This is the world's first sustainable crankshaft cover, which is molded in a PA 4/10 formulated from 70% renewable resources and certified to be 100% carbon neutral from cradle to grave. The design itself features a friction-optimized dynamic seal in PTFE, which replaced a wet chemistry surface treatment and is activated via a vacuum-plasma process. The entire production process is eco-driven with no net waste. The CAE-optimized design enables a plastic flange to be used as a torque support for assembly operations during vehicle manufacture. The resulting part is 40% lighter than the incumbent aluminum part it replaced.