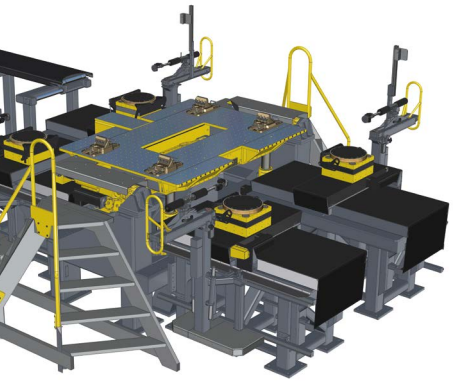
AB DYNAMICS™ **Product Specification**

Class-leading kinematics and compliance test machine

SPMM™ Plus



The SPMM Plus is the latest generation of the SPMM (Suspension Parameter Measurement Machine) that for decades has been a fundamental tool used by engineers throughout the vehicle development cycle. Now, the SPMM Plus provides automotive innovators with the tools to develop the next generation of mobility solutions.

The SPMM Plus enables you to:

/ Faithfully simulate on-road vehicle behaviour. Its unique moving body design replicates a vehicle's interactions with the road surface with unrivalled precision
/ Support virtual validation via our hybrid simulation data pipe that allows real-time communications with external simulation environments
/ Test a range of vehicles from the smallest city cars up to light commercial vehicles.

- **Hybrid simulation data pipe for HiL test capability**
- **Unique moving body, fixed ground plane design**
- **Exceptionally accurate Dynamic Arm wheel position measurement system**
- **Fully programmable and easy-to-use control software running within Windows**
- **One-click data export to popular modelling packages such as CarMaker and CarSim**
- **Low maintenance, servo-electric design**
- **Optional CoG and MoI test capability, including measurement of standalone objects**
- **Proven pedigree with installations globally**
- **Efficient software and rig design yields significant testing uptime and test vehicle throughput**
- **Sustainable design with long lifespan, upgradeability and use of recyclable materials**
- **Fully customisable MATLAB data processing and reporting suite**
- **Extensive catalogue of options and accessories**

Specifications

Capacity

	Minimum	Maximum
Vehicle wheelbase range	1960 mm	4540 mm*
Vehicle track range	1100 mm	2082 mm
Vehicle mass	-	5000 kg**
Rear wheelpan	400 mm	600 mm***

*With intermediate or secondary table extenders fitted
**6800 kg if centrally loaded
***With large wheelpan adaptor fitted

Dynamic Arm wheel position measurement

Accuracy

	Sub range*	Accuracy (0-5Hz)	Resolution
Fore/aft (X) & Lateral (Y)	±10 mm	±0.02 mm	0.005 mm
Vertical (Z)	±10 mm	±0.02 mm	0.005 mm
Steer	±1 °	±0.004 °	±0.001 °
Camber	±1 °	±0.005 °	±0.001 °
Wheel spin	±30 °	±0.01 °	±0.003 °

*Contact AB Dynamics for full range accuracy

Cross-talk

	Maximum cross-talk
Linear to linear	0.003 mm/mm
Linear to rotation	0.0004 mm/°
Rotation to linear	0.015 °/mm
Rotation to rotation	0.003 °/°

Body motions

	Range	Accuracy	Max velocity*
Bounce	±230 mm	±0.15 mm	140 mm/s**
Roll	±10 °	±0.02 °	7 °/s
Pitch	±8 °	±0.02 °	6 °/s

*Maximum velocity available with dynamic option
**Upgradable to 280 mm/s

Tyre contact patch motions

	Range	Accuracy	Max velocity*
Fore & aft (X)	±150 mm	±0.15 mm	100 mm/s*
Lateral (Y)	±150 mm	±0.15 mm	100 mm/s*
Powered rational (δ)	±80 ° nominal	±0.02 °	30 °/s*

*Maximum velocity available with dynamic option

Wheel force measurement

	Calibrated range	Accuracy
Fore/aft (F_x) or lateral (F_y)	±1750 N	±5 N
	±15000 N	±30 N
Vertical (F_z)	0->5000 N	±5 N
	0->30000 N	±30 N
Steer moment (M_z)	±500 Nm	±1 Nm
	±750 Nm	±2 Nm

Cross-talk

	Maximum cross-talk
Load to load	< ±0.1 %
F_x or F_y to M_z	< ±0.0004 Nm/N
F_z to M_z	< ±0.0001 Nm/N

Dynamic Arm Measurement System

Servo-electric linear actuators

EtherCAT control system

About AB Dynamics

AB Dynamics is a leading global provider of automotive test and verification solutions that facilitate the development of vehicles that are safer, more efficient and sustainable. As part of the AB Dynamics Group of companies we enable customers to develop and test in virtual environments, validate on the track and then evaluate vehicles on public roads.

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