

Gears

1/ Watch the video. Then listen and fill in the gaps.

Gears operate in _____. The teeth of one of them mesh in the teeth of the other one. A gear train _____ and modifies rotary motion and torque between two shafts and _____ motion between the gear and the rack. Several types of gears are used in practice.

A **spur gear** is a gear usually with _____ radial teeth used to transmit power and motion between parallel axes (shafts). A **worm gear** is a gear that consists of a _____ threaded shaft and a wheel with teeth that mesh into it. A **pinion** is the _____ gear in a gear train. It meshes with a larger toothed wheel or with a rack. A **rack** is a toothed bar or rod. A **bevel gear** is a gear with teeth that are cut at an angle. Bevel gears are used for transmitting _____ power and motion between nonparallel axes. A **differential gear** is an arrangement of gears that allow the rotation of two shafts at different speeds and different _____ of rotation.



However, it is not often practical to use only two gears. If the centre distance is relatively great, the larger of the two gears may be excessively _____. Therefore, **belt drives** or **chain drives** are frequently used in conjunction with gear trains.

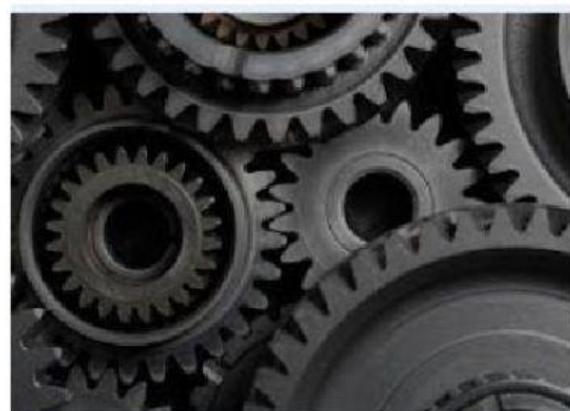
A **chain drive** is a transmission system in which power is _____ to the sprockets by means of a chain. A **belt drive** is a transmission system that uses a flexible belt to transfer _____. Belts can be of different types. A **flat belt** is a belt that _____ a flat loop of material used to transmit motion between two pulleys. A **timing belt** is a toothed belt that _____ with the grooves of a pulley in a synchronous belt drive. A **V-belt** (also known as vee belt) is a _____ with a trapezoidal cross-section.

2/ Listen and decide if the sentences are true (T) or false (F)

1. Bevel gears cannot be used to transmit mechanical force and motion between nonparallel shafts
2. A pinion is the smallest gear in the gear train.
3. It is practical to use gears where the distance between shafts is relatively great.
4. In a chain drive, sprockets are driven by means of a belt passing over their teeth.
5. A flat belt is used to transmit motion between two pulleys.

3/ Match the English and Czech terms

sprocket	převodové soukolí
rack	kladka
pulley	kroutící moment
gear train	ozubené kolo
shaft	ozubnice
groove	hřídel
torque	drážka, žlábek
differential gear	plochý řemen
V-belt	pastorek
bevel gear	čelní ozubené kolo
timing belt	kuželové kolo
belt drive	klínový řemen
flat belt	diferenciální soukolí
chain drive	ozubený řemen
pinion	řetězový převod
spur gear	šnekový převod
worm gear	řemenový převod



3/ What are they? Use the terms from ex. 2 printed in black.

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____

- 1 A belt with a trapezoidal cross-section
- 2 A gear that consists of a spirally threaded shaft and a wheel with teeth that mesh into it
- 3 An arrangement of gears that allows the rotation of two shafts at different speeds
- 4 A transmission system in which power is transferred to the sprockets by means of a chain
- 5 A gear usually with straight radial teeth used to transmit power and motion between parallel shaft axes
- 6 A belt that is used to transmit motion between two pulleys
- 7 The smallest gear in a gear train
- 8 A belt that meshes with the grooves of a pulley in a synchronous belt drive
- 9 A gear with teeth that are cut at an angle that allows transmitting power between nonparallel shaft axes
- 10 A transmission system that uses a flexible belt to transfer power