

MARINE ENGINE PERFORMANCE RATINGS

Marine Propulsion M Ratings

Ratings are based on the ISO 8655 standard power rating and the SAEJ1228 crankshaft power rating.

The **M** rating definitions are provided as a guide to help in the selection of the engine that best fits the application requirements. It is recommended to consult a John Deere representative to verify the optimal rating for the specific application.

The **M1** rating is for marine propulsion applications that may operate up to 24 hours per day at uninterrupted full power and have load factors* greater than 65 percent.

Possible applications: Line hauls tugs and towboats, fish and shrimp trawlers/draggers, and displacement hull fishing boats

The **M2** rating is for marine propulsion applications that typically operate between 3,000-5,000 hours per year and have load factors* up to 65 percent. This rating is for applications that are in continuous use and use full power for no more than 16 hours of each 24 hours of operation. The remaining time of operation is at or below cruising† speed.

Possible applications: Short-range tugs and towboats long-range ferryboats, large passenger vessels and offshore displacement hull fishing boats

The **M3** rating is for marine propulsion applications that typically operate between 2,000-4,000 hours per year and have load factors* up to 50 percent. This rating is for applications that use full power for no more than 4 hours out of each 12 hours of operation. The remaining time of operation is at or below cruising† speed.

Possible applications: Coastal fishing boats offshore crew boats, research boats. Short range ferryboats and dinner cruise boats.

The **M4** rating is for marine propulsion applications that typically operate between 1,000-3,000 hours per year and have load factors* below 40 percent. This rating is for applications that use full power no more than 1 hour out of each 12 hours of operation. The remaining time of operation is at or below cruising† speed.

Possible applications: Inshore crew boats, charter fishing boats, pilot boats, dive boats, and planning hull commercial fishing boats.

The **M5** rating is for marine recreational propulsion applications that operate between 300-1,000 hours per year and have load factors* below 35 percent. This rating is for applications that use full power for no more than 30 minutes out of each 8 hours. The remaining time of operation is at or below cruising† speed.

Possible applications: Recreational boats, tactical military vessels and rescue boats.

† Cruising is any operating time where the engine speed is more than 200 rpm less than the maximum attainable engine speed.

M Rating	Typical Load Factor	Typical Annual Usage	Typical Full Power Operation
M1	> 65%	Unrestricted	Uninterrupted
M2	≤ 65%	3,000 - 5,000 hr.	16 of each 24 hr.
M3	≤ 50%	2,000 - 4,000 hr.	4 of each 12 hr.
M4	≤ 40%	1,000 - 3,000 hr.	1 of each 12 hr.
M5	≤ 35%	300 - 1,000 hr.	0.5 of each 8 hr.

Marine Generator Engine Rating

The Marine Generator engine rating is the power available under normal varying electrical load factors* for an unlimited number of hours per year in commercial applications. This rating incorporates a 10% overload capability, and conforms to ISO 8528 prime power. Average load over a 24-hour period shall not exceed 67% of the prime rating, of which no more than two hours are between 100% and 110% of the prime rating.

This rating is used for applications that require constant speed in auxiliary applications.

* Load factor is the actual fuel burned over a period of time divided by the full-power fuel consumption for the same period of time. For example, if an engine burns 160 liters of fuel during an eight-hour run, and the full-power fuel consumption is 60 liters per hour, the load factor is 160 liters / (60 liters per hour x 8 hours) = 33.3 percent.