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BMW Engines Introduction

Subject **Page**

Initial Print Date: 09/06 Revision Date: 03/11

BMW Engines Introduction

Model: All

Production: Start of Production

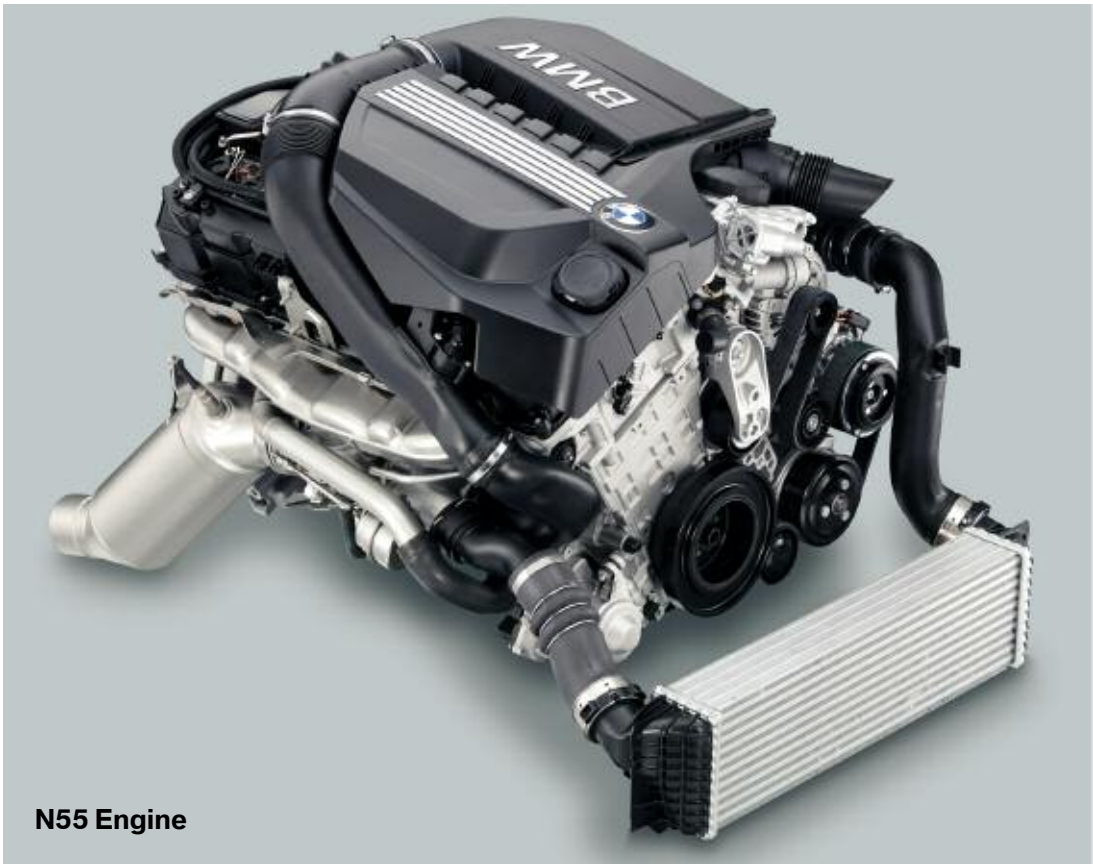
OBJECTIVES

After completion of this module you will be able to:

- Identify the most current BMW Engines
- Describe the additions to the NG6 engine family
- Understand the new engine designations

6 Cylinder Engines

Previously in 2005, BMW introduced the beginning of a new generation (NG) of six cylinder engines with the N52. Since then, BMW has introduced 3 new variations of the NG6 engine family.



N55 Engine

The first of the new engines is the N54, which made its debut in the new 3-series coupe in September 2006. The **N54** is **turbocharged** and uses the second generation of direct injection (DI 2). This engine was introduced in the 335i coupe in the fall of 2006.

The N52 was eventually replaced by the **N52KP**. The N52KP engine is an improved and cost optimized version of the N52. The N52KP was introduced in the 328i and 328xi coupe from September 2006 and replaced the N52 in various models.

The **N51** (which is a **SULEV II** compatible engine) was phased into selected production models from 9/06. The N51 features many of the same features of the previous SULEV engine (M56) including a “Zero Evap” system.

Finally, the **N55** engine is the successor to the N54 and was introduced to the US market with the launch of the F07 535i Gran Turismo in the Spring of 2010. Re-engineering and modifications have made it possible to now use only one exhaust turbocharger. Against the backdrop of reduced costs and improved quality, the technical data has remained virtually the same.

New Generation Engine Designations

A new engine numbering system was introduced to enable fast and distinct identification.

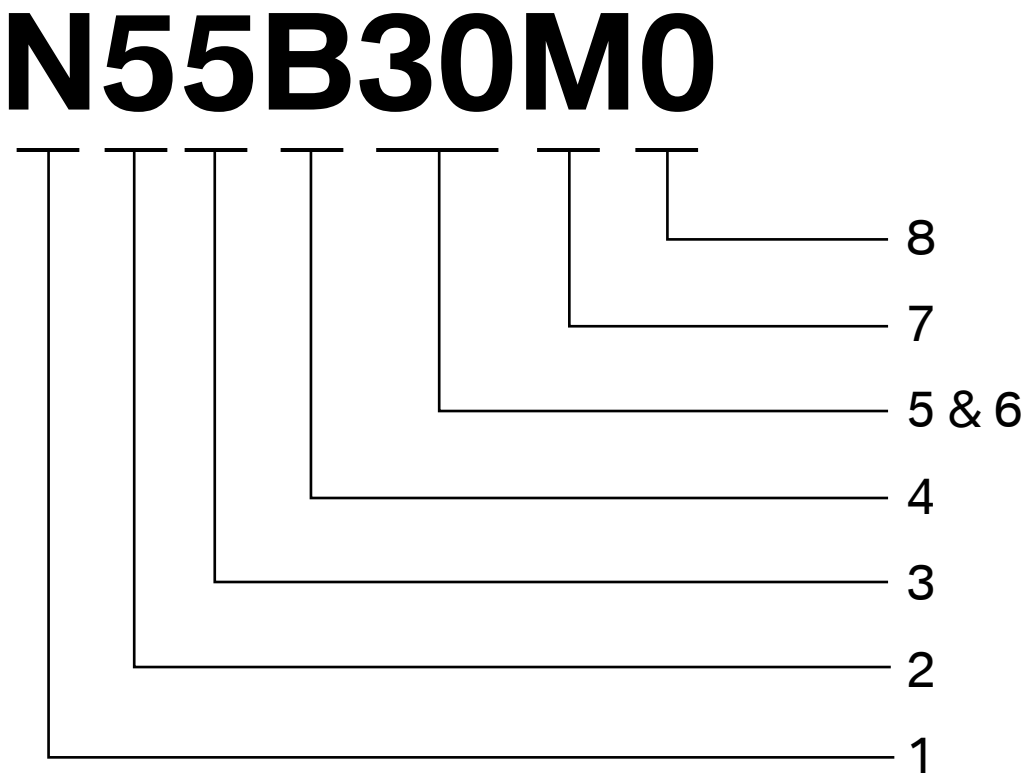
The “TU” designation was dropped together with the associated version number which is now replaced by a simple count number at the end of the engine designation.

