

2008 BMW X5 48i

2007-08 ENGINE Engine - Technical Data - X5 (N52K 6-Cyl.)

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00 ENGINE, GENERAL

11 00 ENGINE IN GENERAL N52K B25

TECHNICAL DATA - ENGINE GENERAL N52K B25

Cylinder		6
Bore Diameter	mm	82
Stroke	mm	79
Effective displacement	cm ³	2497
Compression ratio	:1	11
Max. permissible engine speed	RPM	6500 ± 50
Permissible constant speed	RPM	6300
Compression pressure: Minimum lift of Valvetronic.		9...18
Compression pressure: Maximum deviation of all cylinders to each other.	bar	2

11 00 ENGINE IN GENERAL N52K B30

TECHNICAL DATA - ENGINE GENERAL N52K B30

Cylinder		6
Bore Diameter	mm	85
Stroke	mm	88
Effective displacement	cm ³	2996
Compression ratio	:1	10.7
Max. permissible engine speed	RPM	6500 ± 50
Permissible constant speed	RPM	6300
Compression pressure: Minimum lift of Valvetronic.		9...18
Compression pressure: Maximum deviation of all cylinders to each other.	bar	2

11 ENGINE BLOCK

11 11 ENGINE BLOCK, CYLINDER CRANKCASE N52K B25

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TECHNICAL DATA - ENGINE BLOCK, CYLINDER CRANKCASE N52K B25

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Bore diameter stage 0 a)	mm	82.000 ^{+0.014}
Bore diameter stage 00 a)	mm	
Bore diameter stage 1 a)	mm	82.250 ^{+0.014}
Permitted out-of-round of cylinder bore a)	mm	0.005
Permitted conicity of cylinder bore a)	mm	0.010
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.150
a) new status or recondition		

11 11 ENGINE BLOCK, CYLINDER CRANKCASE N52K B30**TECHNICAL DATA - ENGINE BLOCK, CYLINDER CRANKCASE N52K B30**

Bore diameter stage 0a) a)	mm	85.000 ^{+0.014}
Bore diameter stage 00 a)	mm	
Bore diameter stage 1 a)	mm	85.250 ^{+0.014}
Permitted out-of-round of cylinder bore a)	mm	0.005
Permitted conicity of cylinder bore a)	mm	0.010
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.150
a) new status or recondition		

12 CYLINDER HEAD WITH COVER**11 12 CYLINDER HEAD WITH COVER N52K B25****TECHNICAL DATA - CYLINDER HEAD WITH COVER N52K B25**

Cylinder head height: Original dimension	mm	112.000 ± 0.050
Machining limit	mm	111.700 ± 0.050
Valve guides are not available as replacement parts.		
Inside diameter of installed valve guide		
Original inlet valve	mm	5.000+0.012
Original exhaust valve	mm	6.000+0.012
Tilt clearance, maximum	mm	0.500

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(wear between valve and valve guide)

11 12 CYLINDER HEAD WITH COVER N52K B30**TECHNICAL DATA - CYLINDER HEAD WITH COVER N52K B30**

Cylinder head height: Original dimension	mm	112.000 ± 0.050
Machining limit	mm	111.700 ± 0.050
Valve guides are not available as replacement parts.		
Inside diameter of installed valve guide		
Original inlet valve	mm	5.000+0.012
Original exhaust valve	mm	6.000+0.012
Tilt clearance, maximum (wear between valve and valve guide)	mm	0.500

11 12 CYLINDER HEAD WITH VALVE SEAT COVER N52K B25**TECHNICAL DATA - CYLINDER HEAD WITH VALVE SEAT COVER N52K B25**

Valve seat angle	°	45
Correction angle: outer	°	15
Correction angle: inner	°	60
Valve seat width: Inlet	mm	1.0 +0.1
Valve seat width: Exhaust	mm	1.2 +0.1
Valve seat diameter		
Valve seat surface: Outside dia. inlet	mm	27.7+0.1
Valve seat surface: Outside dia. exhaust	mm	26.6+0.1

11 12 CYLINDER HEAD WITH VALVE SEAT COVER N52K B30**TECHNICAL DATA - CYLINDER HEAD WITH VALVE SEAT COVER N52K B30**

Valve seat angle	°	45
Correction angle: outer	°	15
Correction angle: inner	°	60
Valve seat width: Inlet	mm	1.0 +0.1
Valve seat width: Exhaust	mm	1.2 +0.1
Valve seat diameter		
Valve seat surface: Outside dia.	mm	27.7+0.1

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inlet		
Valve seat surface: Outside dia. exhaust	mm	26.6+0.1

21 CRANKSHAFT WITH BEARINGS**11 21 CRANKSHAFT AND BEARINGS N52K B25****TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B25**

