

Carbo-nitriding of CVT pushbelt components for further optimization of wear and fatigue properties

Tuesday, 6 September 2022 15:45 (25 minutes)

In recent years the use of pushbelt Continuously Variable Transmissions (CVT) in automotive applications has seen a strong worldwide growth. Currently over 75 million pushbelts have been produced by Bosch Transmission Technology, while Bosch continues to respond to market demands regarding electrification, efficiency, NVH, cost, and power density. Power density comprises the transmittable power & torque, transmission size, ratio coverage, and durability. Enhanced power density of the pushbelt CVT can be achieved by further improving the wear and fatigue properties of pushbelt components, via optimization of hardening heat treatments and resulting component microstructures. Test results will be presented at the 27th IFHTSE Congress & ECHT2022 to demonstrate that the wear and fatigue properties of 75Cr1 pushbelt elements can be further improved when these elements are subjected to carbo-nitriding treatments. These results represent the potential for a further increase in power density of pushbelt designs.

Keywords: Carbo-nitriding, 75Cr1 steel, pushbelt components, wear and fatigue properties

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Session Classification: SURFACE ENGINEERING

Track Classification: Thermochemical treatment (carburizing, carbonitriding, nitrocarburizing, nitriding)