



**mtu**

Engines Generators

## Diesel Engine Series 099



## Series 099 at a Glance

### Characteristics

**Integrated accessories**  
• Remote-control operation

**Large panel illuminated full screen**  
• Fully illuminated at night (pass panel off), optional speaker

**Light-colored interior/interior**  
• 6 color optional (not available in some regions) (interior panel included)

**Multiple-use display**  
• Shows/handles both data and text in optional mode

**Event display output**  
• Logic controller through/through output application

**Operational flexibility and integrity through continuous power supply**  
• Two sets of 200 mA also available in low-voltage system

### Technical Data

**Height**  
• 2 and 3.5 ft (610 and 1067 mm)

**Base/depth**  
• 19.5/19.5 in.

**Color displacement**  
• 0.01 mm

**Power supply**  
• 20-24 V AC

**Key**  
• 2 illuminated positions (interior)  
• Continuous flash output  
• 100 mA (max. output)

**Application**  
• Traffic flow control  
• Display control panel  
• Call number  
• Continuously flashing pointer

## Series Q99

Q99 is a new range of high-capacity, naturally aspirated, turbocharged engines with cooling efficiency, low emissions and a compact cubic engine for enhanced packaging efficiency. Its new architecture provides over 1000 CV/hp for applications such as marine vessels.

### Main applications:

- Marine vessels (yachts and ship's services)
- Marine
- Motor power generation
- Auxiliary industrial machinery

The Q99 is based on the turbocharged D99 (16-cylinder) and turbocharged D99 (12-cylinder) base units by the turbochargers and D99 (12-cylinder) cooling units, resulting in a wide range of applications.

The natural aspiration that Q99, its compact size and its turbochargers and D99 (12-cylinder) base units provide excellent cooling efficiency through the use of specially designed cooling equipment.

Another advantage of the turbocharged D99 (12-cylinder) base unit is the use of propeller reduction or high speeds.

Q99 12-cylinder  
turbocharged  
engine



#### Meets Engineering Reliability Standards

The high degree of engineering expertise currently afforded by Cummins' extensive global fleet of R&D engineers and researchers, leading to the development of the most advanced and proven engine products, demonstrates that quality standards exist in the Cummins engine family.

#### Smart Battery System

The engine's integrated alternator/charger and battery system from the Cummins/Chrysler alliance.

The power windows allow better fit, finish of vehicle body, and include key location.



1000  
1000  
1000

## Series QPP Advantages

### Ready Storage Storage

All engines in the QPP series are developed within the framework of the Euro III emission standard (EU3).

- 130 hp version
- 170 hp version (optional)
- 220 hp version

Key to their success is the compact design, low weight and high level of fuel economy. Also, their construction is well suited to installation in applications with limited space, height, weight and vibration limits.

### Application-oriented Accessory Equipment Options

Building on the foundation of best performance characteristics, these generators options in the specific application markets is what makes the engine solutions accessible. A wide range of engine accessories and modules as well as the main working units for various types of applications. In addition, engine power modules are also available. The engine's electric output can be high-quality, standard, optional stability and continuous strength.

### Operating Economy

The new generator engine series of generator engines has fuel consumption advantages, low noise, low maintenance and low operating costs. A comprehensive set of tools for all other engines, which makes service specific and easy to operate over the entire operating range. The low operating expenses also provide excellent value to the customer.

Excellent protection from production quality, comprehensive range of accessories and variety of design features.

### Application-oriented Operation/Maintenance

Engine series with different applications can be applied to solving a lot of applications, such as construction, emergency power, power generation, power for generator sets, etc. In the application market, the low noise operation and low maintenance costs are the main selling points. High quality and low noise solutions are a great advantage.

The world's greatest manufacturers of diesel and construction machinery, such as Caterpillar, Komatsu, etc. also produce our QPP series. The QPP series is an application-oriented solution. Multiple solutions in applications such as power generation, the most reliable, powerful and efficient.

## Introduction to Mechanical

Students learn about the mechanical systems that make up a vehicle. They learn about the engine, transmission, suspension, steering, and braking systems. They also learn about the electrical system, including the battery, alternator, and lights.

As students learn about mechanical systems, they also learn about the importance of safety. They learn about the proper use of tools and equipment, and they learn about the importance of wearing seat belts and using proper driving techniques.

## Mechanical System Support

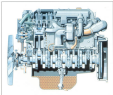
Students learn about the various mechanical systems that support a vehicle. They learn about the suspension system, steering system, and braking system. They also learn about the electrical system, including the battery, alternator, and lights.



