

Toothed belt drive

As with all Audi 4-cylinder inline engines, the timing gear is designed as a toothed belt drive and directly drives the exhaust camshaft.

The toothed belt tensioning system carried over from the naturally aspirated engine has been modified to meet the much higher demands placed on the toothed belt drive including:

- turbo-related higher valve spring pressures
- turbo-related valve timing associated with the 42° crank angle adjustment range of the continuous variable valve timing on the intake camshaft
- high-pressure pump drive by a triple cam on the intake camshaft.

The result is the elliptical toothed belt sprocket on the crankshaft.

The CTC toothed belt sprocket* used here for the first time greatly reduces the torsional vibration of the camshaft and the tensile forces acting on the toothed belt.

* CTC toothed belt sprocket = crankshaft torsional cancellation

Function

The toothed belt sprocket is positioned on the crankshaft at TDC of cylinder 1, as shown in Fig. 332_023. When the working cycle begins, high tensile forces act on the toothed belt. They are reduced by the elliptical shape of the toothed belt sprocket because the flat side of the sprocket gear allows a slight slackening of the toothed belt. The resulting torsional vibration counteracts the torsional vibration of the 2nd engine order at the antinode of the timing gear without producing too much excitation in the other RPM ranges.

