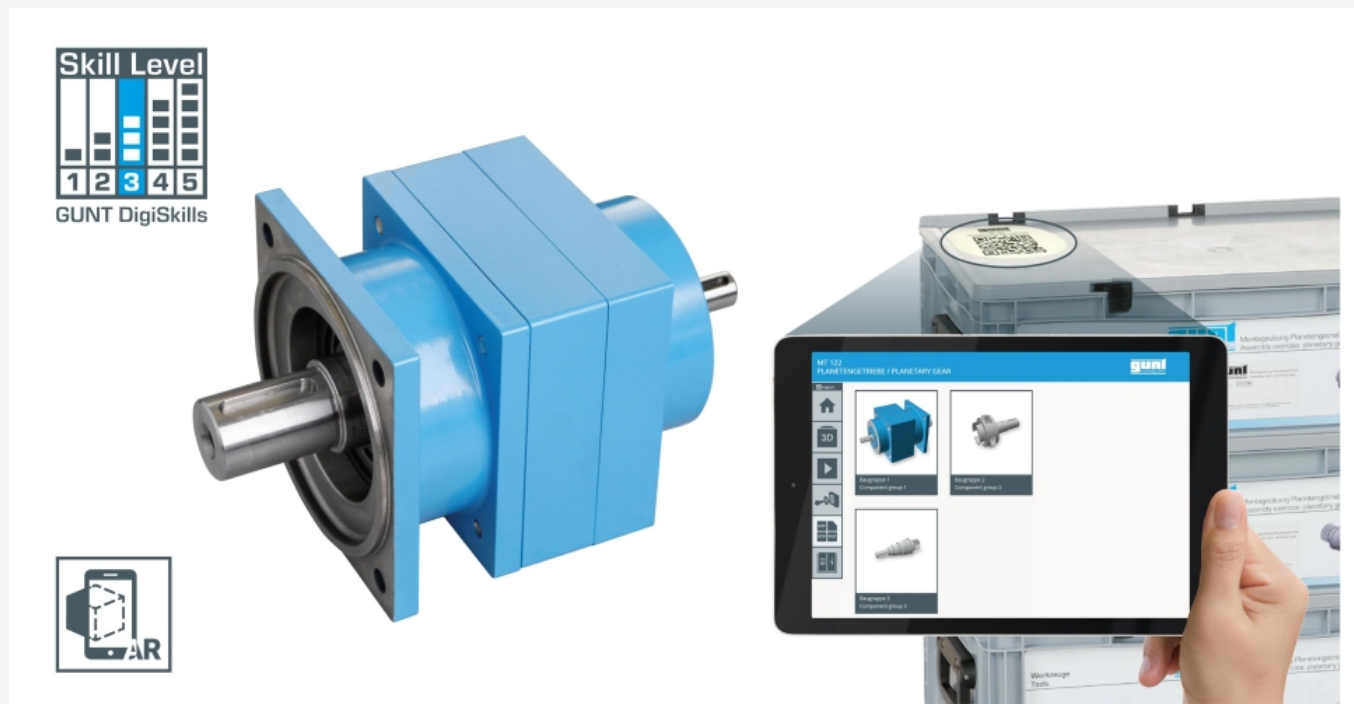


# MT 122

## Assembly exercise: planetary gear



The illustration shows the assembled gear and the GUNT Media Center, tablet not included

### Description

- part of GUNT DigiSkills learning projects and the GUNT Practice Line for assembly, maintenance and repair
- supported by augmented reality
- multimedia instructional materials on USB flash drive and online in GUNT Media Center: 3D PDF, DXF files, STEP files, videos

Planetary gears transmit and often increase torque while reducing speed at the same time. They are often used in wind power plants and as automatic transmission in automobiles. The MT 122 unit is a single-stage planetary gear unit with three planet gears. The sun wheel is driven. The hollow wheel (also known as ring gear) is fixed.

The MT 122 kit is part of the GUNT Practice Line for assembly, maintenance and repair, which has been designed for technical colleges and company training centres. The assembly and disassembly processes can be completed easily within standard lesson times. Only basic tools are required for assembly, all of which are supplied with the kit. The fit seatings of the gear unit are designed to allow the complete assembly process to be performed by hand.

The contemporary multimedia instructional materials provide extensive technical information as base for lesson design. The core element of the teaching materials is a complete set of drawings as files with lists of parts, single-part drawings, exploded views, assembly drawings and 3D drawings. All drawings are to standard and are dimensioned in accordance with production requirements. The set of drawings consists of DXF files, STEP files and PDF files. Assembly videos are also useful features. The files are also available free of charge online in the GUNT Media Center. An augmented reality interface (Vuforia View) for mobile devices is available for visualising the processes and functions in a gear unit.