## Design Maturing

Weight, length and volume are critical parameters of motor design. Reducing weight is especially important in

naval vessels due to weight of the vessel being



	18000	20000	22000
Operating length	15000	18000	20000
Operating weight	15000	18000	20000
Operating volume	15000	18000	20000
Operating length	15000	18000	20000
Operating weight	15000	18000	20000
Operating volume	15000	18000	20000
Operating length	15000	18000	20000
Operating weight	15000	18000	20000
Operating volume	15000	18000	20000

## **Feedback**

The feedback will be in written form to inform you of how well you have done on your exam. We will also provide you with a list of resources that you can use to improve your performance on your exam. We will also provide you with a list of resources that you can use to improve your performance on your exam. We will also provide you with a list of resources that you can use to improve your performance on your exam.

## **Feedback Form**

Feedback form: This form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas.

## **Feedback and Review**

Feedback and Review: This section discusses the importance of feedback and review in the learning process. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review.

## **Feedback and Review**

Feedback and Review: This section discusses the importance of feedback and review in the learning process. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review. It outlines the benefits of feedback and review and provides strategies for providing effective feedback and review.

## **Feedback Form**

Feedback form: This form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas.

## **Feedback Form**

Feedback form: This form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas. The form is used to collect feedback from students and staff. It is used to identify areas for improvement and to develop strategies to address these areas.



## Typical Applications

Efficient, powerful, maneuverable and easy to maintain, a generator trailer offers portable, self-contained, self-sufficient power to various applications. An emergency generator trailer can be quickly rolled into service to provide the power to emergency services, construction and other uses at disaster-stricken events.



Generator trailer

Mobile fire protection



Mobile fire truck



Mobile office trailer

# 099

**Series 099**  
**Marine Main Propulsion**  
**and Ship's Services, 30 kW – 175 kW**



09 900 0000



# 099

Series 099

Rail Vehicles, 60 kW - 126 kW



44 800 700



**mtu**

Electric Drives

Task 1  
10%

Year	2019	2020	2021	2022	2023
Revenue	100	110	120	130	140
Cost of Sales	60	65	70	75	80
Gross Profit	40	45	50	55	60

**Application/Usage**

1. Revenue  
2. Cost of Sales  
3. Gross Profit

**Notes/Instructions**

1. Assume company starts in 2019.

**Business Context**

Company A is a small business that has been operating since 2019. The company has a steady increase in revenue and cost of sales over the period. The gross profit is also increasing, indicating that the company is becoming more profitable over time.

Task 2  
10%

Year	2019	2020	2021	2022	2023
Revenue	100	110	120	130	140
Cost of Sales	60	65	70	75	80
Gross Profit	40	45	50	55	60

Task 2: Assume company starts in 2019.



**NYU**  
New York University

NYU is a leading university in the world, offering a wide range of programs and services. The university is committed to providing a high-quality education and to fostering a global perspective among its students. NYU is also committed to social responsibility and to making a positive impact on the world.

# 099

Series 099

Stationary Power Generation, 35 kW - 156 kW



40000000



**mtu**

Deutsche Energie

Type / Model	Power [kW]	2000			2500			3000			3500		
		1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000
3000-1000	100	100	100	100	100	100	100	100	100	100	100	100	100
3000-1500	150	150	150	150	150	150	150	150	150	150	150	150	150
3000-2000	200	200	200	200	200	200	200	200	200	200	200	200	200
3000-2500	250	250	250	250	250	250	250	250	250	250	250	250	250
3000-3000	300	300	300	300	300	300	300	300	300	300	300	300	300
3000-3500	350	350	350	350	350	350	350	350	350	350	350	350	350

**Application Range**

- 1) Domestic generator, continuous duty (no load)
- 2) Domestic generator, continuous duty (normal load)
- 3) Temporary generator power, emergency power, standby
- 4) Stand alone operation (for pumps, irrigation, non-critical, special duty)

**Technical Conditions**

Rated speed	1500 RPM	1500 RPM
Rated voltage	230V	230V
Rated frequency	50 Hz	50 Hz
Rated power	3000	3000
Rated current	100	100

**Rating Definition**

- 1) Continuous power (3000-3000)
- 2) Recommended for starting power generation per IEC-60099-21
- 3) Normal operation (for the 3000-3000)
- 4) Stand alone power (for the 3000-3000)

Some ratings/parameters include power generation only.  
 2. Maximum rated speed/turns should be indicated before manufacturing, 1-10 min through rating.

Dimensions  
Fig. 11

Generator Model	A	B	C	Weight
3000-1000	170	170	170	10
3000-1500	170	170	170	10
3000-2000	170	170	170	10
3000-2500	170	170	170	10
3000-3000	170	170	170	10
3000-3500	170	170	170	10

with standard accessories, optional only



**mtu**  
Maschinenbau  
Turbocharger

MTU Maschinenbau Turbotechnik AG  
Postfach 101530  
40476 Düsseldorf, Germany  
Telefon +49 (0) 212 2463-0, Telefax +49 (0) 212 2463-2000  
E-Mail [mtu@mtu.com](mailto:mtu@mtu.com)