The codes T through K are also new for the various power stages instead of the previous “OL” or “UL” designations.

For example, the new N52KP engine which is a variant of the original N52 engine will now be known as the N52B30O1. This would be instead of the traditional “TU” suffix as in - N52B30TU.

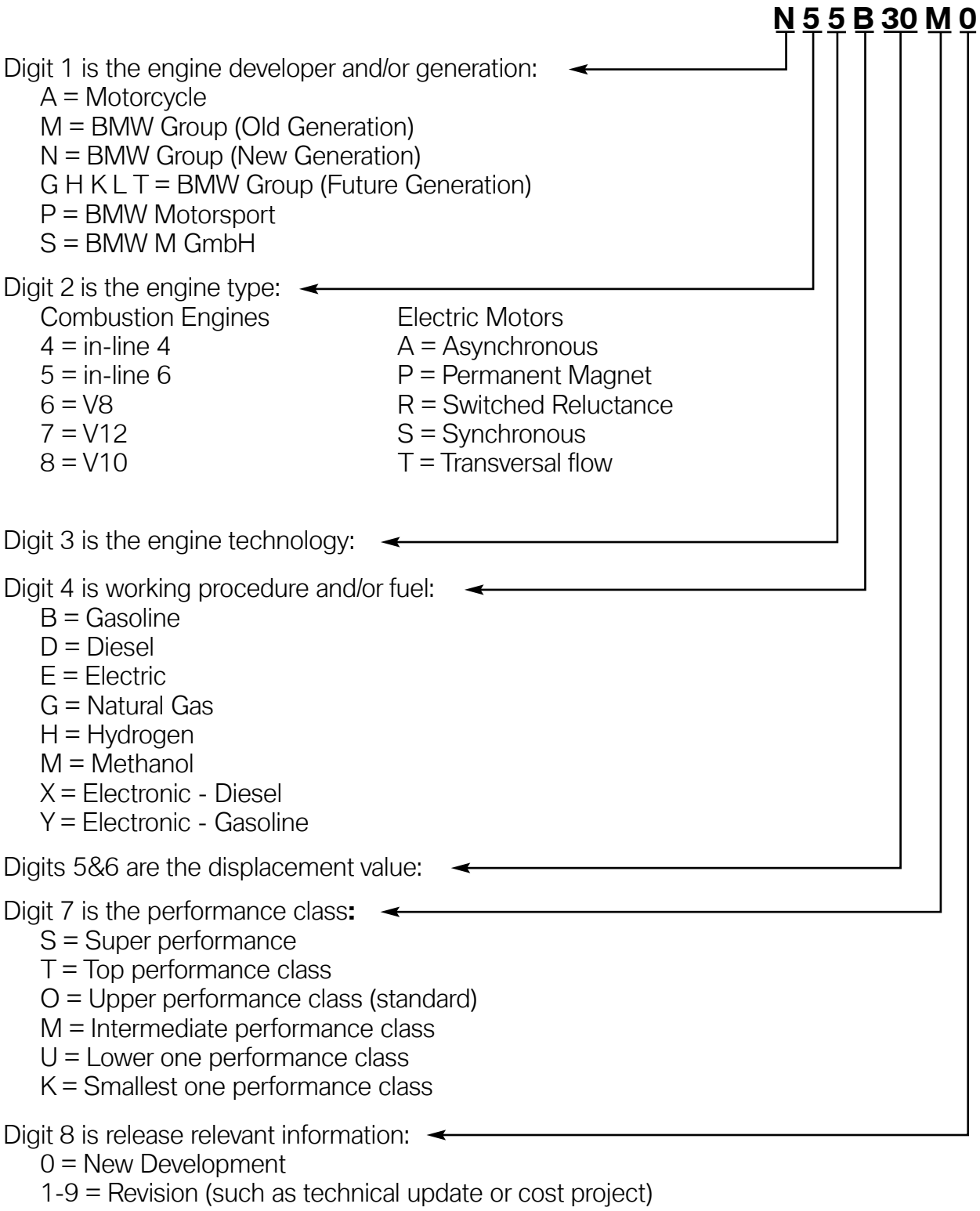
The block stamping (above) is located in the same place as the previous N52 engine.

The chart on the opposing page shows the breakdown of the new engine designations.



Engine Numbering System

In order to organize and classify the engines developed by BMW, a numbering system has been developed.



N52KP Engine Overview

The enhanced and improved version of the original **N52** is referred to as the N52KP or more accurately the **N52B30O1**. This engine includes cost saving measures as well as various technical improvements. The N52KP will eventually replace the N52 in all vehicle applications. One of the first vehicles to use the N52KP was the 328i coupe (E92).

The technical highlights of the N52KP include:

- New engine management (MSV80)
- New HFM (digital)
- New throttle - EGAS8 with magnetoresistive position feedback
- Plastic valve cover with integrated crankcase vent valve and oil separation
- Stronger connecting rods
- Exhaust valve stem increased to 6mm
- New electric water pump (2nd generation)
- Lightweight camshafts (hydroformed)

The N52KP will be available in three versions as follows:

- N52B30O1 - High Output version with 260hp
- N52B30M1 - Medium Output version with 230hp
- N52B30U1 - Possible future application with 215hp

Each of the above engines will have a different specific output for installation into various models. For example, the E83 LCI (X3 3.0si) will receive the “O” version which has a power output of 260 horsepower at 6600 rpm.

Technical Data (N52B30M1)

Description	Value
Engine type	Inline 6 cylinder
Displacement (cm^3)	2996
Stroke/bore (mm)	88/85
Cylinder spacing (mm)	91
Firing order	1-5-3-6-2-4
Power output(kw/bhp) @ RPM	172/230 @ 6250 RPM
Torque (Nm) @RPM	270 @ 3000
Maximum engine speed	7000
Compression ratio	10.7
Valves/	4
Knock control	Yes
Engine management	MSV80
Emission compliancy (US)	ULEV 2
Injection system type	Manifold injection

N51 Overview

In order to comply with **SULEV** requirements, the **N51** is another variant of the N52 engine. There are various measures to meet the EPA/CARB standards, some of which are familiar from the previous SULEV (M56) engine.

Some of the SULEV measures for the N51 include:

- Near engine catalyst with additional underbody catalyst
- Secondary air system
- Optimized combustion chamber geometry in cylinder head
- Modified piston crown for lower compression
- Plastic valve cover with integrated crankcase vent valve and separator (from N52KP)
- Stainless steel fuel lines with threaded connections
- Radiator with “Prem-air” coating
- Throttle system - EGAS08 carried over from N52KP
- Airbox with Activated carbon filter for EVAP control
- Purge system pipes are made from “optimized” plastic

N54 Engine Overview

The first new member of the **NG6** family was the **N54** which was initially available in the E92 335i. The N54 continues the tradition of "efficient dynamics" by meeting the customer demand for high performance and the necessary requirements of low fuel consumption and emissions.

