AB DYNAMICS™ Product Specification

Ultra-low profile steering robot

Halo™

The Halo robot is a direct-drive hollow centre steering robot that enables a wide range of steering inputs to be applied with high precision and repeatability, so that high quality data can be captured.

Upgradeability to control steering, braking and accelerator functions simultaneously

Fully programmable and easy-to-use control software running within Windows

Suitable for tests specified by FMVSS126, NHTSA, Euro NCAP

Integrated electronics package powered from vehicle's 12 or 24V supply (or self-powered 1 hour)

Data capture (robot channels, analogue input, motion pack data)

Typical installation time less than 30 minutes

Standard test profiles to meet ISO 7401 and many other test types

Vehicle can be driven normally when robot is disabled

CAN — Optional CAN I/O

Can be upgraded to perform path-following tests (see Specification SP6008)

The Halo is used to apply accurate, controlled inputs to a vehicle's steering system as required for a wide range of tests including for transient handling behaviour, ADAS testing, legislative tests (fishhook, sine-dwell etc.), steering system evaluation, durability and misuse testing. It can be used in both path-following and driverless systems.

The wrap-around carbon fibre steering rim built into the motor's rotor allows for normal driving when the Halo is deactivated, while the hollow centre allows the airbag to remain active. This enhances test driver safety and removes the need to make custom steering column adaptors. The main benefit, however, is seen in modern vehicles where the removal of the driver's airbag may be detected by the ESC system, triggering a change in the vehicle's dynamic limits.

The Halo can be used with an external data capture system and include built-in multi-channel data capture to minimise the total hardware required in the vehicle. AB Dynamics steering robots can work in conjunction with pedal, gear changing and clutch robots to form a driverless solution.

Software

The Halo's user interface software runs on any standard PC running Windows. The software enables the driver to define and run new tests quickly and easily by choosing from a library of standard tests. These include sine, sine sweep, step and ramp inputs. A range of special tests is also provided, such as sine-dwell, roll stability (used for fish-hook, J-turns etc.), catch-up and flick. In addition, test profiles can be recorded from direct driver input using a learn mode or played out from data stored in an ASCII file. The robot can also follow an external input signal.

Specifications

Feature	
Direct drive motor	✓
Hollow for use with airbag in place	✓
Suitable for sine-dwell/fishhook	✓
Suitable for path following	✓
Max torque (short duration)	90Nm @ 500°/s
Rated torque	75Nmn @ 1500°/s
Max velocity	2500°/s at up to 10Nm
Motor mass	9kg

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.