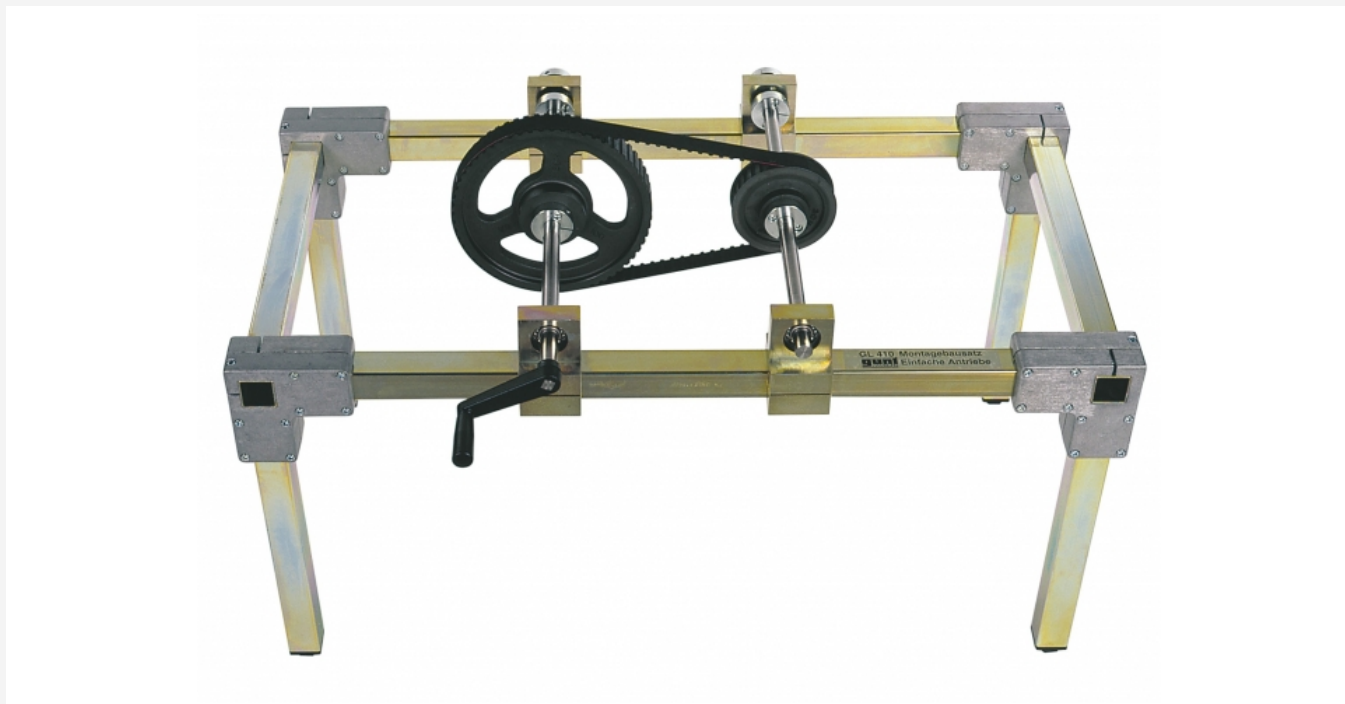


# GL 410

## Assembly simple gears



### Description

- **flexible and robust assembly kit for the fundamentals of mechanical gear engineering**
- **uses industrial components to represent the real world accurately**
- **quick and simple assembly**

Gears are responsible for transferring the magnitude and/or direction of rotary motion and torque. In machine elements, gears are categorised as transmission or conversion elements. There are different types of gears depending on their task. Wheel gears such as gear drives, friction gears and traction gears are uniformly translating gears.

The GL 410 unit provides an introduction to the fundamentals of gear engineering. The unit focuses in particular on the practical assembly of gear components.

The exercise system can be used to configure six different, simple gear types. The setup of the components is flexible so that you can configure your own ideas and try out different gears.

Individual activities such as understanding the task and reading the drawing, assembling the components, adjusting, calibrating and checking the gear, and performing calculations are performed one after the other. The unit is driven by a hand crank. Various bearings and a solid frame made of square steel tubes ensures sufficient accuracy to be able to set precise tooth interlocking. All components of the exercise system are ready at hand and securely housed in a storage system.