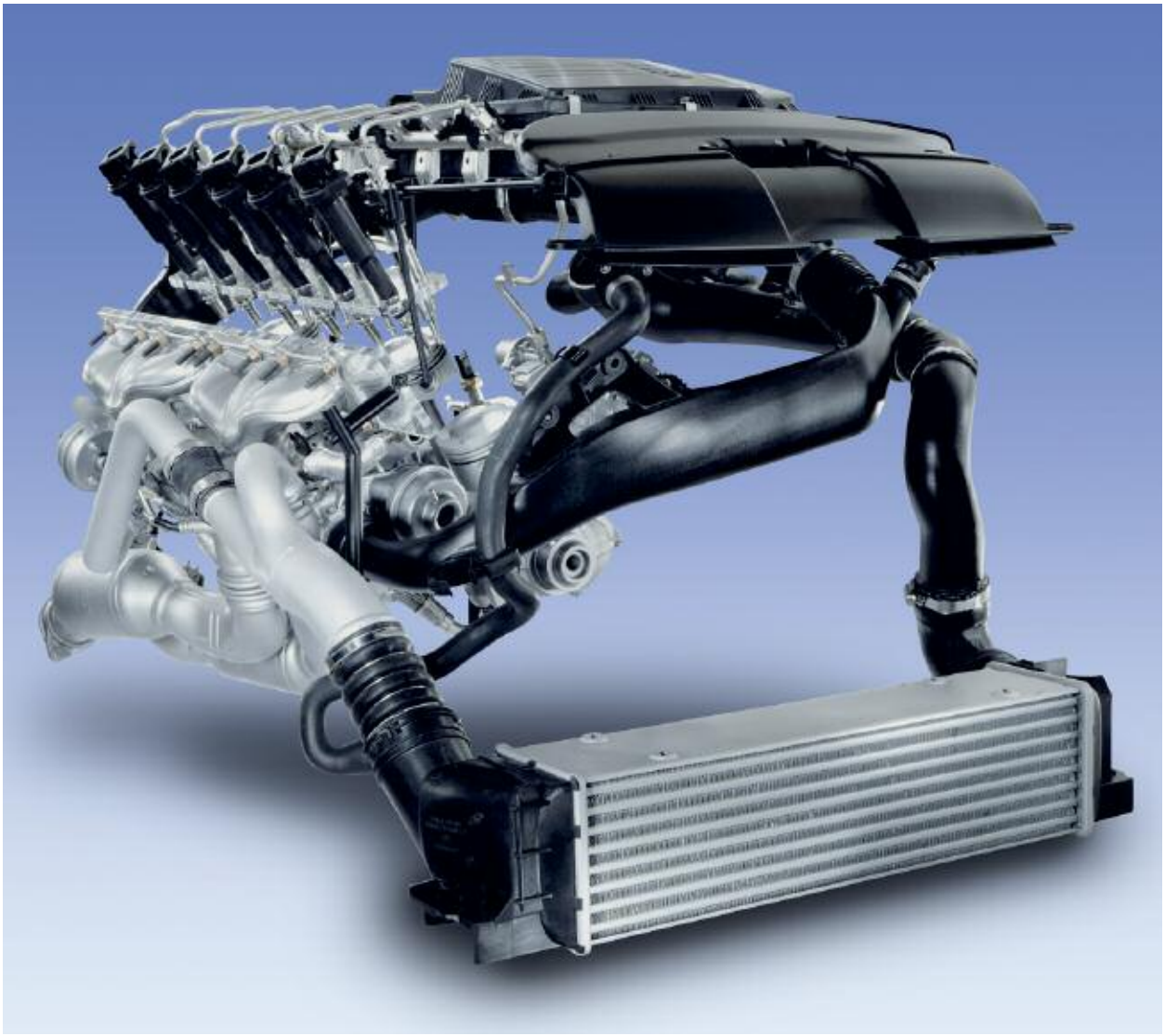
The N54 is available as a **3.0 liter** engine and features the following:

- Exhaust driven turbochargers (Bi-turbo)
- Air to air Intercooler
- 2nd Generation Direct Injection (HPI) with piezo injectors
- New engine management (MSD80)
- Bi-VANOS
- All aluminum crankcase with iron cylinder liners (similar dimensions to N52)
- External oil cooler
- New high output electric water pump (400 W)
- Aluminum cylinder head with plastic valve cover
- Steel crankshaft

As per the new engine designations, the N54 will be officially referred to as the N54B30O0. The “O” designates the “upper” output range and the “0’ indicates the first generation in this series.

The N54 features the new HPI injection system which is capable of pressures of to 200 bar. This system features the new “piezo” injector technology with “outward” opening injectors.

Also, the N54 benefits from **parallel bi-turbocharging** with air to air intercoolers.

