

TOYOTA MOTORSPORT GmbH TRANSMISSION TEST SYSTEM



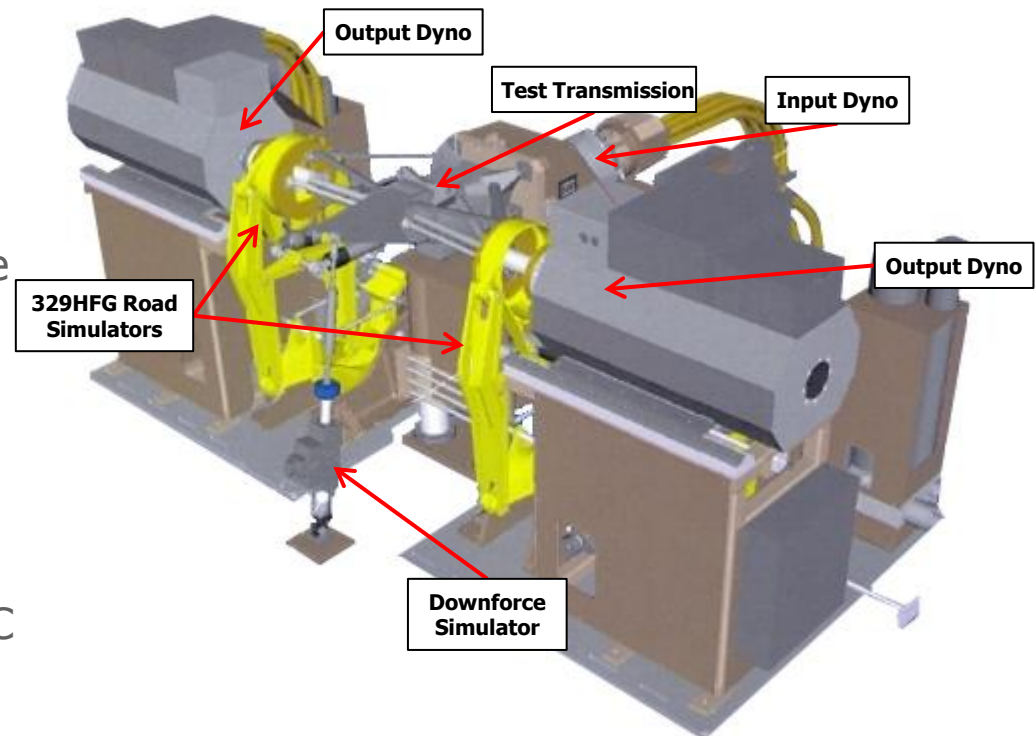
The Transmission Test System (TTS) at Toyota Motorsport GmbH is part of our 2,000m² testing facility, where over 200 separate specialist tests can be carried out.

As with all our test systems, the TTS is proven to be an effective tool for component optimisation as well as reliability and durability proofing.

The TTS, manufactured by MTS, consists of three electric motors to drive the gearbox and one hydraulic rear axle road simulator to apply suspension loads to the gearbox.

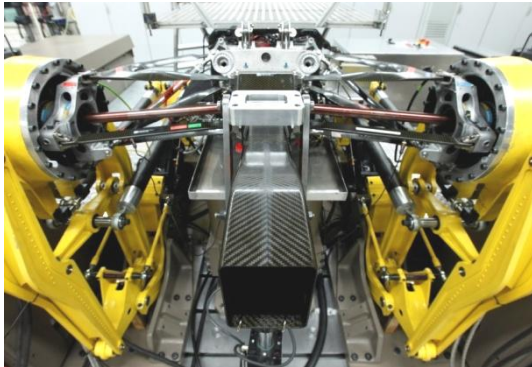
All motors are permanent magnetic synchronous motors with low inertia, driven by five high-performance frequency converters with a DC bus voltage of 850 volts.

The motors and road simulator are controlled by an MTS Advanced Dyno Controller (ADC).





GEARBOX TESTS



Performance test with static, quasi-static and high-dynamic load profiles

Replay of track data sequences or synthetic procedures

Endurance test with real time lap simulation

SECU, seamless shift and first gear

Efficiency measurement in realistic load conditions

Launch with slipping clutch and burnout simulation

Suspension load introduction into housing via original car suspension (hub/upright assy)

