



## INA Service Info



# Timing belts with varying designs

## Changes as a result of ongoing development

Timing belts in modern internal combustion engines are subject to constantly increasing demands. To make the belts more durable, more resistant and quieter to operate, their materials and manufacturing techniques require constant development. These developments not only give rise to new generations of improved timing belts, but also ensure that existing versions can run smoothly and more efficiently. Due to the changes made for the current series, recently produced timing belts may differ from older versions in the following ways:

- The back fabric may have a rough surface (figure 1) rather than a smooth one. This type of surface produces less noise when the belt is in operation.
- The tooth profile may have a white or black coating made from polytetrafluoroethylene (Teflon®) (figure 2). This reduces friction and wear on the timing belt.
- The back fabric may have one or more seams (figure 3). These joins are created before the belt is vulcanized to aid the manufacturing process.
- The shape and/or structure of the tooth profile (page 2) may differ from previous versions if more suitable tooth shapes have since proven to be effective and have been adopted.

The above points are based on measures taken to improve the longevity and reduce the noise of timing belts. All timing belts that feature one or more of these criteria meet the required OE quality standard and can be used without reservation.

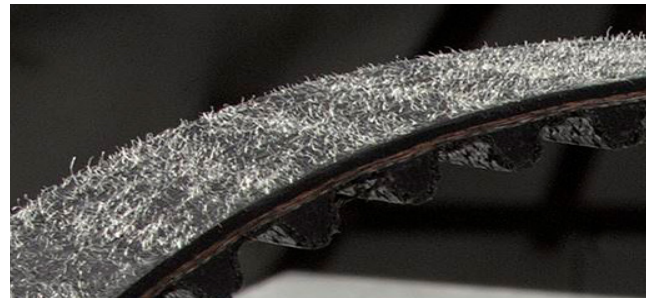


Figure 1: Timing belt backing fabric with a rough surface



Figure 2: Timing belt profile with polytetrafluoroethylene (Teflon®) coating



Figure 3: Sewn toothed belt back

Timing belts transmit power according to the positive engagement principle. Their performance can be tailored to suit various requirements by using different tooth shapes. For this reason, toothed belts in timing drives can have different tooth profiles.

Timing belts with trapezoid tooth profiles (figure 4) are mainly used with older engines, as their design is only suitable for simple timing drives.

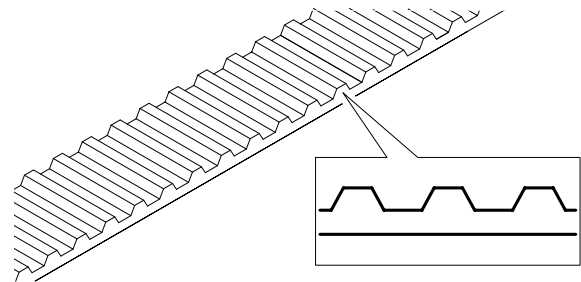


Figure 4: Timing belt with trapezoidal profile

Timing belts with a circular tooth profile (figure 5) are often labelled as HTD. This abbreviation stands for High Torque Drive. The curved edges and the increased height of the teeth increases the load carrying capacity and reduces ratcheting in extreme situations.

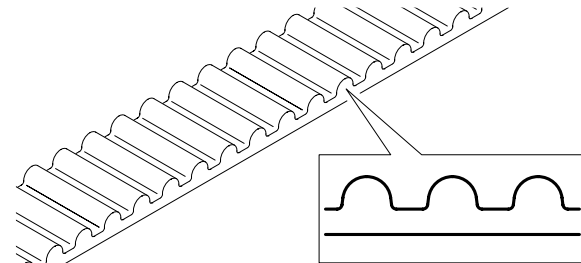


Figure 5 : Timing belt with circular profile (HTD)

An involute profile (figure 6) is used for timing drives that are subject to high tensile forces. In this case, STD stands for Super Torque Drive. This toothed belt profile is predominantly used in high-performance diesel or petrol engines.

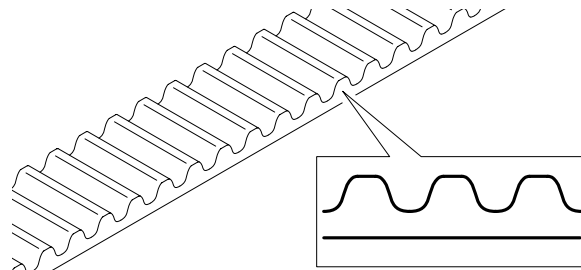


Figure 6: Timing belt with involute profile (STD)

OEM timing belts on certain Fiat, PSA and VW-Group engines (figure 7) may have a notch or groove at the tooth head. These are characterized as HTD (High Torque Drive) and RPP (Rubber Parabolic Profile). Toothed heads without grooves are safe to use with the corresponding engines. The lack of grooves does not equal a lack of quality.

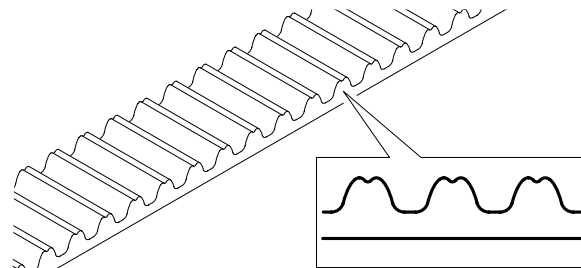


Figure 7: Timing belt with dimple (notch in tooth head) HTD and RPP

#### Important!

- Do not kink or twist the toothed belt
- Avoid contact with engine oil, lubricants and coolant
- Mount the toothed belt with suitable special tools
- Never force the toothed belt, e.g. under install using tire levers
- Installation only when the engine is cold
- Do not use sprays or chemicals to suppress belt noise

Please observe the vehicle manufacturer specifications!

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