

Lectures

8th Semester B. Tech. Mechanical Engineering

Subject: Internal Combustion Engines

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Topic: Internal Combustion Engines For Land, Sea and Air Applications

The following **table** give you the specifications as per the **state of the art of internal combustion engines** with respect to the **range of rated power** needed for a particular **application**.

The tabulated technical information will further help you in the **selection of engines** for any particular application from land to sea and air.

Further the information given in the table will lead you to the **design of each of these engine types** for the applications mentioned as per **future emission norms** and **alternative fuels**.

Table 1: Classification Of Reciprocating Engines By Application

Class	Service	Approximate Engine Power Range, KW	Predominant Type		
			D or SI	Cycle	Cooling
Road Vehicles	Motor-cycles, Scooters	0.75 – 70	SI	2, 4	A
	Small Passenger Cars	15 – 75	SI	4	A, W
	Large Passenger Cars	75 – 200	SI	4	W
	Light Commercial	35 – 150	SI, D	4	W
	Heavy (Long Distance Commercial)	120 – 400	D	4	W
Off-Road Vehicles	Light Vehicles (Factory, Airport, etc)	1.5 – 15	SI	2, 4	A, W
	Agricultural	3 – 150	SI, D	2, 4	A, W
	Earth Moving	40 – 750	D	2, 4	W
	Military	40 – 2000	D	2, 4	A, W
Railroad	Rail Cars	150 – 400	D	2, 4	W
	Locomotives	400 – 3000	D	2, 4	W
Stationary Power Generation	Building Service	7 – 400	D	2, 4	W
	Electric Power	35 – 22,000	D	2, 4	W
	Gas Pipeline	750 – 5000	SI	2, 4	W

SI = Spark Ignited; D = Diesel; A = Air Cooled; W = Water Cooled

Table 1 Continued: Classification Of Reciprocating Engines By Application

Class	Service	Approximate Engine Power Range, KW	Predominant Type		
			D or SI	Cycle	Cooling
Marine	Outboard	0.4 – 75	SI	2	W
	Inboard Motor-crafts	4 – 750	SI, D	4	W
	Light Naval Craft	30 – 2200	D	2, 4	W
	Ships	3500 – 22,000	D	2, 4	W
	Ships' Auxiliaries	75 – 750	D	4	W
Airborne Vehicles	Airplanes	45 – 2700	SI	4	A
	Helicopters	45 – 1500	SI	4	A
Home Use	Lawn Movers	0.7 – 3	SI	2, 4	A
	Snow Blowers	2 – 5	SI	2, 4	A
	Light Tractors	2 – 8	SI	4	A
Stationary Power Generation	Building Service	7 – 400	D	2, 4	W
	Electric Power	35 – 22,000	D	2, 4	W
	Gas Pipeline	750 – 5000	SI	2, 4	W

SI = Spark Ignited; D = Diesel; A = Air Cooled; W = Water Cooled

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In charge Course:

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Text Book:

Internal Combustion Engine Fundamentals

By John B Heywood

Published By: McGraw-Hill Book Company