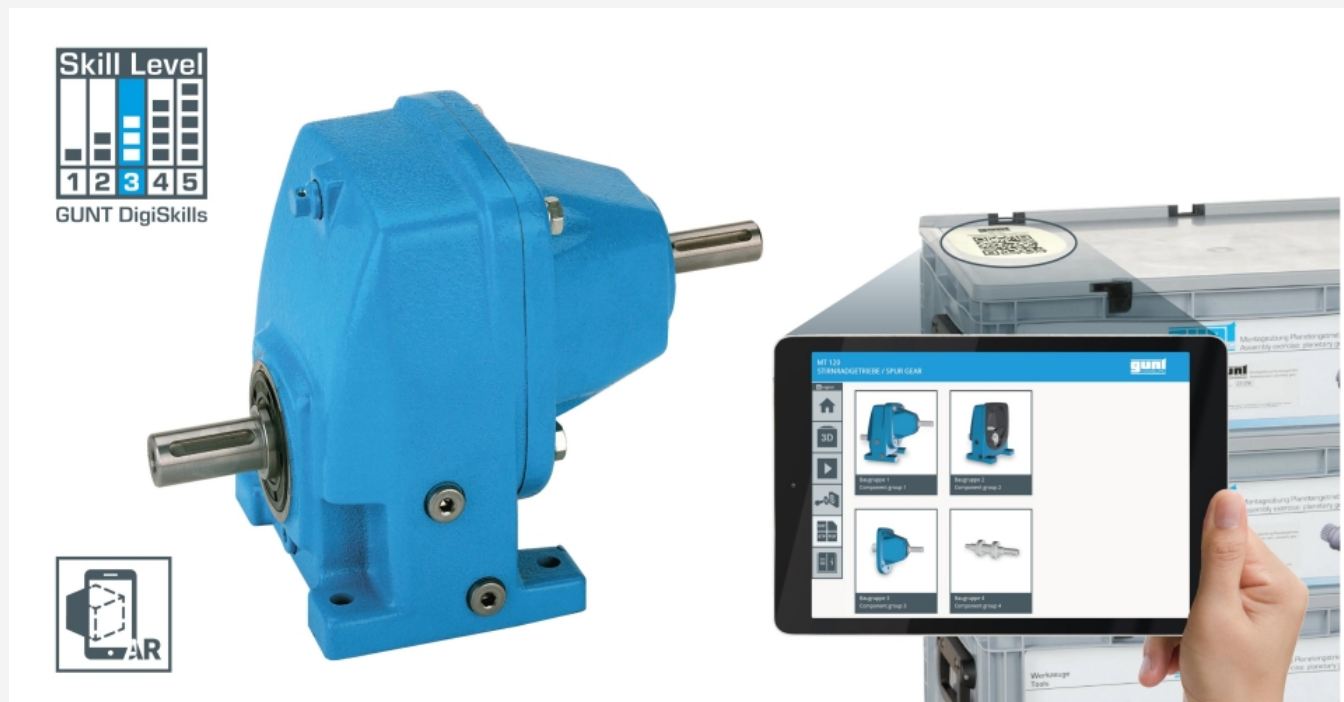


# MT 120

## Assembly exercise: spur gear



The illustration shows the assembled gear and the GUNT Media Center on a tablet (not included)

### Description

- **broad scope of learning with interdisciplinary problems**
- **part of GUNT DigiSkills and the GUNT Practice Line for assembly, maintenance and repair**
- **multimedia instructional materials on USB stick and online in GUNT Media Center: 3D PDF, DXF files, STEP files, videos**

The MT 120 unit is a spur gear unit with helical gear wheels. The gear is single-stage and has a fixed transmission ratio (fixed gear unit). Helically cut gear wheels run more smoothly and quietly than straight-toothed gears because the gear teeth intermesh gradually and multiple teeth are engaged. They are suitable for higher speeds, and can withstand greater loading than comparable straight-toothed gears.

The MT 120 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 close link between theory and practice-based learning content is evident. 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.

