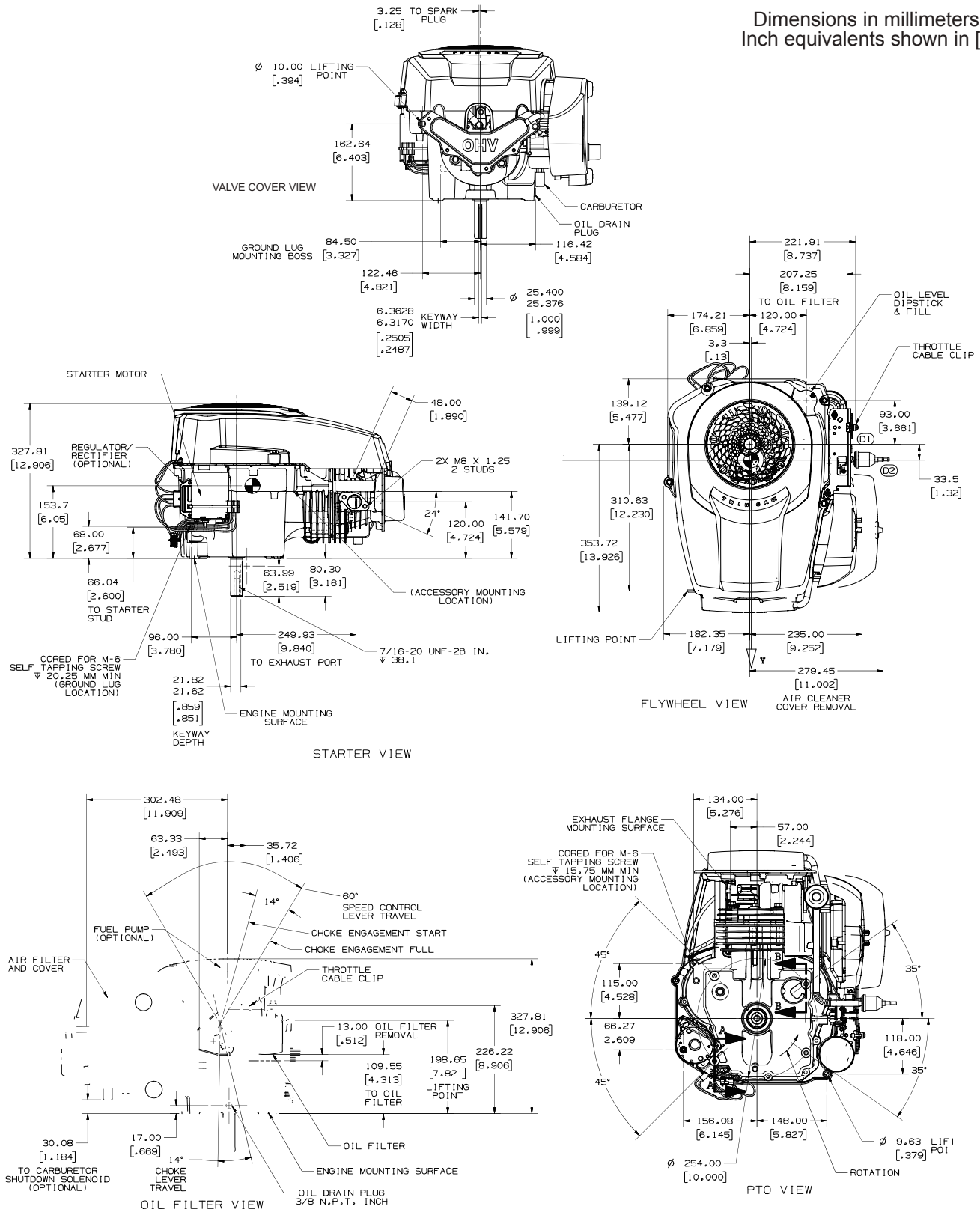


Engine Dimensions

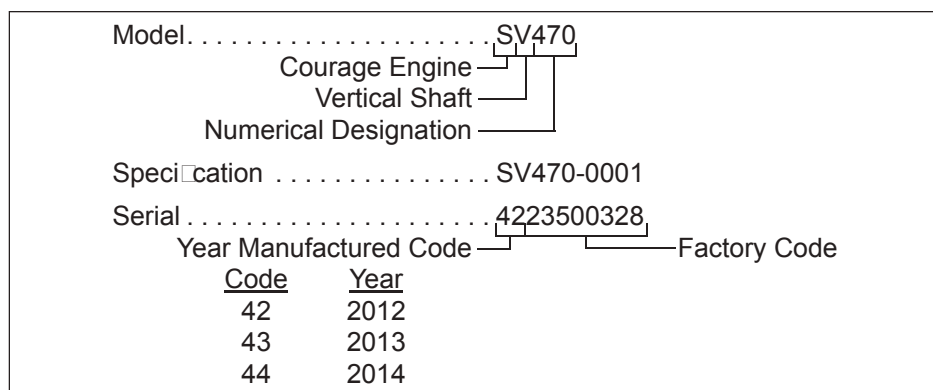
Dimensions in millimeters.
Inch equivalents shown in [].



Specifications

ENGINE IDENTIFICATION NUMBERS

Kohler engine identification numbers (model, specification and serial) should be referenced for efficient repair, ordering correct parts, and engine replacement.



GENERAL SPECIFICATIONS^{3,6}

	SV470/ SV471/ SV480	SV530/ SV540/ SV541	SV590/SV591/ SV600/SV601/ SV610/SV620
Bore	---	---	94 mm (3.70 in.)
Spec. 00XX:	84 mm (3.30 in.)	89 mm (3.50 in.)	---
Spec. 01XX:	89 mm (3.50 in.)	---	---
Spec. 02XX or higher:	94 mm (3.70 in.)	94 mm (3.70 in.)	---
Stroke	86 mm (3.38 in.)		
Displacement	---	---	597 cc (36.4 cu. in.)
Spec. 00XX:	477 cc (29.1 cu. in.)	535 cc (32.6 cu. in.)	---
Spec. 01XX:	535 cc (32.6 cu. in.)	---	---
Spec. 02XX or higher:	597 cc (36.4 cu. in.)	597 cc (36.4 cu. in.)	---
Oil Capacity (refill)	1.5 L (1.6 U.S. qt.)		
Maximum Angle of Operation (@ full oil level) ⁴	25°		

TORQUE SPECIFICATIONS^{3,5}

TORQUE SPECIFICATIONS ^{3,5}		SV470/ SV471/ SV480	SV530/ SV540/ SV541	SV590/SV591/ SV600/SV601/ SV610/SV620
Air Cleaner Base				
Hex Nut Fastener	5.5 N·m (48 in. lb.)			
Mounting Screw Fastener (install dry)	8.0 N·m (70 in. lb.) into new hole 5.5 N·m (48 in. lb.) into used hole			
Balance Weight				
Screw	10.9-13.2 N·m (95.0-115.0 in. lb.)			
Blower Housing and Sheet Metal				