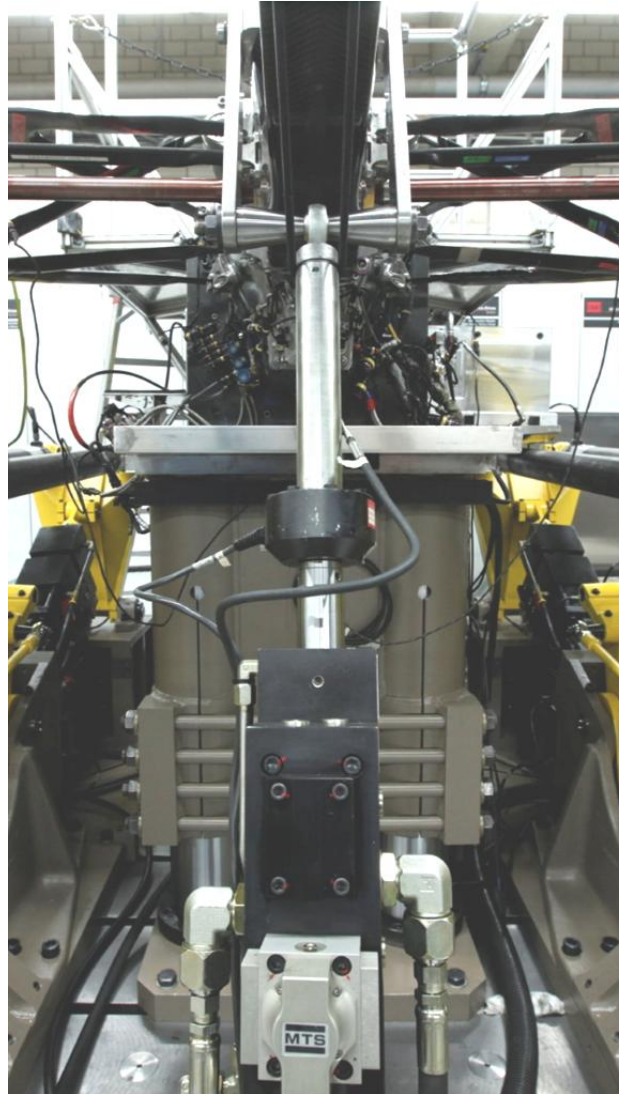
Synchronized road load play out during real time lap simulation

Static load cases for investigation

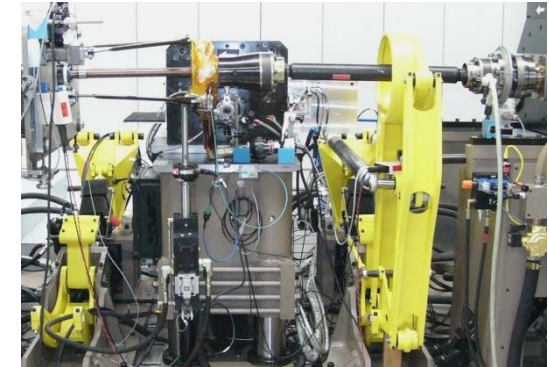
Performance and durability test of rear end, including uprights and hubs

Moving drive shaft scenario

Variable mounting plate (also allows various driveshaft angles)



COMPONENT TESTS



Specific component testing

Independent testing without complete gearbox

High resolution

Focused only on desired parameters

Ideal for drive shaft testing

Eliminates unnecessary gearbox wear



ROAD SIMULATOR - PERFORMANCE OVERVIEW

Vertical Actuator	
Maximum Yoke Force	+14 / 0 kN
Maximum Yoke Displacement	± 60mm
Response	50Hz

Lateral Actuator	
Maximum Yoke Force	+14 / -7 kN
Maximum Yoke Displacement	± 15mm
Response	50Hz

Downforce Actuator	
Maximum Yoke Force	+15 / 0 kN
Maximum Yoke Displacement	± 90mm
Response	50Hz



Longitudinal Actuator	
Maximum Yoke Force	+10 kN
Maximum Yoke Displacement	± 16.5mm
Response	50Hz

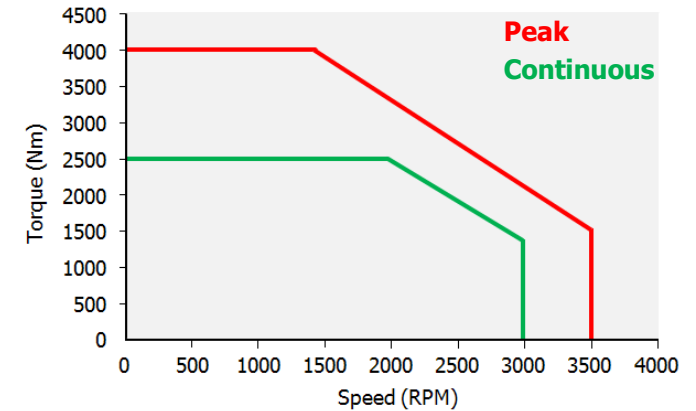
Brake Actuator	
Maximum Yoke Torque	+4 / 0 kNm
Maximum Yoke Displacement	± 5°
Response	50Hz





