High Speed Performance and Construction of Independent Wheel System Bogie with DDM

Noriaki TOKUDA Makoto ISHIGE

We have been developing a new concept bogie, namely that for the gauge-changeable train applicable to both standard gauge 1435mm line and narrow gauge 1067mm line. Therefore this bogie has to have both high running stability at high speed on the standard gauge line and high running performance on sharp curves of the narrow gauge line. This bogie adopts the direct drive motor system (DDM) to mount a motor directly on the side of a wheel, the independent wheel system, and the wheel-set steering system. The independent wheel system provides this bogie with a high running stability at high speed with a short wheel base. We tested this bogie on our rolling stock test machine, and confirmed that any stability problems were not found at high speed of 500km/h. Also we conducted a high speed performance test at the Transportation Technology Center Inc in Pueblo, Colorado USA, and on the Sanyo Shinkansen line in Japan with the speed of more than 200km/h. This paper discusses high speed performance of this bogie on the standard gauge and its construction.