M6 Fastener	11.6 N·m (99 in. lb.) into new hole 7.7 N·m (68 in. lb.) into used hole			
Cam Lever				
Fastener	8.0-10.5 N·m (70-94.0 in. lb.) into new hole 7.1-8.6 N·m (61.8-74.8 in. lb.) into used hole			

³ Values are in Metric units. Values in parentheses are English equivalents.

⁴ Exceeding maximum angle of operation may cause engine damage from insufficient lubrication.

⁵ Lubricate threads with engine oil prior to assembly.

⁶ Any and all horsepower (hp) references by Kohler are Certified Power Ratings and per SAE J1940 & J1995 hp standards. Details on Certified Power Ratings can be found at KohlerEngines.com.

TORQUE SPECIFICATIONS^{3,5}

**SV470/
SV471/
SV480**

**SV530/
SV540/
SV541**

**SV590/SV591/
SV600/SV601/
SV610/SV620**

Carburetor

Fuel Bowl Retaining Screw Walbro Nikki	5.1-6.2 N·m (45-55 in. lb.) 10.8-12.8 N·m (96-113 in. lb.)
--	---

Closure Plate

Fastener	24.5 N·m (216 in. lb.)
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Connecting Rod

Cap Fastener (torque in 2 increments)	5.5, 11.5 N·m (50, 100 in. lb.)
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Crankcase

Oil Drain Plug	14.0 N·m (125 in. lb.)
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Cylinder Head

Fastener (torque in 2 increments)	20.5, 41.0 N·m (180, 360 in. lb.)
Rocker Arm Pivot Stud	13.5 N·m (120 in. lb.)
Rocker Arm Adjustment Nut Set Screw	5.5 N·m (50 in. lb.)

