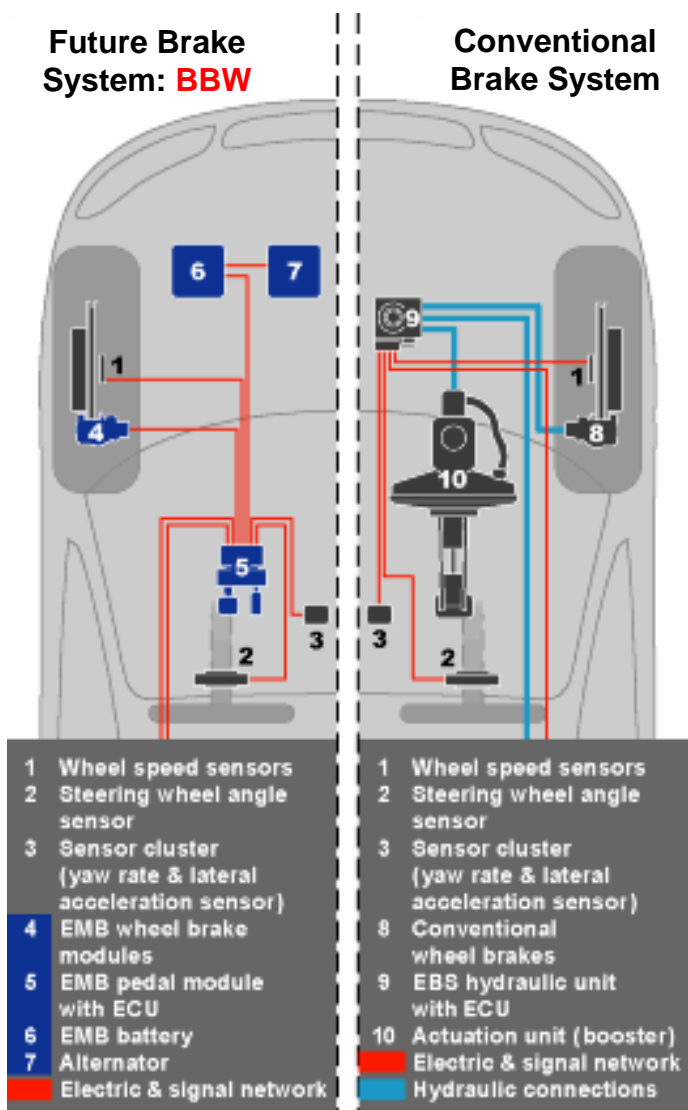


# Why Brake-By-Wire (BBW) ?

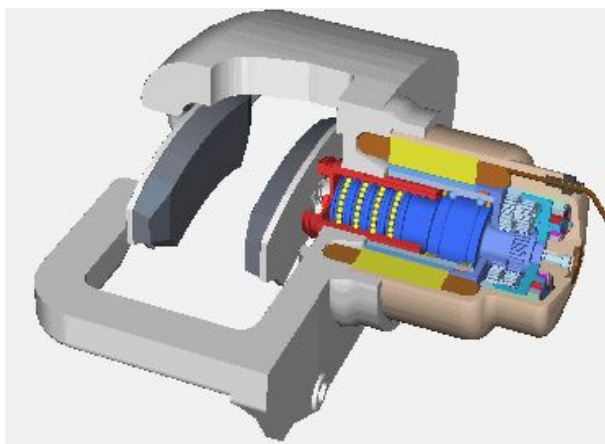


<http://www.conti-online.com>

## Advantages of BBW

- Shorter Stopping Distances & Optimized Stability with VDC
- More Comfort w/o Vibration in ABS
- Environmentally Friendly - No Fluid
- Improved Crash Worthiness
- Space Saving, Using Less Parts, Simple Assembly (Low Production Cost)
- Integration of ABS, BA, TCS and SC becomes **a Matter of Computer Code**, not of Complex Layers of Additional H/W

# BBW Survey



[ **SKF** (Motor + PGT +Ball Screw)]



[ **DELPHI** (Motor + PGT +Ball Screw)]

