

Standards and Service Limits Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.003 in.) max.	0.10 mm (0.004 in.)
	Bore diameter		75.00-75.02 mm (2.9528-2.9535 in.)	75.07 mm (2.9555 in.)
	Bore taper		-	0.05 mm (0.002 in.)
	Reboring limit		-	0.5 mm (0.02 in.)
Piston	Skirt O.D. at 13 mm (0.5 in.) from bottom of skirt		74.98-74.99 mm (2.9520-2.9524 in.)	74.97 mm (2.9516 in.)
	Clearance in cylinder		0.010-0.040 mm (0.0004-0.0016 in.)	0.05 mm (0.002 in.)
	Ring groove width for D14Z6, D16V1 engines	Top	1.020-1.030 mm (0.0402-0.0406 in.)	1.05 mm (0.041 in.)
		Second	1.220-1.230 mm (0.0481-0.0484 in.)	1.25 mm (0.049 in.)
		Oil	2.005-2.020 mm (0.0789-0.0795 in.)	2.05 mm (0.08 in.)
	Ring groove width for D16V1 engine	Top	1.020-1.030 mm (0.0402-0.0406 in.)	1.05 mm (0.041 in.)
		Second	1.220-1.230 mm (0.0481-0.0484 in.)	1.25 mm (0.049 in.)
		Oil	2.805-2.820 mm (0.1104-0.1110 in.)	2.85 mm (0.112 in.)
Piston rings	Ring-to-groove clearance for D14Z6, D16V1 engines	Top	0.035-0.060 mm (0.0014-0.0024 in.)	0.13 mm (0.005 in.)
		Second	0.030-0.055 mm (0.0012-0.0022 in.)	0.13 mm (0.005 in.)
	Ring-to-groove clearance for D16V3 engine	Top	0.035-0.055 mm (0.0012-0.0022 in.)	0.13 mm (0.005 in.)
		Second	0.030-0.055 mm (0.0012-0.0022 in.)	0.13 mm (0.005 in.)
	Ring end gap for D14X6, D16V1 engines	Top	0.15-0.30 mm (0.006-0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30-0.45 mm (0.012-0.018 in.)	0.60 mm (0.024 in.)
		Oil	0.20-0.70 mm (0.008-0.028 in.)	0.80 mm (0.031 in.)
	Ring end gap for D16V3 engine	Top	0.15-0.30 mm (0.006-0.012 in.)	0.60 mm (0.024 in.)
		Second	0.30-0.45 mm (0.012-0.018 in.)	0.60 mm (0.024 in.)
Oil		0.20-0.80 mm (0.008-0.031 in.)	0.90 mm (0.035 in.)	
Piston pin	O.D.		18.996-19.000 mm (0.7479-0.7480 in.)	-
	Pin-to-piston clearance		0.010-0.020 mm (0.0004-0.0008 in.)	-
Connecting rod	Pin-to-rod interference		0.016-0.036 mm (0.0006-0.0014 in.)	-
	Small-end bore diameter		18.96-18.98 mm (0.746-0.747 in.)	-
	Large-end bore diameter (Nominal)	D14Z6 engine	43.0 mm (1.69 in.)	-
		D16V1, D16V3 engines	48.0 mm (1.89 in.)	-
	End play installed on crankshaft		0.15-0.30 mm (0.006-0.012 in.)	0.40 mm (0.016 in.)
Crankshaft	Main journal diameter	D14Z6 engine	44.976-45.000 mm (1.7707-1.7717 in.)	-
		D16V1, D16V3 engines	54.976-55.000 mm (2.1644-2.1654 in.)	-
	Rod journal diameter	D14Z6 engine	39.976-40.000 mm (1.5739-1.5748 in.)	-
		D16V1, D16V3 engines	44.976-45.000 mm (1.7707-1.7717 in.)	-
	Rod/main journal taper		0.0025 mm (0.0001 in.)	0.005 mm (0.0002 in.)
	Rod/main journal out-of-round		0.0025 mm (0.0001 in.)	0.005 mm (0.0002 in.)
	End play		0.10-0.35 mm (0.004-0.014 in.)	0.45 mm (0.018 in.)
Runout		0.03 mm (0.001 in.) max.	0.04 mm (0.002 in.)	
Crankshaft bearings	Main bearing-to-journal oil clearance for D14Z6 engine	No. 1 journal No. 5 journal	0.018-0.036 mm (0.0007-0.0014 in.)	0.05 mm (0.002 in.)
		No. 2 journal No. 3 journal No. 4 journal	0.020-0.038 mm (0.0008-0.0015 in.)	0.05 mm (0.002 in.)
	Main bearing-to-journal oil clearance for D16V1, D16V3 engines	No. 1 journal No. 5 journal	0.018-0.036 mm (0.0007-0.0014 in.)	0.05 mm (0.002 in.)
		No. 2 journal No. 3 journal No. 4 journal	0.024-0.042 mm (0.0009-0.0017 in.)	0.05 mm (0.002 in.)
Rod bearing clearance		0.024-0.042 mm (0.0009-0.0017 in.)	0.05 mm (0.002 in.)	