Electric Starter

Thru Bolt	3.3-3.9 N·m (30-35 in. lb.)
Mounting Nut	3.6 N·m (32 in. lb.)
Nut (top) Positive (+) Brush Lead Terminal	1.6-2.8 N·m (15-25 in. lb.)
Nut (Range) Positive (+) Brush Lead Terminal	2.2-4.5 N·m (20-40 in. lb.)

Flywheel

M12 Retaining Screw	88.0 N·m (65 ft. lb.)
M10 Retaining Screw	66.5 N·m (49 ft. lb.)

Governor

Lever Nut	7.0-8.5 N·m (60-75 in. lb.)
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Ignition

Spark Plug	27 N·m (20 ft. lb.)
Module Fastener	6.0 N·m (55 in. lb.) into new hole 4.0 N·m (35 in. lb.) into used hole
Rectifier-Regulator Fastener	6.0 N·m (55 in. lb.) into new hole 4.0 N·m (35 in. lb.) into used hole

Muffler

Retaining Nuts	24.4 N·m (216 in. lb.)
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Oil Filter Pad Pipe Plug

1/8" N.P.T.F.	4.5-5.0 N·m (40-46 in. lb.)
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Oil Pump

Mounting Screw	5.0-7.5 N·m (44.4-66.0 in. lb.) into new hole 3.8-4.6 N·m (33.3-40.3 in. lb.) into used hole
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³ Values are in Metric units. Values in parentheses are English equivalents.

⁵ Lubricate threads with engine oil prior to assembly.

Specifications

TORQUE SPECIFICATIONS^{3,5}

SV470/
SV471/
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SV530/
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SV541

SV590/SV591/
SV600/SV601/
SV610/SV620

Oil Sentry™

Pressure Switch	4.5-5.0 N·m (40-45 in. lb.)
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Speed Control

Bracket Assembly Fastener	11.0 N·m (95 in. lb.) into new hole 7.5 N·m (65 in. lb.) into used hole
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Stator

Mounting Screw	6.0 N·m (55 in. lb.) into new hole 4.0 N·m (35 in. lb.) into used hole
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Valve Cover

Fastener	11.0 N·m (95 in. lb.) into new hole 7.5 N·m (65 in. lb.) into used hole
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CLEARANCE SPECIFICATIONS³

SV470/
SV471/
SV480

SV530/
SV540/
SV541

SV590/SV591/
SV600/SV601/
SV610/SV620

Balance Weight

Bearing Surface I.D. New Max. Wear Limit	67.011/67.086 mm (2.6382/2.6412 in.) 67.140 mm (2.6430 in.)
Pin O.D. New Max. Wear Limit	11.950/11.975 mm (0.4705/0.4715 in.) 11.900 mm (0.4685 in.)
Guide Shoe Width New Max. Wear Limit	17.85/17.90 mm (0.703/0.705 in.) 17.75 mm (0.6988 in.)
Guide Shoe Hole I.D.-First Generation Balance Weight New Max. Wear Limit	12.000/12.025 mm (0.4724/0.4734 in.) 12.050 mm (0.4744 in.)
Linkage Pin O.D. (Crankcase)-Second Generation Balance Weight New Max. Wear Limit	11.964/11.975 mm (0.4710/0.4715 in.) 11.900 mm (0.4685 in.)
Balance Weight Linkage-Second Generation Balance Weight New Max. Wear Limit	11.985/12.010 mm (0.4719/0.4728 in.) 12.035 mm (0.4738 in.)

Cam Gears

End Play	0.5/1.5 mm (0.019/0.059 in.)
Running Side Clearance	0.02/0.13 mm (0.001/0.005 in.)
Cam Gear-to-Cam Shaft Running Assembly	0.02/0.10 mm (0.001/0.004 in.)

