

Typical Values for Engine Parameters

<u>Parameter</u>	<u>SI Engines</u>	<u>CI Engines</u>
Air/Fuel Ratio	15:1	20:1 - 70:1
Compression Ratio	8:1 -10:1 H.P. up to 13:1	15:1-22:1
Maximum Speed	5000-10000 rpm	2000-4000 rpm
Bore/Stroke Ratio	.8-1.2	.8-1.2
Mean Piston Speed (at maximum power)	15-20 m/s H.P. up to 25 m/s	8 m/s (low speed) 11 m/s (medium speed) 16 m/s (high speed)
Brake Mean Effective Pressure, (bmep) @max brake torque	N.A. 850-1200 kPa T.C. 1200-1700 kPa	N.A. 700-900 kPa T.C. 1400-2000 kPa
NOTE: at max power, bmep is typically 10-15% less than the values above		
Brake Specific Fuel Consumption, (bsfc)	250-300 g/kw-hr	200-250 g/kw-hr
Thermal Efficiency	20-35%	25-45%
Combustion Efficiency	95-98% less for 2-strokes	95-98%
Mechanical Efficiency	90% mid-range 75% @max speed	95% mid-range 85% @max speed
Volumetric Efficiency	75-90% 4 stroke 60-80% 2 stroke over 100% if tuned	85-95% 4 stroke 70-95% 2 stroke

Abbreviations

H.P. = high performance

N.A. = naturally aspirated

T.C. = turbocharged