ENGINE TECHNICAL DATA

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Item	Specification
Maximum distortion, head gasket side of the cylinder head	0.06 mm {0.002 in}
Maximum distortion of intake manifold and turbocharger installation surface	Intake manifold installation surface: 0.05 mm {0.002 in} Turbocharger installation surface: 0.05 mm {0.002 in}
Standard valve seat contact width	1.2—2.0 mm {0.048—0.078 in}
Valve seat angle	45°
Standard valve seat sinkage amount	IN: 0.56—0.96 mm {0.023—0.037 in} EX: 0.47—0.87 mm {0.019—0.034 in}
Standard valve head margin thickness	IN: 1.50—1.70 mm {0.0591—0.0669 in} EX: 1.68—1.88 mm {0.0662—0.0740 in}
Standard valve length	IN: 102.68—103.18 mm {4.0426—4.0622 in} EX: 99.77—100.27 mm {3.928—3.947 in}
Minimum valve length	IN: 102.64 mm {4.0409 in} EX: 99.55 mm {3.919 in}
Standard valve stem diameter	IN: 5.470—5.485 mm {0.2154—0.2159 in} EX: 5.465—5.480 mm {0.2152—0.2157 in}
Minimum valve stem diameter	IN: 5.424 mm {0.2135 in} EX: 5.419 mm {0.2133 in}
Standard valve guide inner diameter	IN: 5.510—5.530 mm {0.2170—0.2177 in} EX: 5.510—5.530 mm {0.2170—0.2177 in}
Standard clearance between valve stem and guide	IN: 0.025—0.060 mm {0.0010—0.0023 in} EX: 0.030—0.065 mm {0.0012—0.0025 in}
Maximum clearance between valve stem and guide	0.10 mm {0.0039 in}
Standard valve guide projection height	14.8—15.3 mm {0.583—0.602 in}
Valve spring installation height	IN: When pressurized with spring force of 190—210 N {19.4—21.4 kgf, 42.8—47.2 lbf}, spring height is 35.0 mm {1.38 in} EX: When pressurized with spring force of 209—231 N {21.4—23.5 kgf, 47.0—51.9 lbf}, spring height is 35.0 mm {1.38 in}
Maximum valve spring off-square	IN: 2.0 ° (1.7 mm {0.067 in}) EX: 2.0 ° (1.9 mm {0.075 in})
Check valve opening pressure	30—45 kPa {0.31—0.45 kgf/cm^2, 4.4—6.5 psi}
OCV coil resistance	6.9—7.9 ohms [20°C {68°F}]
Maximum camshaft runout	0.030 mm {0.0012 in}
Standard cam height [intake camshaft]	34.43 mm {1.356 in}
Standard cam height [exhaust camshaft]	normal cam: 40.46 mm {1.593 in} high lift cam: 38.23 mm {1.505 in} low lift cam: 36.76 mm {1.447 in}
Minimum cam height [intake camshaft]	34.23 mm {1.348 in}
Minimum cam height [exhaust camshaft]	normal cam: 40.39 mm {1.590 in} high lift cam: 37.78 mm {1.487 in} low lift cam: 36.69 mm {1.444 in}
Standard camshaft journal diameter [intake camshaft]	25.950—25.975 mm {1.0217—1.0226 in}
Standard camshaft journal diameter [exhaust camshaft]	No.1 journal: 33.950—33.975 mm {1.3367—1.3375 in} Except No.1 journal: 25.950—25.975 mm {1.0217—1.0226 in}
Minimum camshaft journal diameter [intake camshaft]	25.920 mm {1.0205 in}
Minimum camshaft journal diameter [exhaust camshaft]	No.1 journal: 33.920 mm {1.3354 in} Except No.1 journal: 25.920 mm {1.0205 in}
Standard camshaft journal oil clearance [intake camshaft]	0.025—0.071 mm {0.0010—0.0027 in}
Standard camshaft journal oil clearance [exhaust camshaft]	No.1 journal: 0.025—0.075 mm {0.0010—0.0029 in} Except No.1 journal: 0.025—0.071 mm {0.0010—0.0027 in}
Maximum camshaft journal oil clearance [intake camshaft]	0.101 mm {0.00398 in}
Maximum camshaft journal oil clearance [exhaust camshaft]	0.105 mm {0.00413 in}
Standard camshaft end play	0.087—0.207 mm {0.0035—0.0081 in}
Maximum camshaft end play	0.507 mm {0.020 in}
Maximum distortion, head gasket side of the cylinder block [Other than between cylinder bores]	0.10 mm {0.0039 in}