Closure Plate

Balance Weight Guide Channel Width New Max. Wear Limit	17.95/18.05 mm (0.707/0.711 in.) 18.13 mm (0.714 in.)
--	--

³ Values are in Metric units. Values in parentheses are English equivalents.

⁵ Lubricate threads with engine oil prior to assembly.

CLEARANCE SPECIFICATIONS³

SV470/
SV471/
SV480

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SV540/
SV541

SV590/SV591/
SV600/SV601/
SV610/SV620

Connecting Rod

Connecting Rod-to-Crankpin Running Clearance New Max. Wear Limit	0.03/0.055 mm (0.0012/0.0022 in.) 0.07 mm (0.0025 in.)
Connecting Rod-to-Crankpin Side Clearance	0.25/0.59 mm (0.0098/0.0232 in.)
Connecting Rod-to-Piston Pin Running Clearance	0.015/0.028 mm (0.0006/0.0011 in.)

Crankcase

Governor Cross Shaft Bore I.D. New Max. Wear Limit	6.025/6.05 mm (0.2372/0.2382 in.) 6.063 mm (0.2387 in.)
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Crankshaft

End Play (free)	0.225/1.025 mm (0.0089/0.040 in.)
Bore in Crankcase I.D. New Max. Wear Limit	41.965/41.990 mm (1.6521/1.6531 in.) 42.016 mm (1.654 in.)
Bore in Closure Plate I.D. New Max. Wear Limit	44.965/44.990 mm (1.7703/1.7713 in.) 45.016 mm (1.7723 in.)
Flywheel End Main Bearing Journal O.D. New, Before Serial No. 3703200003 New, After Serial No. 3703200013 O.D., Max. Wear Limit Max. Taper Max. Out of Round	44.913/44.935 mm (1.7682/1.7691 in.) 44.870/44.895 mm (1.7665/1.7675 in.) 44.84 mm (1.765 in.) 0.0220 mm (0.0009 in.) 0.025 mm (0.001 in.)
PTO End Main Bearing Journal O.D. New, Before Serial No. 3703200003 New, After Serial No. 3703200013 O.D., Max. Wear Limit Max. Taper Max. Out of Round	41.913/41.935 mm (1.6501/1.6510 in.) 41.855/41.880 mm (1.6478/1.6488 in.) 41.83 mm (1.647 in.) 0.020 mm (0.0008 in.) 0.025 mm (0.001 in.)
Bore in Closure Plate Running Clearance New, Before Serial No. 3703200003 New, After Serial No. 3703200013	0.030/0.077 mm (0.0012/0.0030 in.) 0.070/0.120 mm (0.0027/0.0047 in.)
Bore in Crankcase Running Clearance New, Before Serial No. 3703200003 New, After Serial No. 3703200013	0.030/0.077 mm (0.0012/0.0030 in.) 0.085/0.135 mm (0.0033/0.0053 in.)
Connecting Rod Journal O.D. New Max. Wear Limit Max. Taper Max. Out of Round	40.982/41.000 mm (1.6134/1.6141 in.) 40.964 mm (1.612 in.) 0.012 mm (0.0005 in.) 0.025 mm (0.001 in.)
T.I.R. PTO End, Crankshaft in Engine Entire Crankshaft , in V-Blocks	0.15 mm (0.0059 in.) 0.10 mm (0.0039 in.)
Eccentrics O.D. New Max. Wear Limit	66.940/66.970 mm (2.6354/2.6366 in.) 66.89 mm (2.633 in.)

³Values are in Metric units. Values in parentheses are English equivalents.

Specifications

CLEARANCE SPECIFICATIONS³

SV470/
SV471/
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SV530/
SV540/
SV541

SV590/SV591/
SV600/SV601/
SV610/SV620

Cylinder Bore

Cylinder Bore I.D. New	---	---	94.010/94.035 mm (3.701/3.702 in.)
Spec. 00XX:	84.010/84.035 mm (3.307/3.308 in.)	89.010/89.035 mm (3.504/3.505 in.)	---
Spec. 01XX:	89.010/89.035 mm (3.504/3.505 in.)	---	---
Spec. 02XX or higher:	94.010/94.035 mm (3.701/3.702 in.)	94.010/94.035 mm (3.701/3.702 in.)	---
Max. Wear Limit	---	---	94.073 mm (3.704 in.)
Spec. 00XX:	84.073 mm (3.310 in.)	89.073 mm (3.507 in.)	---
Spec. 01XX:	89.073 mm (3.507 in.)	---	---
Spec. 02XX or higher:	94.073 mm (3.704 in.)	94.073 mm (3.704 in.)	---
Max. Taper Max. Out of Round	0.05 mm (0.002 in.) 0.12 mm (0.0047 in.)		

