

**MT 171**

**Assembly Exercise: Hydrodynamic Journal Bearing**



The illustration shows the tool box with parts set and tool compartment insert. A fully assembled journal bearing as is assembled from the parts is shown in the foreground.

- \* **Practical exercise based on the assembly of a hydrodynamic journal bearing**
- \* **Comprehensive and well-structured instructional material**

**Technical Description**

Journal bearings execute a sliding motion between a bearing journal and a bearing shell. This sliding motion is usually lubricated by an intermediate medium.

Hydrodynamic journal bearings give wear-free continuous duty for large diameters at high rotational speeds, and are suitable for high and shock-type loading. They are usually constructed as split bearings. Frictional heat occurring during operation must be dissipated by the lubricant.

MT 171 is a horizontally split hydrodynamic pedestal journal bearing. The bearing shells are supported from a face in the spherical bearing housing so as to ensure uniform transfer of any forces that arise to the bottom housing. The journal bearing is lubricated by a loose lubricating ring. Standard commercially available mineral oils can be used.

An auxiliary shaft is supplied together with the bearing as an aid to assembly and functional testing.

The practice kit MT 171 forms part of the GUNT assembly, maintenance and repair practice line designed for training at technical colleges and in company training centres.

A close link between theory and practice is key to the learning content. MT 171 enables a hydrodynamic journal bearing to be assembled and disassembled. Students become familiar with all the components and

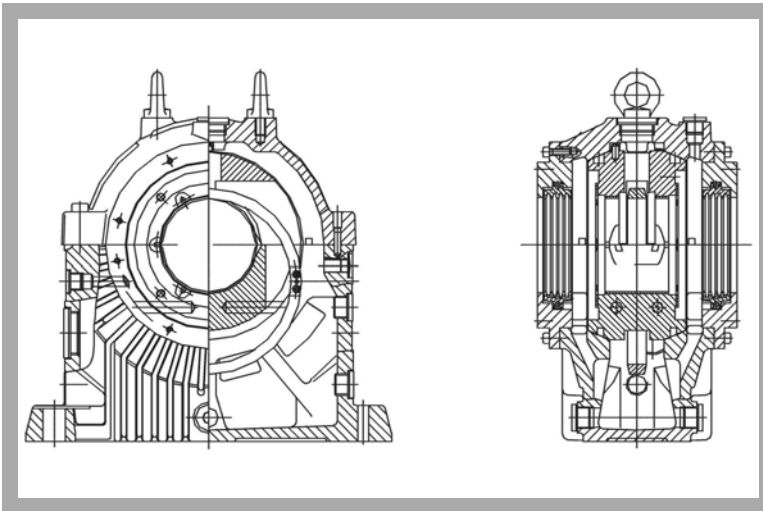
their modes of operation. The parts are clearly laid out and well protected in a tool box. The accompanying material details the individual steps involved in assembly, and provides additional information on the areas of application, mode of operation and design of the journal bearing.

**Learning Objectives / Experiments**

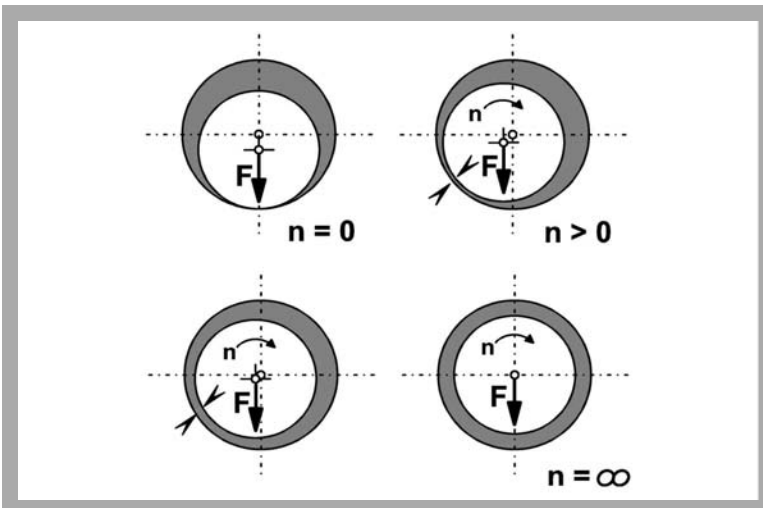
- Design and function of a hydrodynamic journal bearing
- Principles of lubrication and sealing elements
- Assembly and disassembly, including for the purposes of maintenance and repair
- Reading and understanding engineering drawings and operating instructions

## MT 171

## Assembly Exercise: Hydrodynamic Journal Bearing



Sectional drawing of a hydrodynamic journal bearing



Operation of a hydrodynamic journal bearing: build-up of a load-bearing oil film at increasing speed

### Specification

- [1] Learning concept for assembly exercises on an upright hydrodynamic journal bearing
- [2] Journal bearing to DIN 31690
- [3] Stainless steel drive shaft
- [4] Oil lubrication
- [5] Floating edge seal to seal the face of the shaft
- [6] Sealing of contact faces of housing halves with non-setting sealing compound
- [7] Complete assembly tool kit
- [8] Journal bearing parts and tools housed in a sheet-steel tool box
- [9] The kit forms part of the GUNT assembly, maintenance and repair practice line

### Technical Data

Bearing bore:  $D=80\text{mm}$   
Drive shaft: nominal diameter:  $D=80\text{mm}$

### Materials

- bearing housing: grey cast iron
- bearing shells: steel supports, coated with white metal
- seal: ultra-heat-resistant, fibre-reinforced plastic
- shaft: stainless steel

### Dimensions and Weight

$l \times w \times h$ :  $690 \times 360 \times 312 \text{ mm}$  (box)  
Weight: approx. 60 kg

### Scope of Delivery

- 1 complete set of hydrodynamic journal bearing parts
- 1 drive shaft
- 1 set of tools, consisting of:
  - 1 set of Allen keys, size 3, 5, 10, 22
  - 1 hammer
  - 1 punch, 4mm
- 1 tube of non-setting sealing compound
- 1 rectangular box for small parts
- 1 sheet-steel tool box with foam inlay
- 1 set of instructional material, consisting of:
  - technical description of system, complete set of drawings with individual parts and parts list, description of assembly and disassembly processes, also in relation to repair operations

### Order Details

051.17100 MT 171 Assembly Exercise:  
Hydrodynamic Journal Bearing