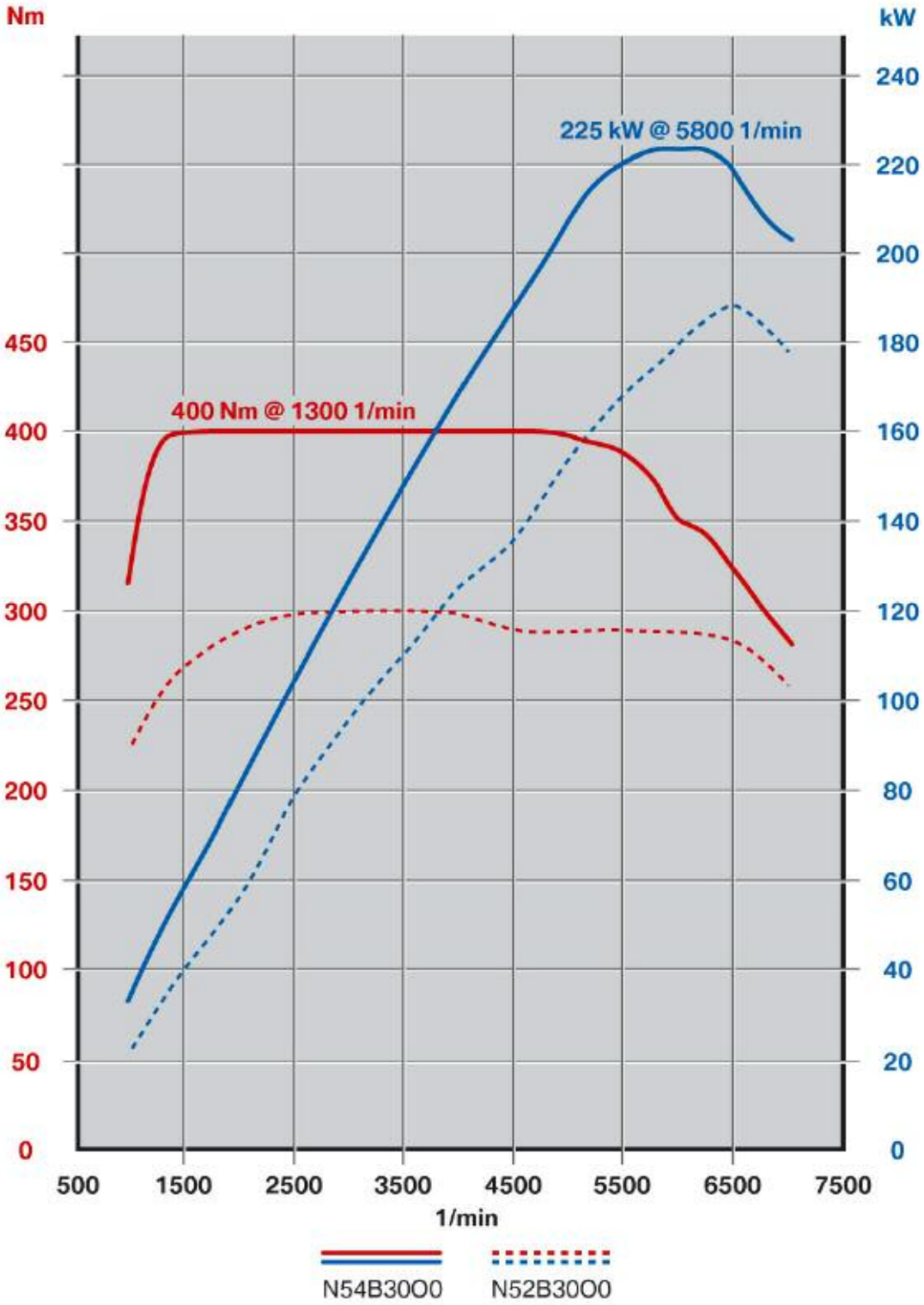


Overall, the N54 provides the driver with uncompromising response and high torque output in a package that is up to 150 pounds lighter than a V-8 engine. The new technology used in the N54, allows for maximum efficiency and the required low tailpipe emission figures to meet ULEV II guidelines.

Technical Data N54

Description	Value
Engine type	Inline 6 cylinder
Displacement (cm^3)	2979
Stroke/bore (mm)	84/89.6
Cylinder spacing (mm)	91
Crankshaft main bearing diameter (mm)	65
Crankshaft rod journal diameter (mm)	50
Firing order	1-5-3-6-2-4
Power output(kw/bhp) @ RPM	225/300 @ 5800 RPM
Torque (Nm) @RPM	400 @ 1300 - 5000
Maximum engine speed	7000
Power to weight ratio (kg/kW)	0.83
Power output per liter (kW/l)	75.5
Compression ratio	10.2
Valves/cyl	4
Inlet valve diameter (mm)	31.44
Exhaust valve diameter (mm)	28
Engine weight (kg)	187
Knock control	Yes
Engine management	MSD80
Emission compliancy (US)	ULEV 2
Injection system type	HPI (DI 2)

Power Output Comparison (N52 to N54)



N55 Engine Overview

The N55 engine is the successor to the N54 engine and was introduced to the US market with the launch of the F07 535i Gran Turismo in the Spring of 2010. Technical updates and modifications make it possible to use only one exhaust turbocharger. The technical data has remained virtually the same - with reduced costs and improved quality.

Innovations on the N55 engine:

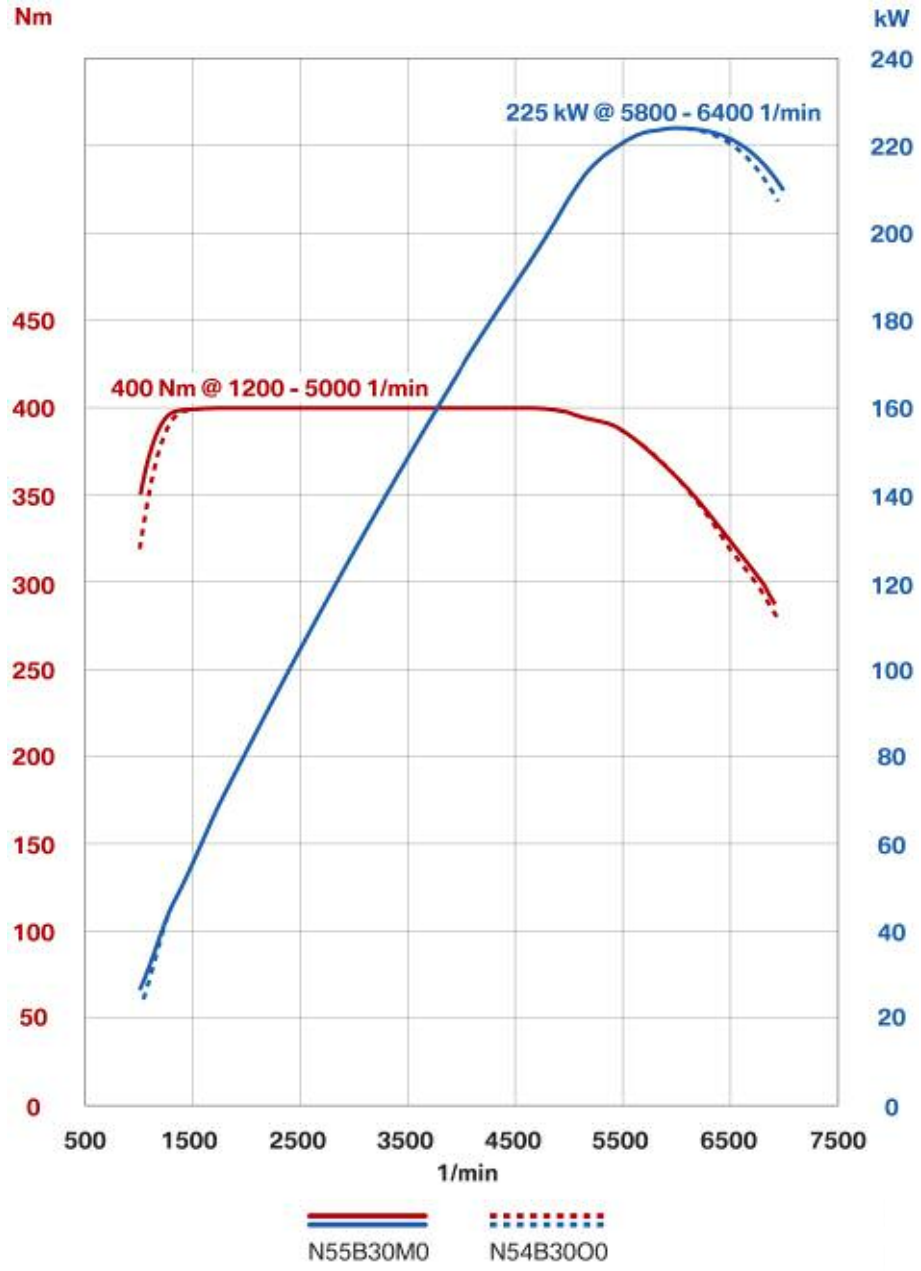
- Single exhaust turbocharger (twin scroll type)
- Air-gap-insulated exhaust manifold six into two
- Catalytic converter is located closer to engine
- Direct fuel injection with central injector location, (uses solenoid valve injectors)
- 3rd generation VALVETRONIC
- Engine mounted Digital Engine Electronics (MEVD17.2 Bosch), integrated into intake system, FlexRay capability
- Lightweight-construction crankshaft
- Characteristic-map-regulated oil pump
- Uniform single-belt drive across all model series