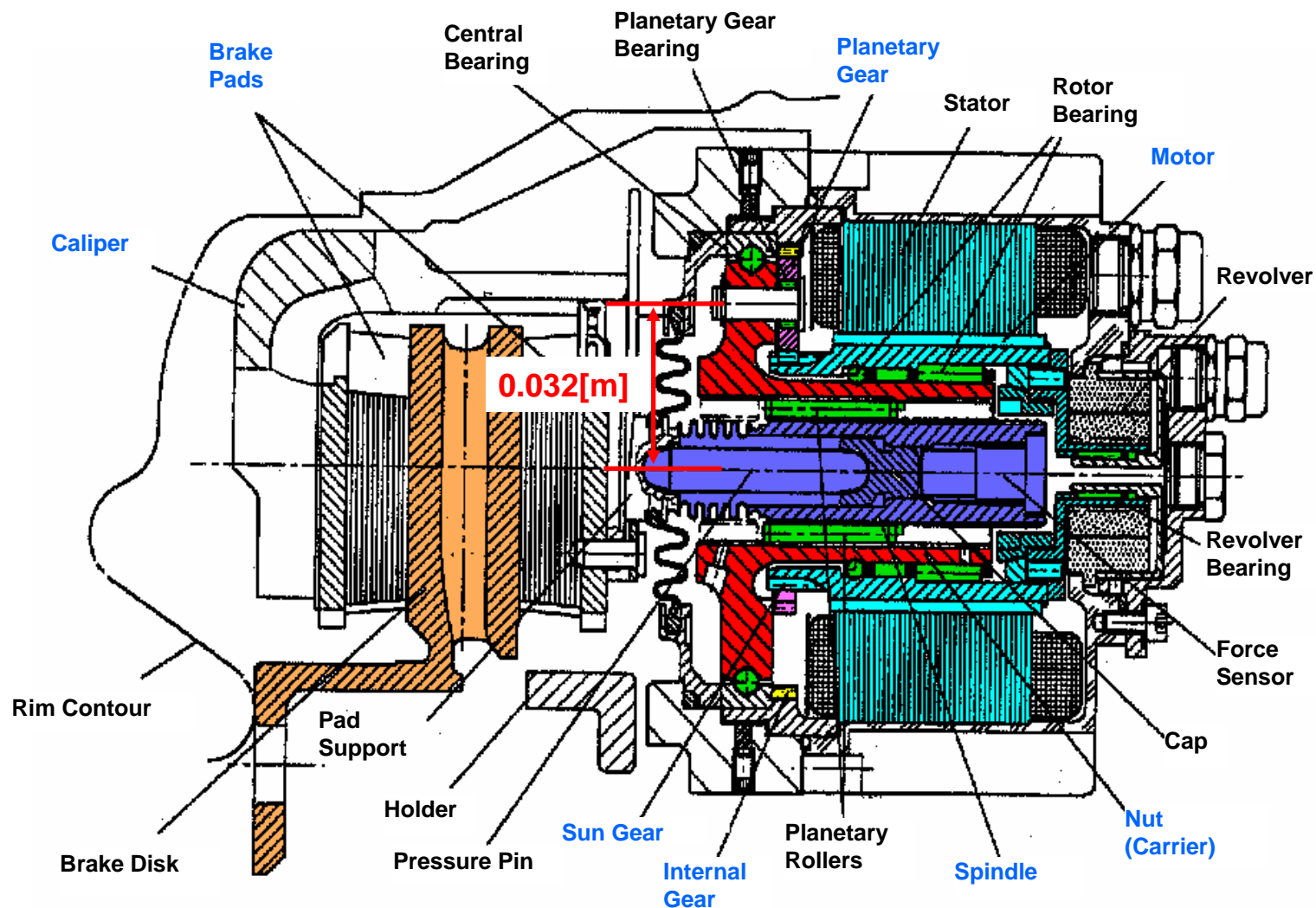


[**Continental Teves** (Motor + PGT + Roller Screw)]



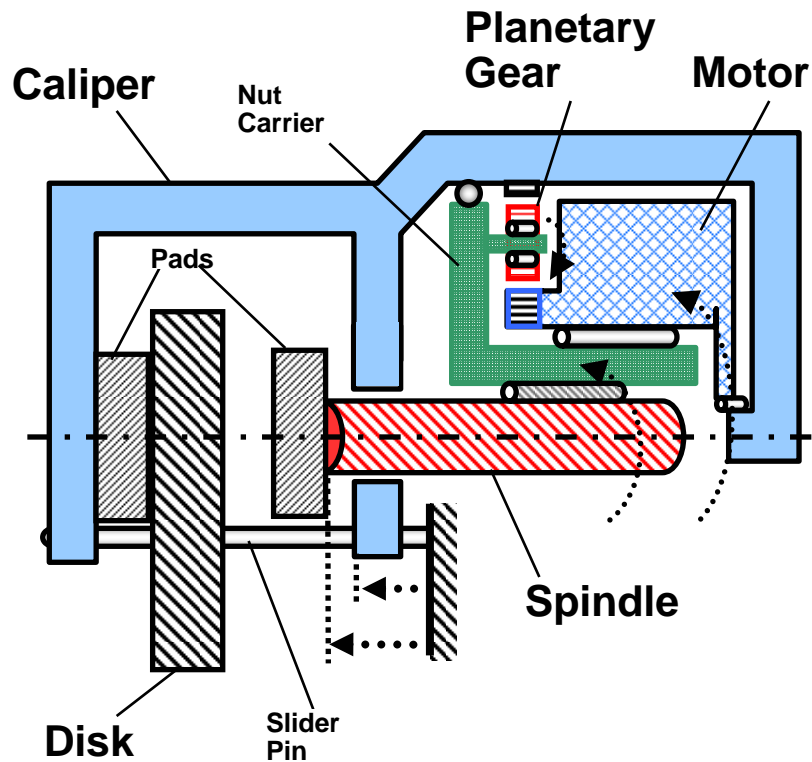
[**Continental Teves** installed at wheel]

# Structure of the Benchmarked BBW



[Sectional Drawing of the **Continental Teves** (formerly **ITT**) BBW [1,2] ]

# Objective



[ Benchmarked Continental Teves BBW ]

- Development of a Reference Model to Interrogate Dynamic Behaviors in Early Design Stage
- Development of a Control Oriented Model for Controller & Estimator Designs
- Clamping Force Estimator Design based on Motor Current and Encoder Measurement to Substitute (fail-safe) Real Force Sensor
- Adaptive Robust Controller Design against Various Uncertainties and Nonlinearities due to Pad Wear, Thermal effect, Signal Noises, ...