CASE STUDY

REDUCING NOISE IN ELECTRIC POWER STEERING SYSTEM

INDUSTRY:
Automotive

APPLICATION:
Electric Power Steering

COMPONENT:
Input Shaft

LOCATION:
Europe

BACKGROUND

Noisy automotive components can have a negative impact on how consumers perceive the quality of a brand. As vehicles incorporate increasingly sophisticated electric designs, more lubrication points are required to ensure safe, noiseless, and smooth operation. A world leader in the manufacture and design of steering systems noticed that their new Electric Power Steering design had significant noise issues. The Tier 1 Supplier came to Nye's Channel Partner Newgate Simms in search of a new lubricant for their EPS input shaft after a competitor's grease was unable to sufficiently dampen noise. The Supplier needed a viscous grease that would eliminate noise and vibration to ensure drivers get the best possible steering experience.

CHALLENGES

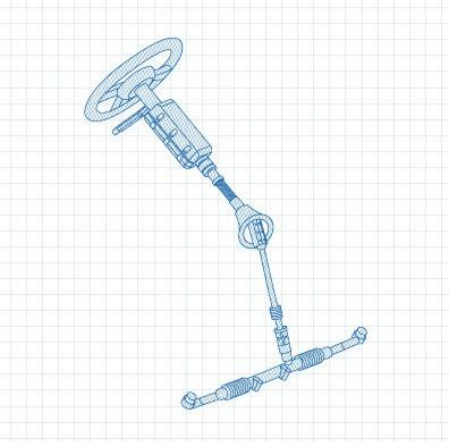
- Can the lubricant eliminate noise coming from upper shaft teeth contact area?
- Can the lubricant provide smooth operation within the required temperature range?

SOLUTION

NYOGEL® 767A

A silica thickened, heavy viscosity, synthetic hydrocarbon grease

- Reduces free motion and noise of loosely-fitting components
- Reduces vibration and harshness for a quality feel
- Compatible with most plastics and elastomers



RESULTS

After passing ambient cold temperature tests and other in-house testing, the automotive tier supplier found that NyoGel® 767A successfully eliminated noise in the contact area between the pinion and upper shaft teeth. The Supplier and the OEM were so pleased that NyoGel® 767A that they decided to use this solution on other steering projects that require motion control.

Base Oil Properties	Conditions	NyoGel® 767A	Test Method
Chemistry	–	Silica / PAO	–
Temperature Range	–	0 to 125 °C	–
Kinematic Viscosity	40 °C	28185 cSt	ASTM D445
	100 °C	851.5 cSt	
Viscosity Index		121	ASTM D2270
Grease Properties			
Penetration (1/10 mm)	Unworked	285	ASTM D217
	Worked (60X)	273	
	Worked (10K)	283	
NLGI Grade	–	2	–
Oil Separation	24 h, 100 °C	0.1%	FTM 791, Method 321.2
Evaporation	24 h, 100 °C	0.2%	CTM*

*CTM: Nye Company Test Method

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