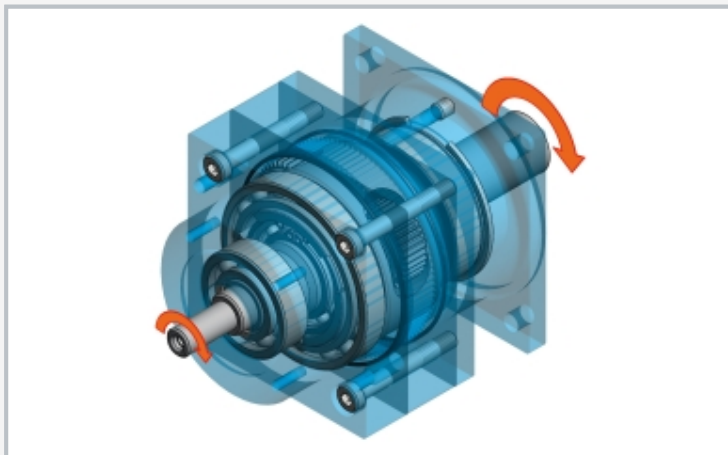
The disassembled planetary gear is delivered in a storage system with foam inlay. The transport roller MT 120.02 or the trolley MT 120.01 are suitable for convenient transport of the kit.

### Learning objectives/experiments

- function and design of a planetary gear with fixed hollow wheel
- planning and presentation of the assembly process, supported by augmented reality
- assembly and disassembly, including for the purposes of maintenance and repair
- read and understand engineering drawings (PDF files, DXF files, STEP files)
- familiarisation with various machine elements: ball bearings, shaft seals
- familiarisation with assembly aids and jigs
- generation of programs for 3D print and CNC machining
- in conjunction with MT 173
  - ▶ functional testing of the assembled gear unit
- in conjunction with MT 174
  - ▶ preventive maintenance

# MT 122

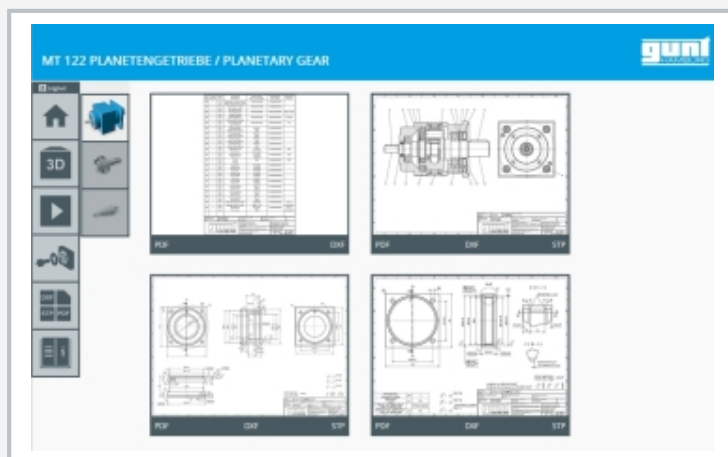
## Assembly exercise: planetary gear



Transparent sectional view of the assembled gear



MT 122: storage system with foam inlay, all components have their place, the foam is labeled



Screenshot of the GUNT Media Center

### Specification

- [1] kit of a planetary gear unit
- [2] part of GUNT DigiSkills and of the GUNT Practice Line for assembly, maintenance and repair
- [3] disassembled planetary gear with set of small parts and 4 assembly jigs, housed in a storage system with foam inlay
- [4] gear unit comprising input housing, hollow wheel housing, output housing, drive shaft with sun wheel, output shaft with planet carrier, bearings
- [5] augmented reality: visualisation of machine elements, display of exploded views, functions
- [6] multimedia instructional materials: PDF, CAD files, STEP files, videos
- [7] online access to the GUNT Media Center

### Technical data

Gear dimensions without shaft connections

- LxWxH: 140x115x115mm

Transmission ratio

- sun wheel
  - ▶ number of teeth:  $z=24$
  - ▶ real pitch module:  $m=1\text{ mm}$
- planet gears
  - ▶ quantity: 3
  - ▶ number of teeth:  $z=36$
  - ▶ real pitch module:  $m=1\text{ mm}$
- hollow wheel
  - ▶ number of teeth:  $z=96$
  - ▶ real pitch module:  $m=1\text{ mm}$
- transmission ratio:  $i=5$

Nominal torque at output

- 160Nm at  $3000\text{min}^{-1}$

Shaft connections

- drive:  $\text{Ø}xL: 14x34\text{mm}$
- output:  $\text{Ø}xL: 30x45\text{mm}$

LxWxH: 600x400x590mm (storage system)

Weight: approx. 25kg

### Required for operation

PC or online access recommended

### Scope of delivery

- 1 kit
- 1 set of tools
- 1 set of assembly jigs
- 1 set of spare parts
- 3x storage system with foam inlay
- 1 set of instructional material, consisting of technical description of system, complete set of drawings with lists of parts (PDF, DXF, STEP), description of assembly and disassembly sequences, assembly videos, online access to the GUNT Media Center

# MT 122

## Assembly exercise: planetary gear

### Optional accessories

MT 120.01	Trolley
MT 120.02	Transport roller
GL 300.05	Cutaway model: planetary gear
MT 173	Test stand for gears
MT 174	Sorting plant