Item	Specification
Maximum distortion, head gasket side of the cylinder block [between cylinder bores]	0.05 mm {0.002 in}
Standard cylinder bore diameter	86.000—86.022 mm {3.3859—3.3866 in}
Oil jet valve opening pressure	190—210 kPa {1.94—2.14 kgf/cm^2, 27.6—30.4 psi}
Standard piston outer diameter	85.958—85.984 mm {3.3842—3.3851 in}
Standard clearance between piston and cylinder	0.031—0.049 mm {0.0013—0.0019 in}
Maximum clearance between piston and cylinder	0.067 mm {0.0026 in}
Standard clearance between piston ring and ring groove	Top: 0.07—0.11 mm {0.003—0.004 in} Second: 0.05—0.09 mm {0.002—0.003 in} Oil: 0.03—0.07 mm {0.0012—0.0027 in}
Maximum clearance between piston ring and ring groove	Top: 0.16 mm {0.0063 in} Second: 0.12 mm {0.0047 in} Oil: 0.11 mm {0.0043 in}
Standard piston ring end gap	Top: 0.20—0.25 mm {0.0079—0.0098 in} Second: 0.20—0.30 mm {0.008—0.011 in} Oil (rail): 0.20—0.30 mm {0.008—0.011 in}
Maximum piston ring end gap	Top: 0.38 mm {0.015 in} Second: 0.44 mm {0.017 in} Oil (rail): 0.49 mm {0.019 in}
Standard piston pin outer diameter	25.995—26.000 mm {1.0235—1.0236 in}
Standard piston pin hole diameter	26.005—26.013 mm {1.0239—1.0241 in}
Standard clearance between piston pin hole diameter and piston pin outer diameter	0.005—0.018 mm {0.0002—0.0007 in}
Standard connecting rod small end inner diameter	26.010—26.021 mm {1.0241—1.0244 in}
Standard clearance between connecting rod small end inner diameter and piston pin outer diameter	0.010—0.026 mm {0.0004—0.0010 in}
Maximum connecting rod bending	0.08 mm {0.003 in}
Maximum connecting rod distortion	0.08 mm {0.003 in}
Connecting rod center-to-center distance	140.6 mm {5.535 in}
Standard side clearance at the large end of connecting rod	0.14—0.36 mm {0.006—0.014 in}
Maximum side clearance at the large end of connecting rod	0.512 mm {0.0202 in}
Standard bearing oil clearance at the large end of the connecting rod	0.026—0.052 mm {0.0011—0.0020 in}
Maximum bearing oil clearance at the large end of the connecting rod	0.052 mm {0.0020 in}
Connecting rod bearing size	STD: 1.498—1.516 mm {0.05898—0.05968 in} OS 0.25: 1.621—1.628 mm {0.06382—0.06409 in} OS 0.50: 1.746—1.753 mm {0.06875—0.06901 in}
Standard crankshaft end play	0.08—0.29 mm {0.004—0.011 in}
Maximum crankshaft end play	0.30 mm {0.012 in}
Thrust bearing size	STD: 2.130—2.180 mm {0.08386—0.08582 in} OS0.25: 2.255—2.305 mm {0.08878—0.09074 in}
Maximum main journal runout	0.10 mm {0.0039 in}
Standard main journal diameter	51.980—52.000 mm {2.0465—2.0472 in}
Maximum main journal off-round	0.005 mm {0.0002 in}
Standard crank pin diameter	51.980—52.000 mm {2.0465—2.0472 in}
Maximum crank pin off-round	0.005 mm {0.0002 in}
Standard main journal oil clearance	0.016—0.039 mm {0.0007—0.0015 in}
Maximum main journal oil clearance	0.084 mm {0.0033 in}
Main bearing size	STD: 2.500—2.521 mm {0.09843—0.09925 in} OS 0.25: 2.625—2.628 mm {0.10335—0.10346 in} OS 0.50: 2.750—2.753 mm {0.10827—0.10838 in}
Standard cylinder head bolt length	169.2—169.8 mm {6.662—6.685 in}
Maximum cylinder head bolt length	170.5 mm {6.713 in}
Standard connecting rod bolt length	43.7—44.3 mm {1.73—1.74 in}
Maximum connecting rod bolt length	45.0 mm {1.77 in}
Dual-mass flywheel guide pin projection maximum amount	11.0—12.0 mm {0.434—0.472 in}
Dual-mass flywheel maximum runout	1.5 mm {0.059 in}
Rear oil seal press-in amount	0—0.5 mm {0—0.019 in}

Item	Specification
Front oil seal press-in amount	0—0.5 mm {0—0.019 in}