Heart and Soul: The Porsche boxer engine

06/04/2020 The new Porsche 911 Turbo S rounds out the boxer engine family. The newcomer, equipped with two VTG turbochargers, joins a long and illustrious pantheon of predecessors. It embodies the passion and emotion, acumen and expertise of over seventy years of sports car design.

The genetic codes of all of Porsche's current boxer engines are 9A2 and 9A2 evo for four- and six-cylinder engines. They represent a flexible system of identical, technically similar, and individual components that together form a proven foundation, yet also create the space for a plethora of different character traits.

A glance at the range of options amply demonstrates the point: four or six cylinders, naturally aspirated engine or turbo, between two and four liters of displacement, from 250 to 650 PS (horsepower) of power, and torques between 310 and 800 Nm.

One thing that all members of the boxer family have in common is their cylinder spacing: invariably 118 millimeters. Within the cylinders, pistons with diameters of 91 and 102 millimeters do their duty. More precisely: either 76.4 millimeters up and down or 81.5, depending on the crankshaft. Together with the number of cylinders, this results in five different displacements and nine power levels in the 718 and 911 model lines. With a pool of identical parts that are used without modification in all model lines, as well as components with similar design principles, the result is a wealth of synergies in the fundamental engine design toolbox. This enables developers to concentrate on the individual character of the engine's periphery—for instance, the intake duct and exhaust system. The result is typical Porsche: because all boxer engines bear the same genes and despite their different characters, they're all equally efficient, emotional, and driven to perform.

Performance

The new turbo engine delivers astonishing power. The key: enhanced turbochargers with variable turbine geometry (VTG) and wastegates as well as the redesigned, more efficient conveyance of process and charge air.

Efficiency

The optimization of internal friction in the engine and a redeveloped combustion process with centrally positioned piezo injectors enable both greater power and improved efficiency.

Emotion

Whether four cylinders or six, a naturally aspirated engine or turbo: what all Porsche boxer engines have in common is the characteristic sound, the high revving capacity, exceptional responsiveness, and a low center of gravity for maximum driving pleasure.

Info

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Consumption data

911 Turbo S (Predecessor model)

911 Turbo S Cabriolet (Predecessor model)

*Further information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch neuer Personenkraftwagen" (Fuel Consumption, CO_2Emissions and Electricity Consumption Guide for New Passenger Cars), which is available free of charge at all sales outlets and from DAT (Deutsche Automobil Treuhand GmbH, Helmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, www.dat.de).

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