News

Surface treatment for todays and future brake components

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Talkin’ about REgeneration. Although good brakes play a crucial role in a car’s safety, the brake systems seen on the majority of cars today has essentially changed very little since mass production began: the brakes are applied, the rear brake lights activate, the friction of pads on discs slows the car, and the brakes wear. It’s not rocket science. But the new kid on the block of course is regenerative braking, which follows a different script: the gas pedal is released, the rear brake lights activate, the car slows, and the energy returns to the battery. In the latter scenario, hydraulic brakes are essentially a back-up system – as they are used less, they should last longer and therefore decrease costs and increase efficiency.

Regenerative braking is unique to EVs and enables the vehicle’s kinetic energy to be converted back to electrical energy during braking (deceleration or downhill running). The converted electrical energy is stored in energy storage devices such as batteries, ultracapacitors, and ultrahigh-speed flywheels to extend driving range by up to 10%.

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All of which neatly brings us to future brake technology – and the surface treatments being developed by our expert R&D team. The traditional wet hydraulic system will be replaced (market roll out probably 2030) by dry electro-mechanical brake systems that comprise cast iron and aluminum components.
This will be complemented by lightweight aluminum wheel design that delivers benefits such as:

- Smaller brake calipers
- Prevention of flash rust
- Reduced noise

So with this brief overview of regenerative braking and dry electro-mechanical brake systems, we can see that our R&D is truly setting the pace in terms of new braking system coverings.

MacDermid Enthone drives style, function, value and reliability to the entire automotive braking system supply chain by providing superior process control solutions, applications and technical expertise. Reach out to our team to find out more.

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