Ground sizes of main bearing journals		main bearing journal
Original (designation S1)	mm	55.998 ... 55.993
Original (designation S2)	mm	55.992 ... 55.987
Original (designation S3)	mm	55.986 ... 55.981
Crankshaft bearing clearance, radial	mm	0.020 ... 0.046
Max. permitted runout at center crankshaft journal	mm	0.150

11 21 CRANKSHAFT AND BEARINGS N52K B25**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B25**

Grinding stages, crankshaft guide bearing		
Standard	mm	24.0 F8
Crankshaft axial play	mm	0.060 ... 0.250

11 21 CRANKSHAFT AND BEARINGS N52K B25**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B25**

Ground sizes of conrod bearing journals		
Standard	mm	50.000 ^{-0.007} _{-0.027}
Radial conrod bearing play	mm	0.025...0.070

11 21 CRANKSHAFT AND BEARINGS N52K B25**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B25**

Ground sizes of main bearing journals		main bearing journal
Original (designation S1)	mm	55.998...55.993
Original (designation S2)	mm 1771 of 3160	55.992...55.987
Original (designation S3)	mm	55.986...55.981

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Grinding stage 1 (designation B1)	mm	55.748...55.742
Grinding stage 1 (designation B2)	mm	55.742...55.737
Grinding stage 1 (designation B3)	mm	55.737...55.731
Grinding stage 2 (designation C1)	mm	55.498...55.492
Grinding stage 2 (designation C2)	mm	55.492...55.487
Grinding stage 2 (designation C3)	mm	55.487...55.481
Crankshaft bearing clearance, radial	mm	0.020...0.046
Maximum permitted runout on central crankshaft journal	mm	0.150

11 21 CRANKSHAFT AND BEARINGS N52K B30**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B30**

Ground sizes of main bearing journals		Guide bearing journal
Original (designation S1)	mm	64.998 ... 64.993
Original (designation S2)	mm	64.992 ... 64.987
Original (designation S3)	mm	64.986 ... 64.981
Crankshaft bearing clearance, radial	mm	0.020 ... 0.046
Maximum permitted runout on central crankshaft journal	mm	0.150

11 21 CRANKSHAFT AND BEARINGS N52K B30**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B30**

Ground sizes of conrod bearing journals		
Standard	mm	50.00 ^{-0.007} _{-0.027}
Radial conrod bearing play	mm	0.025...0.070

11 21 CRANKSHAFT AND BEARINGS N52K B30**TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B30**

Grinding stages, crankshaft guide bearing		
Standard	mm	24.0 F8
Crankshaft axial play	mm	0.060...0.250

11 21 CRANKSHAFT AND BEARINGS N52K B30

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TECHNICAL DATA - CRANKSHAFT AND BEARINGS N52K B25

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2007-08 ENGINE Engine - Technical Data - X5 (N52K 6-Cyl.)

Ground sizes of main bearing journals		main bearing journal
Original (designation S1)	mm	64.998...64.993
Original (designation S2)	mm	64.992...64.987
Original (designation S3)	mm	64.986...64.981
Grinding stage 1 (designation B1)	mm	64.748...64.742
Grinding stage 1 (designation B2)	mm	64.742...64.737
Grinding stage 1 (designation B3)	mm	64.737...64.731
Grinding stage 2 (designation C1)	mm	64.498...64.492
Grinding stage 2 (designation C2)	mm	64.492...64.487
Grinding stage 2 (designation C3)	mm	64.487...64.481
Crankshaft bearing clearance, radial	mm	0.020...0.046
Maximum permitted runout on central crankshaft journal	mm	0.150

23 VIBRATION DAMPER**11 23 VIBRATION DAMPER N52K B25****TECHNICAL DATA - VIBRATION DAMPER N52K B25**

Max. permitted radial runout	mm	0.100
Max. permitted axial runout	mm	0.100

11 23 VIBRATION DAMPER N52K B30**TECHNICAL DATA - VIBRATION DAMPER N52K B30**

Max. permitted radial runout	mm	0.100
Max. permitted axial runout	mm	0.100

24 CONNECTING ROD WITH BEARING**11 24 CONNECTING RODS AND BEARINGS N52K B25****TECHNICAL DATA - CONNECTING RODS AND BEARINGS N52K B25**

Large connecting rod eye (without bearing) diameter	mm	53.600 ^{+0.016}
Conrod bushing: Inside diameter	mm	20.000 ^{+0.013} _{+0.004}
Permissible total deviation of connecting rods in one engine (without bearing shells)	g	± 5

11 24 CONNECTING RODS AND BEARINGS N52K B30**TECHNICAL DATA - CONNECTING RODS AND BEARINGS N52K B30**

Large connecting rod eye (without bearing) diameter	mm	53.600 ^{+0.016}
Conrod bushing: Inside diameter	mm	20.000 ^{+0.013} _{+0.004}
Permissible total deviation of connecting rods in one engine (without bearing shells)	g	± 5

