Automotive chain tensioners

Stanyl PA46 helps to reduce friction and CO₂ emissions

In passenger cars with a chain driven valve train, chains are used for synchronizing the timing of the movement of the pistons with the timing of the actuation of the inlet and outlet valves. Chain guides in this system provide the appropriate chain tension. A key part of the chain tensioner is the slide shoe that is in contact with the chain and is usually made from unreinforced PA66.

New legislation requires a reduction in the CO₂ emissions of passenger cars. Stringent and ambitious targets, backed by a penalty system, mean that CO₂ emission is limited. Every gram of CO₂ emission in excess of this limit can cost up to €95 per gram CO₂/km emission.

By using Stanyl® PA46 for the slide shoes, replacing PA66, the amount of friction in a timing system can be reduced, leading to a lowering of CO₂ emissions. Friction loss reduction is highly relevant in view of the goals to be reached and may help to achieve up to 2 grams CO₂ emission, depending on the layout of the timing system and the design of the tensioner.

Another key advantage of Stanyl is its high wear performance compared to PA66 - a factor 4-7 higher wear resistance- and as such Stanyl already plays a major role in highly loaded chain tensioners or tensioners with high curvature. However, in view of current legislation, OEMs are now switching to Stanyl TW341/ TW441 for all slide shoe applications.

Tests show that standard Stanyl offers best-in-class wear performance, even when compared to more exotic materials in the market. An additional service is that we are able to show what exact benefit in terms of CO₂ emission reduction is feasible on any given timing chain lay-out, helping OEMs to get closer to their CO₂ target.

Eco+ solution

Stanyl helps to reduce friction: higher efficiency and reduced environmental impact.

“Ford is constantly working on developing technologies to give you a smoother, safer, more powerful and efficient drive. Working with DSM Engineering Plastics is bringing us smart ideas, clever refinements and excellent materials that enable us to develop tomorrow’s cars today.”