

CUMMINS INC.

Charleston, SC 29405

Marine Performance Curves

| Basic Engine Model: |
|---------------------|
| KTA19-D(M) |

Engine Configuration:

D193097MX02

FR-4292a

Curve Number:

CPL Code:

2634

Date: 5-Oct-09

Displacement: 19 liter [1150.00 in³]

> Bore: 159 mm [6.25 in]

Advertised Power:

kW [hp] @ rpm 403[540]@1500

Stroke: 159 mm [6.25 in] Fuel System: Direct injection Cummins PT

Aspiration:

Turbocharged/Aftercooled

Cylinders:

Exhaust Type:

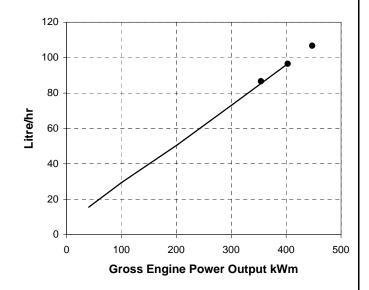
CERTIFIED: This marine diesel engine complies with or is certified to the:

IMO - NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13

| Engine Speed Overload Capacity | | Prime Power | | Continuous Power | | |
|--------------------------------|-----|-------------|-----|------------------|-----|-----|
| RPM | kWm | ВНР | kWm | ВНР | kWm | BHP |
| 1500 | 448 | 600 | 403 | 540 | 354 | 475 |

Engine Performance Data @ 1500 rpm

| OUTPUT POWER | | | FUEL CONSUMPTION | | | | | | |
|-----------------------|-------------|-----|------------------|----------|----------------|-------------------|--|--|--|
| % | kWm | BHP | kg/kWh | Lb/ BHP- | Liter/ hour | U.S. Gal/ hour | | | |
| 10% OVERLOAD CAPACITY | | | | | | | | | |
| 110% | 448 | 600 | 0.203 | 0.334 | 106.7 | 28.2 | | | |
| PRIME I | PRIME POWER | | | | | | | | |
| 100% | 403 | 540 | 0.204 | 0.335 | 96.5 | 25.5 | | | |
| 75% | 302 | 405 | 0.207 | 0.340 | 73.4 | 19.4 | | | |
| 50% | 201 | 270 | 0.214 | 0.352 | 50.7 | 13.4 | | | |
| 25% | 101 | 135 | 0.249 | 0.410 | 29.5 | 7.8 | | | |
| 10% | 40 | 54 | 0.329 | 0.541 | 15.6 | 4.1 | | | |
| CONTINUOUS POWER | | | | | | | | | |
| 80% | 354 | 475 | 0.208 | 0.342 | 86.7 | 22.9 | | | |
| | | | 0.208 | 0.342 | 86.7 | 22.9 | | | |



Rating Conditions: Ratings are in accordance with ISO 15550 and ISO 8528-5 reference conditions; air pressure at 100 kPa (29.61 in Hg), air temperature 25°C (77°F), and 30% relative humidity. The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/liter (7.1 lb/U.S. gal).

Power output curves are based on the engine operating with fuel system, water pump, and lubricating oil pump; not included are battery charging alternator, fan, optional equipment, and driven components.

Unless otherwise specified, all data is at rated power conditions and can vary ± 5%.

Prime Power Rating is applicable for supplying continual electrical power at varied load. The following are the Prime Rating

- Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.
- * The total operating time at 100% Prime Power shall not exceed 500 hours per year.
- * There is a 10% overload capability for a period of 1 hour within a 12 hour period of operation. Total operating time at 10% overload shall not exceed 25 hours per year.

TECHNICAL DATA DEPT.

CHIEF ENGINEER