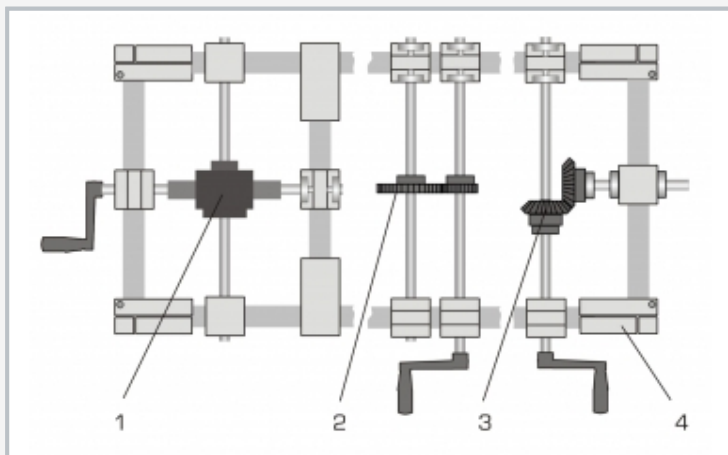
GUNT offers three assembly kits in this product range: from simple gears (GL 410) to combined gears (GL 420) and control gears (GL 430). Each assembly kit can be used completely independently of the other parts in the range.

### Learning objectives/experiments

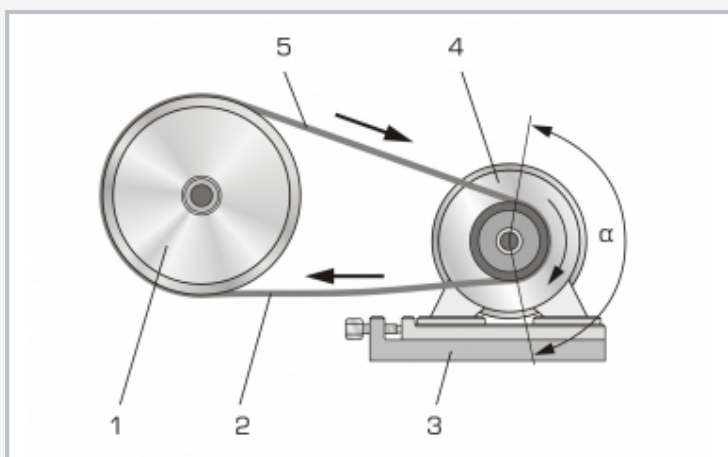
- familiarisation with main components of mechanical gear engineering
- basic gear types
  - ▶ simple belt drive
  - ▶ simple chain gear
  - ▶ simple spur gear
  - ▶ bevel gear
  - ▶ worm gear
  - ▶ rack-and-pinion drive
- calculations on mechanical gears
- practical setup of different gears, associated with simple setup and configuration exercises
- read and understand engineering drawings, familiarisation with technical terms

# GL 410

## Assembly simple gears



1 worm gear, 2 spur gear, 3 bevel gear, 4 square steel tube frame



How a belt drive works: 1 driven pulley, 2 slack span, 3 tensioning rail with screws, 4 drive pulley, 5 tight span;  $\alpha$  wrap angle

### Specification

- [1] assembly, demonstration and experiments with simple gears
- [2] simple belt drive
- [3] simple chain gear
- [4] simple spur gear
- [5] bevel gear
- [6] worm gear
- [7] rack-and-pinion drive
- [8] driven by hand crank
- [9] uses industrial components
- [10] solid, universal frame made of square steel tube

### Technical data

#### Toothed belt disk

- number of teeth:  $z=30, 60$

#### Chain wheels

- number of teeth:  $z=20, 30$
- DIN 8192 ISO 10B-1

#### Spur wheel

- number of teeth:  $z=30, 60$
- module  $m=2\text{mm}$

#### Pair of bevel gears

- number of teeth:  $z=30$
- module:  $m=3\text{mm}$
- transmission ratio:  $i=1$
- angle of rotation:  $90^\circ$

LxWxH: ca. 1030x500x520mm (assembled frame)

Weight: approx. 70kg

LxWxH: 600x400x220mm (storage system)

LxWxH: 600x400x170mm (storage system)

### Scope of delivery

- 1 frame
- 1 set of bearings
- 1 set of gear components
- 1 set of tools
- 1 set of instructional material

# GL 410

## Assembly simple gears

Optional accessories

020.30009

WP 300.09

Laboratory trolley