OUTPUT DYNAMOMETER - PERFORMANCE OVERVIEW

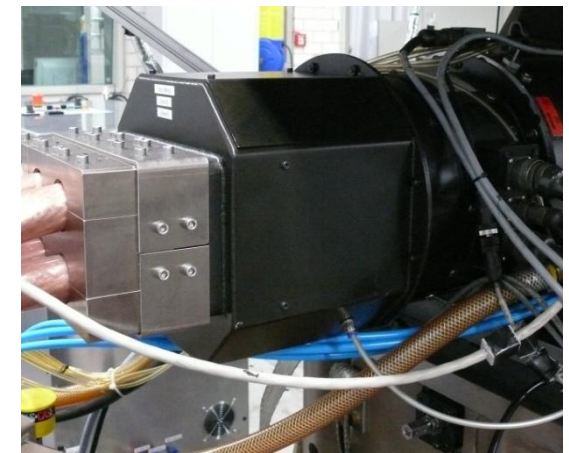
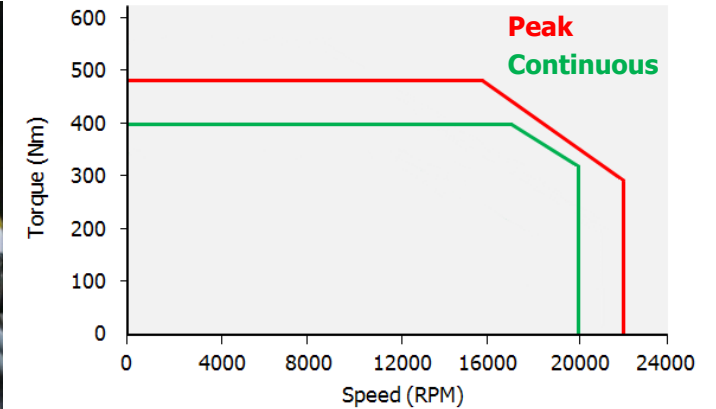
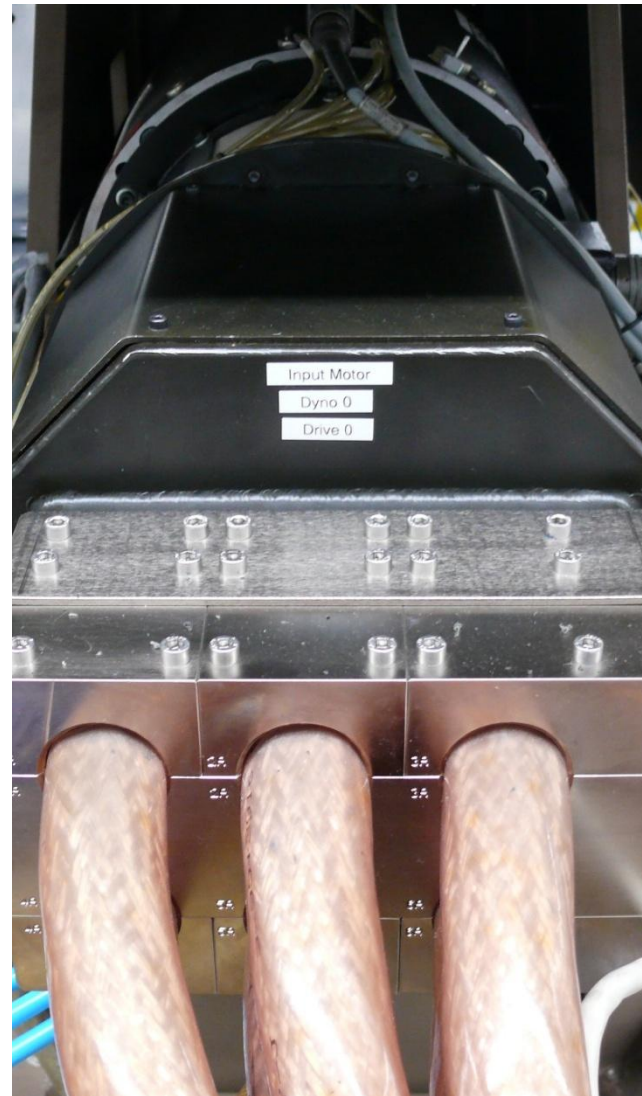
Continuous Power	450kW
Maximum Speed	3,100rpm
Base Speed	1,400rpm
Continuous Torque at Maximum Speed	1,500Nm
Peak Torque (1s) at Maximum Speed	2,000Nm
Continuous Torque at Base Speed	2,700Nm
Peak Torque (1s) at Base Speed	3,750Nm
Inertia of Motor	0.6kg*m ²
Motor Torque Control Response	3ms





INPUT DYNAMOMETER - PERFORMANCE OVERVIEW

Continuous Power	700kW
Maximum Speed	22,000rpm
Base Speed	17,000rpm
Continuous Torque at Maximum Speed	300Nm
Continuous Torque at Base Speed	400Nm
Inertia of Motor	0.018kg*m ²
System Torque Control Response	3ms



A horizontal banner image showing a close-up of a car's engine or transmission components. The text "TOYOTA MOTORSPORT GmbH" and "THE HOME OF HIGH PERFORMANCE" is overlaid in white on the right side of the image.

TOYOTA MOTORSPORT GmbH
THE HOME OF HIGH PERFORMANCE

For a detailed discussion on how to extract the full potential of your project or product through use of TMG's Transmission Test System, contact us for a no-obligation consultation.

As a multi-national company we have representatives speaking all major European languages and several more besides, while discretion and client confidentiality come as standard.

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