Technical Data

	Unit	N54B30O0 (E71/X6 xDrive35i)	N55B30M0 (F07/535i)
Configuration		6 inline	6 inline
Cylinder capacity	[cm³]	2979	2979
Bore/stroke	[mm]	84.0/89.6	84.0/89.6
Power output at engine speed	[kW/bhp] [rpm]	225/306 5800 - 6250	225/306 5800 - 6400
Power output per liter	[kW/l]	75.53	75.53
Torque at engine speed	[Nm] [rpm]	400 1300 - 5000	400 1200 - 5000
Compression ratio	[ε]	10.2	10.2
Valves/cylinder		4	4
Fuel consumption, EU combined	[l/100 km]	10.9	8.9
CO2 emission	g/km	262	209
Digital Motor Electronics		MSD81	MEVD17.2
Exhaust emission legislation, US		ULEV	ULEV II
Engine oil specification		BMW Longlife-01 BMW Longlife-01 FE BMW Longlife-04	-
Top speed	[km/h]	240	250
Acceleration 0 - 100	[s]	6.7	6.3
Vehicle curb weight DIN/EU	[kg]	2070/2145	1940/2015
* = Electronically governed			

Full Load Diagram

Compared to its predecessor, the N55 engine is characterized by lower fuel consumption with the same power output and torque data.



Full load diagram E90 335i with N54B30O0 engine compared to the F07 535i with N55B30M0 engine

Current Models

N54B30O0 engine variants

Model	Version	Series	Displace-ment in cm³	Stroke/ bore in mm	Power output in kW/bhp at rpm	Torque in Nm at rpm
135i**	US	E82, E88	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
335i**	US	E90, E92, E93	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
335i xDrive**	US	E90, E92	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
335is	US	E92, E93	2979	89.6/84.0	320 SAE hp 5800 - 6250	450 (332 ft-lbs) *1400 - 5000
Z4 sDrive35i**	US	E89	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
Z4 sDrive35is	US	E89	2979	89.6/84.0	335 SAE hp 5800 - 6250	450 (332/369 ft-lbs) *1400 - 5000
535i**	US	E60	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
535i xDrive**	US	E60, E61	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
X6 xDrive35i**	US	E71	2979	89.6/84.0	300 SAE hp 5800 - 6250	407 (300 ft-lbs) 1400 - 5000
740i	US	F01, F02	2979	89.6/84.0	315 SAE hp 5800 - 6250	450 (330 ft-lbs) 1600 - 4500

*** The enhanced engine management system of the BMW Z4 sDrive35is and the 335is include an electronically controlled overboost function to briefly increase torque under full load by another 37 ft-lbs. This temporary torque peak of 369 ft-lbs gives the car a significant increase in acceleration for approximately 5 seconds.**

**** As of MY 2011 the N55 replaced the N54 in these models.**

Engine Designation and Engine Identification

Engine designation

This training material describes the N55B30M0 in detail.

In the technical documentation, the engine designation is used for unique identification of the engine. In the technical documentation you will also find the abbreviated engine designation, i.e. N55, that only indicates the engine type.

Item	Meaning	Index / explanation
1	Engine developer	M, N = BMW Group P = BMW Motorsport S = BMW M mbH W = Non-BMW engines
2	Engine type	1 = R4 (e.g. N12) 4 = R4 (e.g. N43) 5 = R6 (e.g. N55) 6 = V8 (e.g. N63) 7 = V12 (e.g. N73) 8 = V10 (e.g. S85)
3	Change to the basic engine concept	0 = basic engine 1 – 9 = changes, e.g. combustion process
4	Working method or fuel type and possibly installation position	B = Gasoline, longitudinal installation D = Diesel, longitudinal installation H = Hydrogen
5	Displacement in liters	1 = 1 liter (whole number of liters)
6	Displacement in 1/10 liter	8 = 0.8 liter (tenth of liter)
7	Performance class	K = Smallest U = Lower M = Middle O = Upper (standard) T = Top S = Super
8	Revision relevant to approval	0 = New development 1 – 9 = Revision

Breakdown of N55 Engine Designation

Index	Explanation
N	BMW Group Development
5	Straight 6 engine
5	Engine with direct injection, VALVETRONIC and exhaust turbocharger
B	Gasoline engine, longitudinal
30	3.0-liter capacity
M	Medium performance class
0	New development

Engine identification

The engines are marked on the crankcase with an engine identification code for unique identification. This engine identifier is also required for approval by the authorities. The N55 engine further develops this identification system and the code has been reduced from previously eight to seven characters. The engine serial number can be found under the engine identifier on the engine. Together with the engine identifier, this consecutive number enables unique identification of each individual engine.

Item	Meaning	Index / explanation
1	Engine developer	M, N = BMW Group P = BMW Motorsport S = BMW M GmbH W = Non-BMW engines
2	Engine type	1 = R4 (e.g. N12) 4 = R4 (e.g. N43) 5 = R6 (e.g. N55) 6 = V8 (e.g. N63) 7 = V12 (e.g. N73) 8 = V10 (e.g. S85)
3	Change to the basic engine concept	0 = basic engine 1 – 9 = changes, e.g. combustion process
4	Working method or fuel type and possibly installation position	B = Gasoline, longitudinal installation D = diesel, longitudinal installation H = hydrogen
5	Displacement in liters	1 = 1 liter (whole number of liters)
6	Displacement in 1/10 liter	8 = 0.8 liter (tenth of liter)
7	Type test concerns (changes that require a new type test)	A = Standard B – Z = Depending on requirement, e.g. RON 87

N55 engine, engine identification and engine serial number

Index	Explanation
08027053	Individual consecutive engine serial number
N	Engine developer, BMW Group
5	Engine type, straight 6
5	Change to basic engine concept, turbocharging, VALVETRONIC, direct fuel injection
B	Operating principle or fuel supply and installation position, petrol engine longitudinal
30	Displacement in 1/10 liter, 3 liter
A	Type approval requirements, standard

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8 Cylinder Engine

N63B44O0 Engine

The N63 engine was introduced with the launched of the E71 xDrive50i in 2008. The new 4.4 liter, 400 hp, 450 lb-ft torque V8 engine combines direct injection with twin turbochargers (neatly tucked into the engine valley).

