling plays sufficient to enable the small oscillations.



For the assembly of the reducers of rotation, have the reducer on the structure having the centering and the supporting surface worked which must be perfectly perpendicular to the slewing. Make sure there is no interference between the pinion and the turntable and that has the right game.

The anchoring of the electric motor should be performed using as a reference the appropriate surface finish with the plans thoroughly clean. Pulling the pinion shaft of the gearbox input must be without force and without play.

When installing pulleys for belt drives, the shafts must be parallel and the pulleys must be aligned. Do not stretch the drive belt as excessive tension may cause damage to the bearings.

8 Lubrification

Before starting up the gear unit, it must be filled with lubricant to the level corresponding to the assembling position.

For normal applications, the lubricant recommended by us should have properties of viscosity ISO VG 220.

The amount of lubricant in the gearbox is specified to be included in the sale catalog.

For temperatures other than those specified in the operating conditions, contact the technical office of RUGGERI.

9 Maintenance

Maintenance / replacement must be performed by maintenance experts in accordance with the laws governing safety in the workplace.

Replace worn components with original spare parts only, use the lubricant recommended by the manufacturer if a bearing needs to be replaced you should also replace the other bearing supporting the same axis. When working on the gear always replaces the seals and oil.

If the flanges are removed or the cover, re-seal with adhesive on cleaned and degreased mating surfaces. We recommended completely replace the lubricating oil after the first 300 hours providing possibly a thoroughly clean the interior of the gearbox and check the correct menagerie of screws. Then periodically check the oil level, check for and change every 2500 hours or at least once a year.

A good maintenance ensures optimum performance, longer service life and a constant maintenance of safety requirements.

10 Malfuncion

The following information, are intended to help the identification and correction of defects and faults.

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| - Operating temperature too high | → Oil in too much or too |
| | → Oil too old or debris |
| - Abnormal noise during operation | → Gears damaged |
| | → Bearings faulty or defective |
| - Abnormal noise in the fixing | → Fixing screws loose or worn |
| - Oil Leaks | → Oil seal damaged |
| | → Clamping screws loose |
| - The output shaft does not turn
the engine is running | → Completely worn gear |
| | → Break tab drag |