

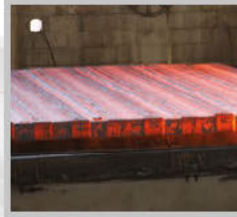
## IN GEAR

### PINION GEAR

A pinion gear is a critical automotive component used in virtually all transmission units. During use, a vehicle places heavy demand on its transmission, requiring a fast and reliable response to the drive controls.

The gears require high strength and wear resistance in order to withstand the stresses applied to each gear during use. Bodycote's heat treatment processes, in particular Low Pressure Carburising (LPC), enable modern transmissions to deliver high performance and seamless response, even reducing noise during gear changes.

The gears begin life as low alloy steel.



The gears are machined to shape using a shaving or hobbing method.



The parts are inspected and tested for surface hardness, core hardness and effective case depth.



The gears are quenched using Nitrogen gas to minimise part distortion, then tempered to relieve internal stresses.

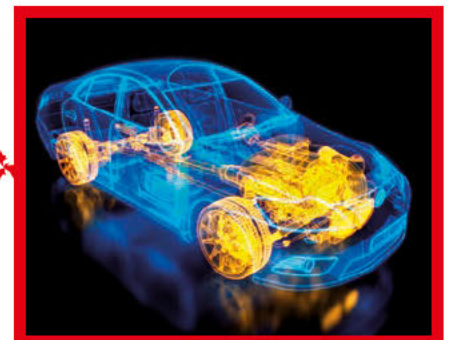


The gears are dimensionally measured before heat treatment to monitor and maintain repeatability of distortion. The gears are then heat treated using LPC to enhance functionality by adding a 'case depth' to provide strength and resistance to wear and tear.

The gears are shot peened to add residual stress – this allows the parts to withstand more wear and tear. The gears are measured again after heat treatment to check any distortion is within limits.



The gears are assembled into the transmission unit.



End application – automobile.

### BODYCOTE COMPONENT JOURNEYS

This is just one example of how Bodycote brings together the huge wealth of knowledge and expertise from across the Group to provide the vital engineering services our customers need.

For more component journeys visit [www.bodycote.com](http://www.bodycote.com)

**B** The Bodycote 'B' next to a component journey stage shows where Bodycote's vital services have been applied.