As the successor to the N62 engine, the N63B44O0 was developed based on the principles of "Efficient Dynamics". Efficient Dynamics combines driving enjoyment with efficiency which, in a new engine, is expressed in increased power output together with reduced fuel consumption.

One of the ways of achieving this objective is through downsizing. This means the same power output is achieved with reduced engine displacement or higher power output at the same engine displacement.

Both objectives apply to the N63 engine. Compared to the N62 engine, the power output has been boosted while decreasing the engine displacement.

In comparison, the N62TU has a displacement of 4.8 liters, while the new N63 engine displaces only 4.4 liters.

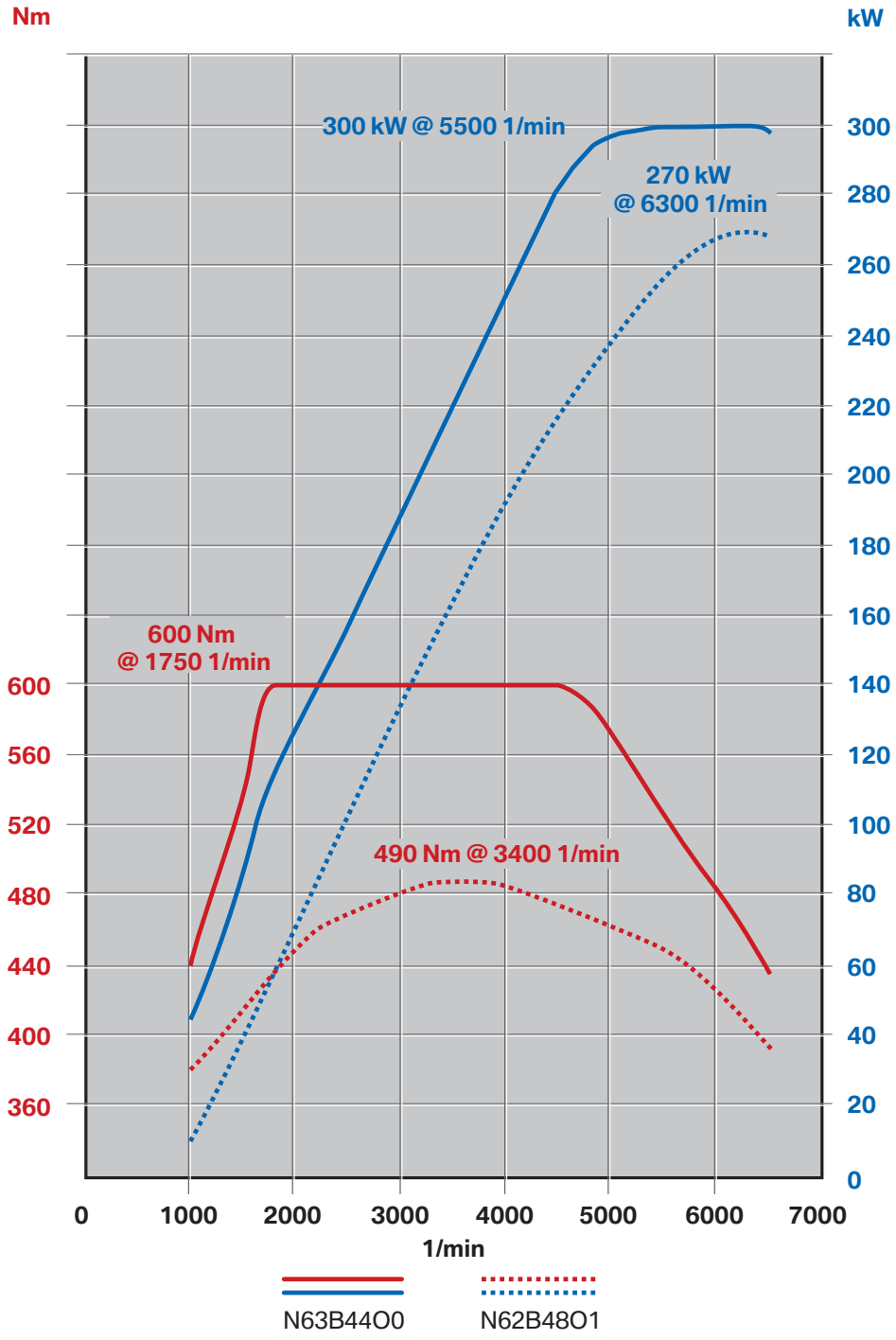
This is primarily achieved by technologies that already gave the N54 engine its legendary dynamics and outstanding efficiency: Bi-turbocharging in connection with high precision injection.

The N63 is the first engine world-wide to feature an optimized package, involving the integration of the turbocharger and the main near-engine catalytic converters in the “v-space”.

The N63 is installed in several current BMW models from the E71, E72, E70 LCI to F01, F02, F04, F07, F10 and F12.

Full Load Diagram

Compared to it's predecessor, the N62TU, the new N63 engine is characterized by distinctly higher output. It has an impressive torque curve which not only peaks earlier (at 1750 RPM), but is also very "flat" which is a characteristic of BMW turbocharged engines.



Engine Technical Data N62TU vs. N63

Description	Units of Measurement	N62B48O1	N63B44O0
Engine type		V-8	V-8
Displacement	(cm3)	4799	4395
Firing order		1-5-4-8-6-3-7-2	1-5-4-8-6-3-7-2
Stroke	mm	88.3	88.3
Bore	mm	93	89
Power output @ rpm	hp @ rpm	360 @ 6300	400 @ 5500 to 6400
Torque @ rpm	Nm @ rpm	490 @ 3400	600 @ 1750 - 4500
Maximum engine speed	rpm	6500	6500
Power output per liter	kw (hp)	56.26 (75)	68.26 (90)
Compression ratio		10.5 : 1	10.0 : 1
Cylinder spacing	mm	98	98
Valves/cylinder		4	4
Intake valve	mm	35.0	33.0
Exhaust valve	mm	29.0	29.0
Main bearing journal diameter	mm	70	65
Connecting rod journal diameter	mm	54	54
Fuel specification (Octane)	(RON)	98	98
Engine management		ME 9.2.2	MSD85
Emission standard		ULEV II	ULEV II

Engine Overview

The latest generation of BMW V-8 engines differs from past designs in several areas. Although all of these engines have been derived from the M60 engine from 1993, the N63 engine design is a departure from the original design.

The following chart will point out some of the differences where the N63 is unique and distinct. The information found below outlines the new engine technology as compared to previously known systems. The features are organized by engine system and are divided into the following categories:

- New Development - this is a system or component which has never been used previously on a BMW engine.
- New Design - this is a system or component which has been specifically developed for the N63 engine, but does not represent a technical innovation.
- Technology carried over from N54 - This represents technology already known from the N54 engine and adapted to the N63.