Cylinder Head

Max. Out-of-Flatness	0.8 mm (0.003 in.)
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Governor

Governor Cross Shaft -to-Crankcase Running Clearance	0.013/0.075 mm (0.0005/0.003 in.)
Cross Shaft O.D. New Max. Wear Limit	5.975/6.012 mm (0.2352/0.2367 in.) 5.962 mm (0.2347 in.)
Governor Gear Shaft -to-Governor Gear Running Clearance	0.09/0.16 mm (0.0035/0.0063 in.)
Gear Shaft O.D. New Max. Wear Limit	5.99/6.00 mm (0.2358/0.2362 in.) 5.977 mm (0.02353 in.)

Ignition

Spark Plug Gap	0.76 mm (0.030 in.)
Module Air Gap	0.203/0.305 mm (0.008/0.012 in.)

Oil Pump

Pump Gears-to-Crankcase Side Clearance	0.165/0.315 mm (0.0065/0.0124 in.)
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Piston, Piston Rings, and Piston Pin

Pin Bore I.D. New Max. Wear Limit	22.006/22.012 mm (0.8685/0.8666 in.) 22.025 mm (0.8671 in.)
Pin O.D. New Max. Wear Limit	21.995/22.0 mm (0.8659/0.8661 in.) 21.994 mm (0.8658 in.)
Top Compression Ring-to-Groove Side Clearance	0.04 mm (0.0016 in.)
Middle Compression Ring-to-Groove Side Clearance	0.04 mm (0.0016 in.)

³ Values are in Metric units. Values in parentheses are English equivalents.

CLEARANCE SPECIFICATIONS³

**SV470/
SV471/
SV480**

**SV530/
SV540/
SV541**

**SV590/SV591/
SV600/SV601/
SV610/SV620**

Piston, Piston Rings, and Piston Pin (Continued)

Top and Middle Compression Ring End Gap New Bore Top Ring Middle Ring Used Bore (max.)	0.15/0.40 mm (0.006/0.016 in.) 0.30/0.55 mm (0.012/0.022 in.) 0.77 mm (0.030 in.)		
Thrust Face O.D. ⁷ New	---	---	93.928/93.942 mm (3.6980/3.6985 in.)
Spec. 00XX:	83.948/83.962 mm (3.3050/3.3056 in.)	88.948/88.962 mm (3.5018/3.5024 in.)	---
Spec. 01XX:	88.948/88.962 mm (3.5018/3.5024 in.)	---	---
Spec. 02XX or higher:	93.928/93.942 mm (3.6980/3.6985 in.)	93.928/93.942 mm (3.6980/3.6985 in.)	---
Max. Wear Limit	---	---	93.828 mm (3.6940 in.)
Spec. 00XX:	83.828 mm (3.3003 in.)	88.828 mm (3.4972 in.)	---
Spec. 01XX:	88.828 mm (3.4972 in.)	---	---
Spec. 02XX or higher:	93.828 mm (3.6940 in.)	93.828 mm (3.6940 in.)	---
Piston Thrust Face-to-Cylinder Bore ⁷ Running Clearance	0.045 mm (0.0018 in.)		0.0880 mm (0.0035 in.)

