Pedal Robots

SP6031

Pedal robot range: RBR600 – BR1000 – RBR1500 – CBAR600 – CBAR1000 – CBAR600L – AR1 – CR

AB Dynamics offers a range of electrically-driven pedal robots to suit its customers' requirements. Robots can be combined to give control of multiple pedals and can also combine with AB Dynamics steering robots to give full vehicle control. The range comprises a choice of several brake robots, an accelerator robot, a clutch robot and a range of combined brake and accelerator robots (CBAR). All AB Dynamics pedal robots are designed to allow a human driver access to the pedals to drive the vehicle manually when the robot is inactive. AB Dynamics pedal robots are used in AB Dynamics' award-winning Driverless Test System (see SP6021).

Combined Brake and Accelerator Robot (CBAR)

Brake Robot RBR1500

Brake Robot BR1000

Accelerator Robot AR1

CBAR The **combined brake and accelerator robots** are single actuator units with two output levers to control a vehicle's brake and throttle. The CBAR600 is designed to provide vehicle speed control and has a lower peak brake force than the BR1000 / RBR1500, but can also be used for accurate brake force inputs up to 600N. The CBAR1000 is slightly larger in size but offers an increase in performance over the CBAR600. The CBAR600 is available in a low configuration (CBAR600L) which offer the same brake performance with a smaller space claim. Compared to separate brake and throttle actuators, the CBAR is more compact, lighter and quicker to install.

BR A **brake robot** is used to apply accurate inputs to a vehicle's brake pedal for braking characterisation and handling behaviour measurement. It is typically used to apply step or ramped force or position inputs to the brake pedal. It can also be used to control vehicle deceleration or brake-line pressure with a suitable feedback transducer. The BR1000 can be combined with an AR1 to give control of a vehicle's speed.

The BR1000 brake robot is the original model and is available in two configurations. The on-seat configuration is optimised to allow quick installation in a wide range of vehicles, while the under-seat configuration gives the most rigid installation and includes a racing bucket seat for the driver. It offers a reliable, high-performance actuator suitable for most brake testing.

The RBR1500 and RBR600 use compact rotary actuators which provide a very high apply rate. The RBR1500 offers the highest performance of any AB Dynamics brake robot and is designed to give the combination of high force and rapid apply rate needed for Brake Assist System testing. The RBR600 uses the same actuator as a CBAR600 for moderate brake force testing.

AR The AR1 **accelerator robot** uses a compact rotary actuator to control throttle pedal position. Used on its own it can give accurate speed control for constant speed / acceleration, and it can be combined with a BR1000 to give full speed control (including deceleration). It can also be used for control of throttle pedal position.

WHICH PEDAL ROBOT IS SUITABLE FOR YOU?

CBAR600 Controls both the brake and accelerator pedal, with enough power to replicate typical driving pedal inputs. Perfect for AEB and other ADAS testing. The CBAR600 can be upgraded for driverless testing.

CBAR600L Offers the same brake performance as the CBAR600 in a more compact package. Not suitable for the driverless upgrade.

CBAR1000 As CBAR600 but with >1000N force capability and increased speed capability. The CBAR1000 can be upgraded for driverless testing.

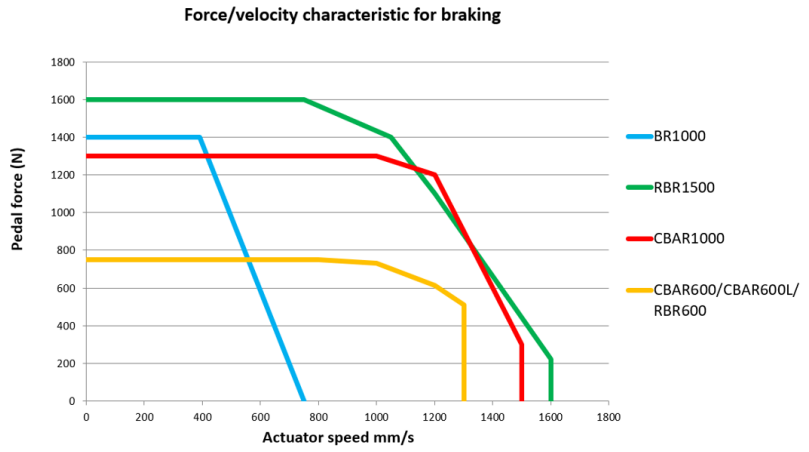
BR1000 The standard brake robot model in use around the world. High force capability allows aggressive brake tests, but can also be used for more subtle tests such as pedal-feel quantification. Available in on-seat or under-seat configuration.

RBR1500 For customers needing the ultimate in aggressive brake testing. High-power rotary actuator gives the highest braking force and speed. Well-suited for brake fade testing.

RBR600 Compact brake robot which gives high speed (over 1000mm/s) but lower peak force than BR1000 or RBR1500.

PERFORMANCE CHARACTERISTICS:

Brake robot force/speed curves



Accelerator robots

AR1:
Maximum force: 150N
Maximum speed: 300mm/s
Max pedal stroke: 130mm

	CBAR600/CBAR1000	CBAR600L
Max throttle force:	200N	175N
Max throttle speed:	650mm/s	715mm/s
Max throttle stroke:	125mm	125mm

These are with the standard lever arm length. Fitting a longer arm gives higher speed and stroke but lower force. Fitting a shorter arm gives higher force but lower speed and stroke.

CR The clutch robot is available with the CBAR600 or the CBAR1000. It is used in conjunction with the Gearshift Robot to enable driverless testing in cars with manual gearboxes. Clutch engage / declutch profiles can be defined to suit the test vehicle.

PEDAL ROBOTS FOR USE IN DRIVERLESS TESTING

The CBAR600 and CBAR1000 can be upgraded with a mechanical spring acting as a failsafe back-up brake system for driverless testing.

All of the top 25 most successful* vehicle manufacturers in the world use ABD technology to develop their vehicles
*OICA World Motor Vehicle Production survey 2012

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