Component/System	New Development	New Design	Technology carried over from N54	Remarks
Engine casing components		x		Engine casing components include the cylinder head, cylinder head cover, crankcase, oil pan.
Crankshaft drive system		x		Crankshaft drive system includes the crankshaft which has reduced weight, while maintaining sufficient strength.
Valve gear		x		The N63 engine uses VANOS, which is carried over from N52. (No VALVETRONIC is used)
Timing gear	x			A new tooth-roller chain is used in the timing gear.

Component/System	New Development	New Design	Technology carried over from N54	Remarks
Belt drive	x			The belt drive uses the ELAST drive belt, but is characterized by a new tensioning system for the AC compressor.
Oil supply		x		A volumetrically controlled oil pump is used for the N63 engine.
Cooling system	x			In addition to a conventional coolant pump, the N63 engine uses an auxiliary electric cooling pump for cooling of the turbochargers. There is also an additional cooling circuit for the water-cooled intercoolers with it's own electric coolant pump and heat exchangers.
Air intake and exhaust systems		x		Due to the arrangement if the turbochargers in the "v-space" and the indirect charge air cooling, the intake and exhaust systems are completely re-configured.
Turbocharging			x	A bi-turbocharging system has been carried over from the N54 engine.
Vacuum system		x		A two-stage vacuum pump similar to that used on the N62TU engine.
Fuel system			x	The HPI injection system from the N54 engine has been adapted to the V-8 (N63).
Engine electrical system		x		The engine management system features a new ECM and there are new oxygen sensors (LSU ADP).

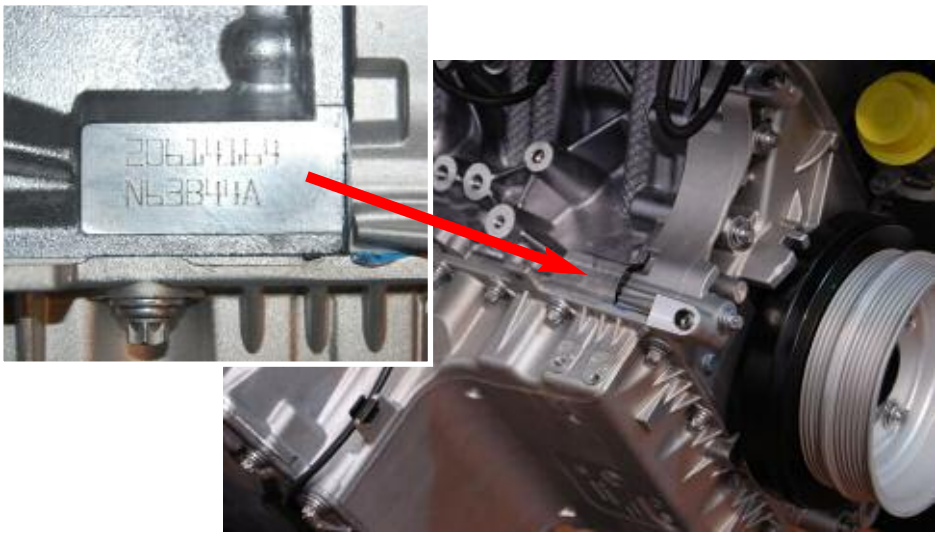
Engine Designations

Officially, the engine designation for the new BMW N63 engine is N63B44O0.
The designation is broken down in the following:

Index	Explanation
N	BMW Group “New Generation” engine
6	8-cylinder engine
3	Gasoline, direct-injection
B	Gasoline engine
44	4.4 liter displacement
O	Upper output stage
0	New development

Engine identification and serial number

The engine ID and sequential serial number are located on the passenger side of the engine behind the AC compressor mounting at the front of the crankcase.



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12 Cylinder Engine

N74B60U0 Engine

The N74 engine was introduced to the US market with the launch of the F01/F02 760i/760Li in the September 2009.

The N74 engine is the successor to the N73 engine, but shares many technical features with the N63 engine. Thus the N74 engine also has high precision injection featuring outward-opening piezo injectors located centrally in the combustion chamber and twin turbochargers with indirect charge air cooling. On the N74 engine, however, the exhaust turbochargers are located on the outside of the engine.

N74B60U0 engine

N74 Engine Features

The N74 engine also shares many other common features with the N63 engine, such as a volumetric-flow-controlled oil pump and a camshaft drive with tooth-roller type chains.

By using the latest technology, it has been possible to increase power output substantially, while at the same time reducing fuel consumption – Efficient Dynamics in fact.

Index	Explanation
1	Camshaft drive with toot-roller type chain
2	High pressure pump for high precision injection
3	Charge air cooling for indirect charge air cooling
4	Outward-opening piezo injector
5	Volumetric-flow-controlled oil pump
6	Exhaust turbocharger
7	Charging pressure control by means of wastegate valves

