

# New material combination for two-wheeled driving pleasure

“Is the classic motor scooter now a relic of the past?” Some may wonder when they first see this attractively futuristic scooter with two oversized wheels, which is controlled intuitively by body movement.

Potentiometric angle sensors made of newly developed Celstran® PPS provide the equilibrium that the American manufacturer Segway's innovative principle needs to work perfectly. This special material is a long glass fiber reinforced polyphenylene sulfide with very good chemical resistance, very high thermal stability and an excellent mechanical property profile. For this reason, Celstran® PPS is increasingly being used in applications involving a combination of high continuous service temperatures (up to 240 °C) and challenging mechanical stresses.

The housing has to satisfy a series of complex requirements: It must offer high stability and precision in equal measure while shielding electromagnetic radiation within the electrical drive system at the same time. This has been achieved through a specifically developed material combination of Celstran® PPS reinforced with long glass and stainless steel fibers. And because the high performance polymer is also very easily processed in micro-assembly injection molding, it offers high process reliability and reproducibility. No additional finishing operations are necessary. The robust construction

means the electrical and mechanical components can be easily assembled.

## Precision in serial production

With a circuit board mounting tolerance of just 5/100 mm, the housing made of Celstran® PPS ensures ideal concentricity for the angle sensors inside. Even under the hardest operating conditions, it is able to withstand 50 million revolutions. The control unit is perfectly protected from all environmental influences such as dust or water spray. The technology was originally developed for applications in the industrial sector, such as forklift trucks. But the fun factor of the new application, the Segway personal transport system, promises to be far greater.



The innovative principle of the Segway scooter works simply and safely thanks to angle sensors in a housing made of Celstran® PPS. Now even the first guided tours on the futuristic vehicle are being offered to tourists in Paris, Hamburg and Berlin.