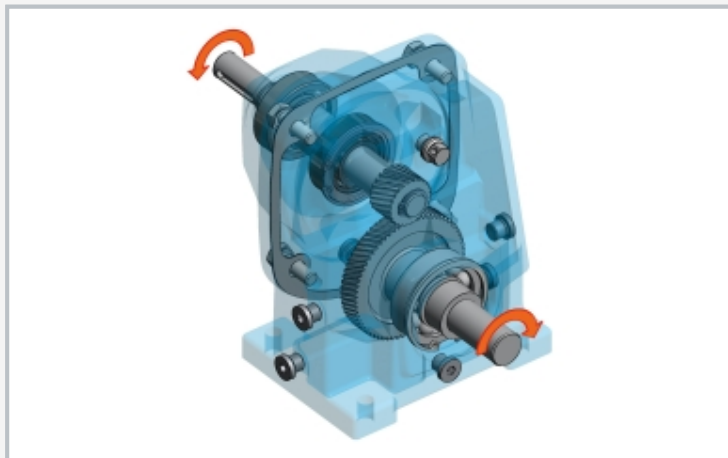
The disassembled spur gear with a set of small parts and 4 assembly jigs are delivered in a storage system with foam inlay. The transport roller MT 120.02 or the trolley MT 120.01 are suitable for convenient transport of the kit.

### Learning objectives/experiments

- function and design of a helical spur gear unit
- 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 120

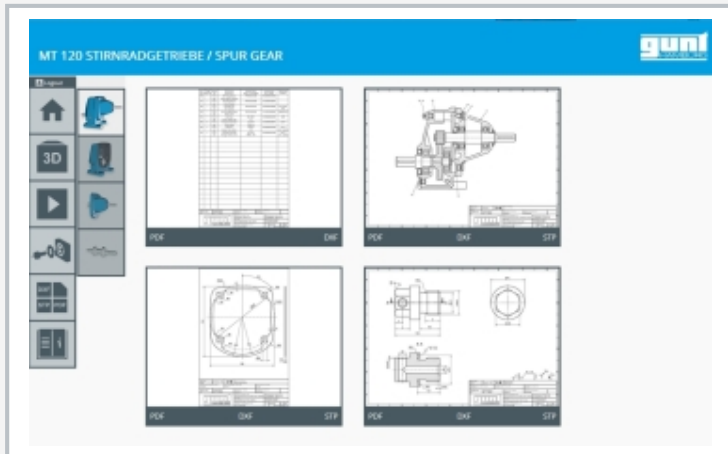
## Assembly exercise: spur gear



Transparent sectional view of the assembled gear [screenshot from assembly video]



MT 120: 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 spur gear unit
- [2] part of GUNT DigiSkills and the GUNT Practice Line for assembly, maintenance and repair
- [3] disassembled spur gear with set of small parts and 4 assembly jigs, housed in a storage system with foam inlay
- [4] helical spur gear wheels
- [5] gear unit comprising driven parts housing, drive housing, driven and drive shafts, driven gear and drive pinion, as well as bearings
- [6] augmented reality: visualisation of machine elements, display of exploded views
- [7] multimedia instructional materials: PDF, CAD files, STEP files, videos
- [8] online access to the GUNT Media Center

### Technical data

Gear dimensions without shaft connections

■ LxWxH: 160x135x175mm

Transmission ratio

- pinion
  - ▶ number of teeth:  $z=24$
  - ▶ real pitch module:  $m=1\text{ mm}$
- gear wheel
  - ▶ number of teeth:  $z=68$
  - ▶ real pitch module:  $m=1\text{ mm}$
- transmission ratio:  $i=2,83$

Max. output torque

■  $54\text{ Nm}$  at  $494\text{ min}^{-1}$

Shaft connections

- drive:  $\text{ØxL: } 16\text{x}40\text{ mm}$
- output:  $\text{ØxL: } 20\text{x}40\text{ mm}$

LxWxH: 600x400x540mm (storage system)

Weight: approx. 20kg

### 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 120

## Assembly exercise: spur gear

### Optional accessories

051.12001	MT 120.01	Trolley
051.12002	MT 120.02	Transport roller
030.30003	GL 300.03	Cutaway model: spur gear
051.17300	MT 173	Test stand for gears
051.17400	MT 174	Sorting plant