25 PISTON WITH RINGS AND PINS**11 25 PISTONS WITH RINGS AND PINS N52K B25****TECHNICAL DATA - PISTONS WITH RINGS AND PINS N52K B25**

Piston and pin are paired to each other - replace together only.		
Measuring point "A" (position)	mm	10
Piston diameter at measuring point "A"		
Original, stage 0 (new dimension)	mm	81.985 ± 0.014
Repair stage (new dimension)	mm	%
Oversize, stage 1 (new dimension)	mm	84.235 ± 0.014
Piston installation clearance (piston new)	mm	0.000...0.043
Piston installation clearance (piston worn)	mm	0.020...0.047
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.150

11 25 PISTONS WITH RINGS AND PINS N52K B25**TECHNICAL DATA - PISTONS WITH RINGS AND PINS N52K B25**

1st groove		
End clearance	mm	0.180 ... 0.330
Axial play	mm	0.020...0.060
2nd groove		
End clearance	mm	0.300 ... 0.500
Axial play	mm	0.020...0.060
3rd groove		
End clearance	mm	1774 of 3160 cannot be measured
Axial play	mm	cannot be measured

11 25 PISTONS WITH RINGS AND PINS N52K B30

TECHNICAL DATA - PISTONS WITH RINGS AND PINS N52K B30

Piston and pin are paired to each other - replace together only.		
Measuring point "A" (position)	mm	14
Piston diameter at measuring point "A"		
Original, stage 0 (new dimension)	mm	84.990 ± 0.010
Repair stage (new dimension)	mm	%
Oversize, stage 1 (new dimension)	mm	85.240 ± 0.010
Piston installation clearance (piston new)	mm	0.000...0.034
Piston installation clearance (piston worn)	mm	0.020...0.047
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0.150

11 25 PISTONS WITH RINGS AND PINS N52K B30

TECHNICAL DATA - PISTONS WITH RINGS AND PINS N52K B30

1st groove		
End clearance	mm	0.150 ... 0.300
Axial play	mm	0.020...0.070
2nd groove		
End clearance	mm	0.300 ... 0.500
Axial play	mm	0.020...0.060
3rd groove		
End clearance	mm	cannot be measured
Axial play	mm	cannot be measured

31 CAMSHAFT

11 31 CAMSHAFT N52K B25

TECHNICAL DATA - CAMSHAFT N52K B25

Guide bearing (width)	mm	$20.000^{+0.052}$
Radial runout	mm	0.054...0.099
Axial play	mm	0.020...0.162

11 31 CAMSHAFT N52K B30

TECHNICAL DATA - CAMSHAFT N52K B30

Guide bearing (width)	mm	20.000 ^{+0.052}
Radial runout	mm	0.054...0.099
Axial play	mm	0.020...0.162

34 VALVES WITH SPRINGS

11 34 VALVES WITH SPRINGS N52K B25

TECHNICAL DATA - VALVES WITH SPRINGS N52K B25

Plate diameter		
Inlet	mm	32.0 _{±0.05}
Exhaust	mm	27.0 ± 0.1
Stem		
Inlet	mm	5.0 ^{-0.1} _{-0.06}
Exhaust	mm	6.0 ^{-0.1} _{-0.06}

11 34 VALVES WITH SPRINGS N52K B30

TECHNICAL DATA - VALVES WITH SPRINGS N52K B30

Plate diameter.		
Inlet	mm	35.0
Exhaust	mm	29.0
Stem		
Inlet	mm	5.0 ^{-0.1} _{-0.06}
Exhaust	mm	6.0 ^{-0.1} _{-0.06}

40 OIL SUPPLY

11 40 OIL SUPPLY N52K B25

TECHNICAL DATA - OIL SUPPLY N52K B25

Oil grades and consumption: refer to BMW Service Operating Fluids		
Oil change volume with oil filter	ltr.	6.5
Oil change volume with oil filter for auxiliary engine oil cooler	ltr.	7.0

11 40 OIL SUPPLY N52K B30

TECHNICAL DATA - OIL SUPPLY N52K B30

Oil grades and consumption: refer to BMW Service Operating Fluids		
Oil change volume with oil filter	ltr.	6.5
Oil change volume with oil filter for auxiliary engine oil cooler	ltr.	7.0

41 OIL PUMP WITH FILTER**11 41 OIL PUMP WITH STRAINER AND DRIVE N52K B25****TECHNICAL DATA - OIL PUMP WITH STRAINER AND DRIVE N52K B25**

Oil pressure at idle (engine at normal operating temperature)	min bar	1.5
Control pressure (engine at normal operating temperature)	bar	4.0...6.0

11 41 OIL PUMP WITH STRAINER AND DRIVE N52K B30**TECHNICAL DATA - OIL PUMP WITH STRAINER AND DRIVE N52K B30**

Oil pressure at idle speed with (engine at normal operating temperature)	min bar	1.5
Control pressure with (engine at operating temperature)	bar	4.0...6.0