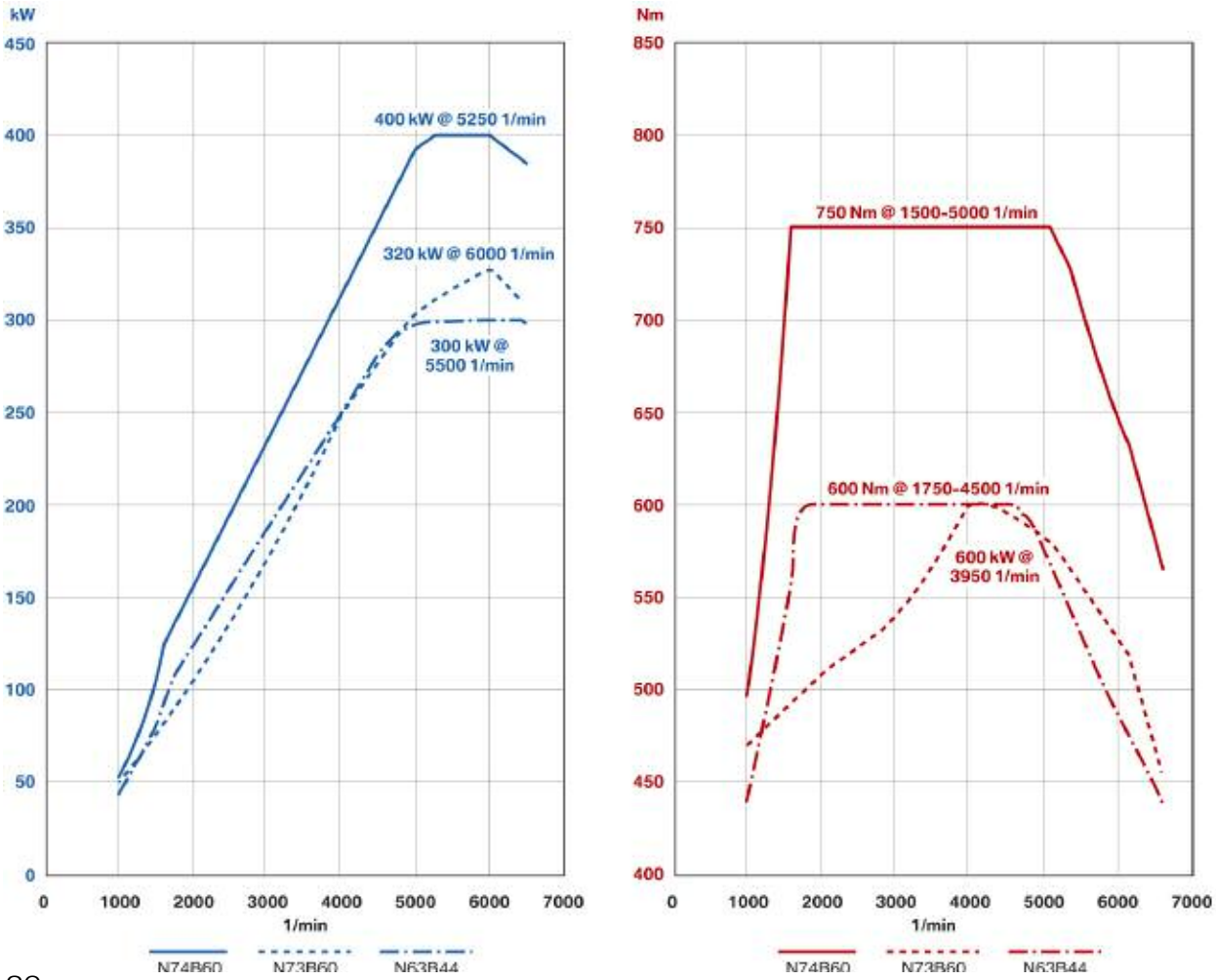
Technical Data

Description	Units of Measure	N73B60O1	N74B60U0
Engine type		V12 60°	V12 60°
Firing order		1-7-5-11-3-9- 6-12-2-8-4-10	1-7-5-11-3-9- 6-12-2-8-4-10
Displacement	[cm³]	5972	5972
Bore / stroke	[mm]	89/80	89/80
Power output at engine speed	[kW/bhp] [rpm]	320/435 6000	400/535 5250-6000
Torque at engine speed	[Nm/lb-ft] [rpm]	600/400 3950	750/550 1500-5000
Power output per liter	[kw/l]	53.58	66.98
Cutoff speed	[rpm]	6500	6500
Compression ratio		11.5	10.0
Maximum Boost	bar	NA (Naturally Aspirated)	0.7
Distance between cylinders	[mm]	98	98
Valves per cylinder		4	4
Diameter of intake valve	[mm]	35.0	33.2
Diameter of exhaust valve	[mm]	29	29
Diameter of main bearing journals of the crankshaft	[mm]	70	65

Description	Units of Measure	N73B60O1	N74B60U0
Diameter of connecting rod bearing journals of the crankshaft	[mm]	54	54
Fuel specification	[RON]	98	95
Fuel	[RON]	91-98	91-98
Engine control system		2 x MED 9.2.1 1 x VALVETRONIC control unit 2 high-pressure fuel injection valve control units (HPFI)	2 x MSD87-12
Exhaust emission standard US		LEVII	ULEV II

Full Load Diagram

Full load diagram for the N74B60 engine, compared with the N73B60 and N63B44 engines



Engine Overview

The following provides an overview of the features of the N74 engine:

- **Engine block**

  The main components of the engine block have been re-designed, although most features are already used on other BMW engines.

- **Crankshaft**

  Although the Pistons and connecting rods have been borrowed from the N63 engine, the crankshaft is a new design.

- **Valve train**

  The VANOS units from the N63 engine are used and the camshafts are manufactured in the same way. The N74 does not use a VALVETRONIC system.

- **Camshaft**

  The tooth-roller type chain of the N63 engine is used. Only the chain length and the layout of the timing gears have been adapted to suit the twelve-cylinder engine.

- **Belt drive**

  The structure of the belt drive includes a “revolver” tensioning system and is identical to that on the N63 engine.

- **Oil supply**

  Though the oil supply system has been designed for the N74 engine, in principle, it's the same as that on the N63 engine. Consequently a volumetric-flow-controlled oil pump is also used here.

- **Crankcase ventilation**

  The engine uses the same crankcase ventilation principle as N63 engine with a new feature called register ventilation. With this feature, the oil separators now have four cyclones per cylinder bank and in naturally-aspirated operation, ventilation only occurs via cylinder bank 2.

- **Cooling system**

  Two separate cooling circuits are used as on N63, one to cool the engine and turbocharger bearings and one for charge air cooling, this latter circuit also provides cooling for the two engine control units.

- **Air intake and exhaust system**

  The air intake and exhaust systems are the same as that on the N63 engine. This means there are two conventional exhaust turbochargers with wastegate and blow-off valves. In contrast to the N63 engine, however, the exhaust turbochargers are located on the outside.

- **Secondary air system**

  As with N73 engine, the N74 is equipped with a secondary air system. One new feature, however, are the two pressure sensors that monitor system operation.

- **Vacuum system**

  The N74 engine has a two-stage vacuum pump as on the N63. The vacuum system only differs in that it has two vacuum reservoirs.

- **Fuel system**

  The N74 engine uses “injection guided” (HPI) high precision injection in homogeneous operation at all times, as on the N54 and N63 engines. The structure of the system is the same as that on the N63 engine. Consequently, the same injectors are used and the high pressure pumps are also very similar.

- **Engine electrical system**

  A total of five control units were used on the N73 for engine control purposes. The N74 now has two engine control units, one of which has the role of the master (primary), the other the secondary. The two MSD87-12 control units are located to the left and right of the engine compartment and are cooled by the low temperature cooling circuit of the engine intercoolers.

The N74 engine uses the most current BMW systems. Although the N74 engine has been designed from scratch, from a technology point of view it is, the same as the N63 engine and has also borrowed many individual components from this engine.

Engine Identification

Engine designation

In the technical documentation, the engine designation is used to ensure the clear identification of engines.

The N74 engine is available in the following version: **N74B60U0**

In the technical documentation, you will also find the short form of the engine designation N74 which only permits identification of the engine type.

The following chart explains the meaning of each component of the engine designation.

Index	Explanation
N	BMW Group "New generation"
7	12-cylinder engine
4	Engine with high precision injection and turbocharging
B	Gasoline engine
60	6.0 liters displacement
U	Lower power stage
0	New development

Engine identification and number

To ensure clear identification and classification, the engines have an identification mark on the crankcase. This engine identification is also necessary for approval by the authorities.

Decisive here are the first seven positions. The N74 engine has an engine identification that complies with the new standard, in which the first six positions are the same as the engine designation. The seventh position is a consecutive letter that can be used for various distinctions, e.g. power stage or exhaust emission standard. A general assignment is not possible, but an "A" usually means the basic model.

The engine number is a consecutive number that permits unmistakable identification of each individual engine. The engine designation and number are on the crankcase behind the bracket for the air conditioning compressor.

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