

1100 Overview of Technical Data

Engine oil B58B30M1/B58B30O1	
	Filling capacity, engine oil change with oil filter element
	6,50 l

1100 Overview of tightening torques

Engine fixture to engine support arm		
Hexagon screws from special tool set	Tightening torque	105Nm
Engine support arm on the assembly stand		
M14 x 95	Tightening torque	130Nm
Special tool to cylinder head		
M8	Tightening torque	21,5Nm
Special tool to cylinder head		
M8	Tightening torque	21,5Nm
Standard screw connection 4 Nm		
Oval-head screw	Tightening torque	4Nm
Standard screw connection M10		
M10		38Nm
Standard screw connection M5		
M5		5Nm
Standard screw connection M6		
M6		8Nm
Standard screw connection M7		
M7		13Nm
Standard screw connection M8		
M8	Tightening torque	19Nm
Standard screw connection hose clamp 5		
Hose clamp L12 - L15	Tightening torque	1,25Nm

1112 Overview of Technical Data

Check for cylinder head watertightness	
	Temperature of the cylinder head
	60 °C

Check for cylinder head watertightness	
	Testing pressure
	max. 3,0 bar

Cross deviation from flatness	
	max. 0,05 mm

Longitudinal deviation from flatness	
	max. 0,10 mm

1112 Overview of tightening torques

Bearing journal to cylinder head		
Bearing journal Renew the bearing journal!	Tightening torque	20Nm
Cover on rear cylinder head		
M6	Tightening torque	8Nm
Cylinder head bolt to timing case cover		
M8x40 Renew screws.	Tightening torque	19Nm
Cylinder head to crankcase		
M11 Observe tightening sequence. Fit new cylinder head bolts.	1. Jointing torque	30Nm
	2. Angle of rotation	90°
	3. Angle of rotation	180°
Cylinder head to special tool 2 361 215		
		35Nm
Flange to assembly stand		
M14X30	Tightening torque	135Nm
Sliding rail to cylinder head		
M6x16		8Nm
Special tool 2 456 190 to cylinder head		
M6X20	Tightening torque	8Nm
Ventilation connection/special tool to cylinder head		
M10		18Nm

1113 Overview of Technical Data

Height of the sealing bead	
	2,0 mm ... 2,5 mm

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11 21 Crankshaft and Bearings
Tightening Torques

	Type	Thread	Tightening specification	Torque
1AZ Increment wheel on crankshaft	S54	M5 10.9	Replace screws	
			Jointing torque Torque angle	5.0 Nm 45 °
Increment wheel on crankshaft		M5 10.9	Replace screws	13 Nm
Increment wheel on crankshaft		M5 8.8	Replace screws	5.5 Nm

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1121 Overview of Technical Data

Axial play of crankshaft	
	Axial play of crankshaft 0,09 mm ... 0,314 mm

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Maximum permitted torque of the crankshaft	
	max. 2 Nm

Maximum permitted torque of the crankshaft	
	max. 3 Nm

1130 Overview of tightening torques

SWZ2249117		
Screw M6	Tightening torque	10Nm

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1131 Overview of tightening torques

Basic carrier to cylinder head			
M6		Tightening torque	8Nm
Bearing journal to crankcase			
Bearing journal Replace bearing journal.		Tightening torque	20Nm
Chain tensioner to cylinder head			
Chain tensioner		Tightening torque	20Nm
		Angle of rotation	40°
Exhaust camshaft to cylinder head			
M6		Observe tightening sequence , mount bearing cap flush. Jointing torque	10Nm
Tighten the screws.		Tightening torque	10Nm
Intake camshaft to cylinder head			
M6		Observe tightening sequence , mount bearing cap flush. Jointing torque	10Nm
Tighten the screws.		Tightening torque.	10Nm
Preload timing chain			
		Tightening torque	0,6Nm
Test gauge to basic carrier			
M6		Tightening torque	8Nm

1141 Overview of tightening torques

Camshaft sprocket to oil vacuum pump

M8
Important - left-hand thread
Renew screw.

1. Jointing torque	5Nm
2. Angle of rotation	90°

Hydraulic valve to crankcase

M6 x 18

Tightening torque	8Nm
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Oil vacuum pump to crankcase

M8
Renew screw.

1. Tightening torque	15Nm
2. Angle of rotation	45°

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1142 Overview of tightening torques

Full-flow oil filter to crankcase		
Captive screw M6	Observe tightening sequence.	
	Jointing torque	4Nm
	Tightening torque	10Nm
Oil filter cover to oil filter module		
O-ring lightly oiled.	Tightening torque	25Nm
Oil return line to crankcase		
M6 x 12		8Nm
Oil return line to turbocharger		
M6 x 12		8Nm
Oil-to-water heat exchanger to full-flow oil filter		
M6	Tightening torque	10Nm
Special tool to measure the pressure on the oil filter module		
O-ring lightly oiled.	Tightening torque	25Nm

1151 Overview of tightening torques

Auxiliary coolant pump holder to cylinder head			
M6		Tightening torque	8Nm
Coolant pump with component carrier on crankcase			
M8 x 35		Tightening torque	19Nm
Electric coolant pump to holder			
M6		Tightening torque	8Nm

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11 52 Fan
Tightening Torques

	Type	Thread	Tightening specification	Torque
1AZ Fan clutch on water pump Coupling nut (left-hand threads)	All			40 Nm
	M54			45 Nm
2AZ Fan to fan clutch	All			10 Nm

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11 61 Intake manifold

Tightening Torques

	Type	Thread	Tightening specifications	Torque
1AZ Intake manifold to cylinder head	alle	M8		22 Nm
	alle	M7		15 Nm
	alle	M6		10 Nm
2AZ Sound absorption cover to holder	M60/1 / M60/2 / M62	M6		8 Nm
3AZ Throttle valve to intake manifold	N73	M6x60/ M6x80		8 Nm

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11 78 Emissions-control, Lambda oxygen sensor

Tightening Torques

	Type	Thread	Tightening specification	Torque
1AZ Oxygen control sensor; oxygen monitor sensor	All	M18 x 1.5		50 Nm

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11 operating fluid overview

Testing equipment

Connecting hose
Ä = 8 x 13 mm, length = 70 mm

Sealing compound

Loctite 5970 liquid sealing compound	50 ml, Cartridge	83190404517
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[Overview of consumables \(Electronic Parts Catalogue\)](#)

Expendable materials

Brake cleaner2.0	500 ml, Spray can	83192365214
	20 , Canister	83192365215

Expendable materials

lubricating grease Longtime PD -1	400 g, Cartridge	83192160340
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[Overview of consumables \(Electronic Parts Catalogue\)](#)

Expendable materials

Copper paste	100 g, Tube	81229400794
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[Overview of consumables \(Electronic Parts Catalogue\)](#)

Expendable materials

Lubricating grease SYNTHESO GLEP 1	100 g, Tube	83299407778
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[Overview of consumables \(Electronic Parts Catalogue\)](#)

Engine oil

Technically suitable engine oils for BMW Group engines

[3.0 Technically appropriate engine oils for BMW Group engines](#)

Engine oil

Technically suitable engine oils for BMW Group engines

[3.0 Specified engine oils for Toyota J29](#)

Sealing compound

Sealant Drei Bond 1209	30 ml, Tube	07 58 9 062 376
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