Valves and Valve Lifters

Intake Valve Lash ⁸	0.127 mm (0.005 in.)
Exhaust Valve Lash ⁸	0.178 mm (0.007 in.)
Intake Valve Minimum Lift	8.9 mm (0.350 in.)
Exhaust Valve Minimum Lift	8.9 mm (0.350 in.)
Nominal Valve Seat Angle	45°
Intake Valve Stem-to-Valve Guide Running Clearance	0.038/0.076 mm (0.0015/0.003 in.)
Exhaust Valve Stem-to-Valve Guide Running Clearance	0.050/0.088 mm (0.0020/0.0035 in.)
Intake Valve Guide I.D. New Max. Wear Limit	6.038/6.058 mm (0.2377/0.2385 in.) 6.135 mm (0.2415 in.)
Intake Valve Stem Diameter New	5.982/6.0 mm (0.2355/0.2362 in.)
Exhaust Valve Guide I.D. New Max. Wear Limit	6.038/6.058 mm (0.2377/0.2385 in.) 6.160 mm (0.2425 in.)
Exhaust Valve Stem Diameter New	5.970/5.988 mm (0.235/0.2357 in.)

³ Values are in Metric units. Values in parentheses are English equivalents.

⁷ Measure 8 mm (0.314 in.) above bottom of piston skirt at right angles to piston pin.

⁸ Check valve lash every 200 hours, adjust as required.

Specifications

GENERAL TORQUE VALUES

English Fastener Torque Recommendations for Standard Applications

Bolts, Screws, Nuts and Fasteners Assembled Into Cast Iron or Steel				Grade 2 or 5 Fasteners Into Aluminum
				
Size	Grade 2	Grade 5	Grade 8	
Tightening Torque: N·m (in. lb.) ± 20%				
8-32	2.3 (20)	2.8 (25)	—	2.3 (20)
10-24	3.6 (32)	4.5 (40)	—	3.6 (32)
10-32	3.6 (32)	4.5 (40)	—	—
1/4-20	7.9 (70)	13.0 (115)	18.7 (165)	7.9 (70)
1/4-28	9.6 (85)	15.8 (140)	22.6 (200)	—
5/16-18	17.0 (150)	28.3 (250)	39.6 (350)	17.0 (150)
5/16-24	18.7 (165)	30.5 (270)	—	—
3/8-16	29.4 (260)	—	—	—
3/8-24	33.9 (300)	—	—	—

Tightening Torque: N·m (ft. lb.) ± 20%

5/16-24	—	—	40.7 (30)	—
3/8-16	—	47.5 (35)	67.8 (50)	—
3/8-24	—	54.2 (40)	81.4 (60)	—
7/16-14	47.5 (35)	74.6 (55)	108.5 (80)	—
7/16-20	61.0 (45)	101.7 (75)	142.5 (105)	—
1/2-13	67.8 (50)	108.5 (80)	155.9 (115)	—
1/2-20	94.9 (70)	142.4 (105)	223.7 (165)	—
9/16-12	101.7 (75)	169.5 (125)	237.3 (175)	—
9/16-18	135.6 (100)	223.7 (165)	311.9 (230)	—
5/8-11	149.5 (110)	244.1 (180)	352.6 (260)	—
5/8-18	189.8 (140)	311.9 (230)	447.5 (330)	—
3/4-10	199.3 (147)	332.2 (245)	474.6 (350)	—
3/4-16	271.2 (200)	440.7 (325)	637.3 (470)	—

Metric Fastener Torque Recommendations for Standard Applications

Property Class						Noncritical Fasteners Into Aluminum
Size						
Tightening Torque: N·m (in. lb.) ± 10%						
M4	1.2 (11)	1.7 (15)	2.9 (26)	4.1 (36)	5.0 (44)	2.0 (18)
M5	2.5 (22)	3.2 (28)	5.8 (51)	8.1 (72)	9.7 (86)	4.0 (35)
M6	4.3 (38)	5.7 (50)	9.9 (88)	14.0 (124)	16.5 (146)	6.8 (60)
M8	10.5 (93)	13.6 (120)	24.4 (216)	33.9 (300)	40.7 (360)	17.0 (150)

Tightening Torque: N·m (ft. lb.) ± 10%

M10	21.7 (16)	27.1 (20)	47.5 (35)	66.4 (49)	81.4 (60)	33.9 (25)
M12	36.6 (27)	47.5 (35)	82.7 (61)	116.6 (86)	139.7 (103)	61.0 (45)
M14	58.3 (43)	76.4 (56)	131.5 (97)	184.4 (136)	219.7 (162)	94.9 (70)

Torque Conversions

N·m = in. lb. x 0.113	in. lb. = N·m x 8.85
N·m = ft. lb. x 1.356	ft. lb. = N·m x 0.737