# Technical Messenger

MAHLE

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Function, storage, and testing of electronic Visco® fans and clutches

*When working with electronic Visco® fans and clutches, a few specific considerations must be taken into account.*

The electronically controlled Visco® clutch transmits force to the drive shaft of the fan via a fluid, thus preventing wear. The drive end housing has a working chamber plus a reservoir chamber filled with a set amount of silicone oil. An electronic valve controlled via a pulse width modulation (PWM) signal regulates the amount of silicone oil fed into the working chamber even faster and more precisely than models with a bimetallic element. The higher the cooling requirement, the more oil flows into the working chamber. As the oil flow increases, so too does the drive torque transmitted, and thus the speed of the fan.

### Correct storage

Visco® clutches must be transported and stored correctly. The top is therefore indicated on the packaging by arrows pointing upward and the words “THIS END UP.” Visco® fans and clutches that have been removed must always be stored upright in the installation position and secured so that they don’t fall over. Incorrect storage may cause oil to leak, resulting in irreparable damage to the clutch.

### Visual and functional test

The oil in Visco® fans and clutches cannot be changed or refilled. These products must not be installed if there are traces of oil on the packaging, as lack of oil can lead to malfunctioning or failure of the Visco® clutch.

Electronically controlled Visco® clutches can be tested using a tester and a revolution counter with an optical transducer. Reflector marks are thus glued to vibration dampers and fans. The engine is then brought up to its rated speed. If the Visco® clutch is not activated, both reflector marks travel at approximately the same speed. However, if the clutch is permanently activated, the inlet opening to the drive disk is closed and the speed of the fan will drop significantly over time.

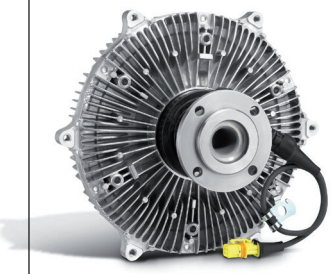

Figure 1: Electric Visco® fan

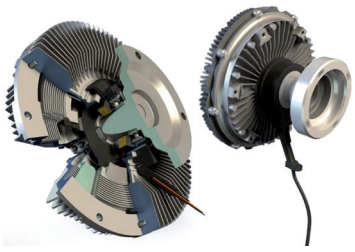

Figure 2: Cutaway model of Visco® fan

**Important!**

It is not possible to replace oil that has been lost. Therefore, if any silicone oil leaks are detected on Visco® clutches and fans, the clutch must be replaced. Units must be correctly positioned during transport and storage: fans and clutches that have been removed must be stored in the installation position and secured against tipping over.