MT 110.02

Assembly spur wheel / worm gear mechanism

The illustration shows the tool box with the assembly kit and, in the foreground, the compartment insert for tools and small parts

Description

- **practical assembly kit of an industrial gear unit, with simple tools and devices**
- **broad scope of learning with interdisciplinary problems**
- **part of the GUNT-Practice Line for assembly, maintenance and repair**

The MT 110.02 unit deals with a two-stage gear. The assembly kit contains all the individual parts to build the gear. The gear comprises a spur gear stage as its input, with a downstream worm gear stage (combined gear). The fit seatings of the gear unit are designed to allow the complete assembly process to be performed by hand. The project-based nature of this assembly kit allows for varied and above all interdisciplinary work in the classroom. The project is particularly recommended for a practical-based teaching organisation, in conjunction with independent student activity and teamwork.

The contemporary instructional materials provide extensive and in-depth technical information that provides the basis for lesson design. The core element of the teaching materials is a complete set of drawings with lists of parts, individual part designations, exploded views and assembly drawings. All drawings are to standard and are dimensioned in accordance with production requirements. An extensive set of slides for overhead projectors is another useful feature. All parts are laid out clearly and are well protected in a sheet-steel tool box. Small parts are supplied in a box with a transparent lid.

A set of tools is included. Using the optional MT 172 unit, the assembled gear can be subjected to a functional test.

Learning objectives/experiments

- function and design of a combined gear unit
- read and understand engineering drawings
- components and assemblies, their design features and functions
- dimensioning exercises, gauging of parts
- work planning, especially planning and representation of the assembly process
- familiarisation with assembly aids and jigs
- assembly exercises: assemblies and complete unit
- analysis of faults and damage, in conjunction with maintenance and repair steps
- criteria for selecting materials
- in conjunction with MT 172
  - ▸ functional test of the assembled gear unit

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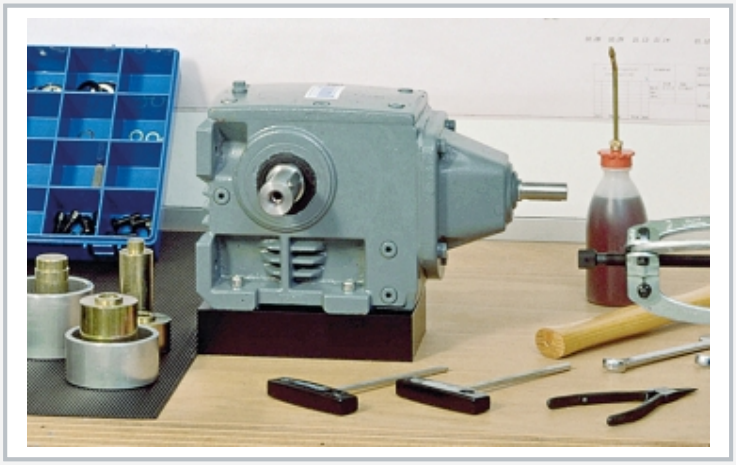
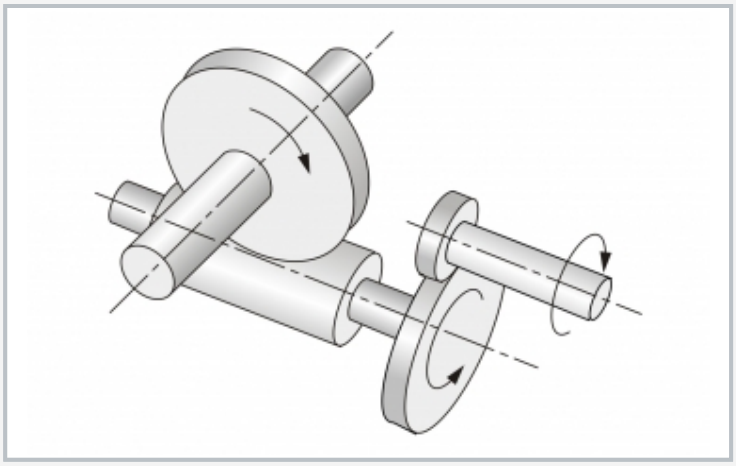


The illustration shows the assembled combined gear unit



Drive principle of the two-stage helical worm gear

Specification

[1] assembly kit of a helical worm gear
[2] part of the GUNT-Practice Line for assembly, maintenance and repair
[3] complete, disassembled gear unit with set of small parts and 12 assembly jigs in storage box
[4] spur gear stage with helical cut wheels
[5] worm gear stage with cylindrical worm and globoid wheel
[6] gear unit comprising drive housing, worm pedestal housing, driving and driven shafts, spur gear stage and worm gear stage

Technical data

Gear dimensions without shaft connections
- LxWxH: 282x138x188mm, approx. 22kg

Transmission ratios
- spur gear stage: i=2,83
- worm gear stage: i=12,33
- total gear ratio: i=34,89

Spur gear stage
- pinion: number of teeth: z=24, real pitch module: m=1mm
- gear wheel: z=68, m=1mm

Worm gear stage
- worm: z=3
- worm wheel: z=37, m=2,578mm

Max. output torque: 212Nm

Materials
- housing: cast iron
- shafts: tempered steel
- spur wheels, worm: alloyed case-hardened steel

Shaft connections
- drive: ØxL: 16x40mm
- driven: ØxL: 30x60mm

LxWxH: 700x380x320mm (tool box)
Weight: approx. 38kg

Scope of delivery

1 complete set of parts for the gear unit
1 set of seals
1 set of tools
1 set of instructional material

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Assembly exercise: spur wheel / worm gear mechanism

Optional accessories

051.11010	MT 110.10	Cutaway Model Worm Gear
051.11021	MT 110.21	Auto-Cad files worm gear
051.17200	MT 172	Alignment of drives, shafts and gears