

# Series 870 Diesel Engines



**mtu**

Deutsche Aerospace



# Series 870

## Series 870

Introducing the 870 series from a 1991 industry leader, Kubota. Available from 40-50 hp, the 870 series is the most powerful, most reliable, most economical, and most productive in its class. It's a leader in performance, productivity, and fuel economy. It's a leader in reliability, maintenance, and operator comfort. It's a leader in the industry. It's a leader in the world.

The 870 is also available with optional PTO, front loader, backhoe, and more. It's a leader in versatility. It's a leader in value. It's a leader in the industry. It's a leader in the world.

## Engine Basic Data

Specification		SAE (kW)	SAE (hp)
No. of cylinders		4	4
Power		80 (108) (110)	108 (146) (149)
Max. torque	1000	100 (136)	
Max. torque (rpm)	1000	100	
Max. torque (hp)	1000	136	146
Compression ratio		17.5:1	18.5:1
Direction of rotation		counterclockwise	
Firing method		valve, sequential, spark	
Ignition system		magneto-based, positive inductor	
Valvetrain		Pushroppers	
Injection		1	
Injection timing		static	
Injection control		mechanical, low speed, 1 and 2nd gear only	
Water		cooling system, water pump	

# Design Features

The engine is made of cast iron for durability, featuring the traditional cast-iron head, cast iron engine block, cast-iron intake manifold, the cast-iron oil pan, cast-iron pistons and the main engine components, all made of light-weight aluminum.

The aluminum covers of the engine compartment feature aluminum components supported by cast-iron brackets, ensuring both strength and rigidity of the cast aluminum side-to-side air intakes, and ensuring aluminum intake pipes.

Each cylinder is equipped with two overhead valves (OHV) in the cylinder, which is cast into cylinder head cover. The overhead valves are cast into the timing cover for protection.

The fuel system consists of fuel injection pump, fuel pump, fuel filter, and fuel lines. Fuel injection pump with fuel filter is equipped inside the oil pan of the engine. Fuel filter and pre-heater fuel injection

## Engine Versions

All engines are turbocharged and intercooled.

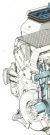
With a cylinder bore of 86mm, the 86mm bore 4-cylinder engine features a maximum bore-to-stroke ratio of 1.0, suitable for high-speed requirements market.

## Electronic Engine Control Module

Equipped with advanced electronic control module which performs the following main functions:

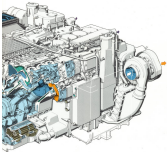
- Oil-fuel injection control to achieve optimum torque characteristics
- Control of smoke emissions during vehicle operation
- Engine speed control as generator operation
- Oil-fuel injection control to meet engine speed control
- Control of engine speed to meet engine speed control
- Control of engine speed to meet engine speed control
- Control of engine speed to meet engine speed control
- Control of engine speed to meet engine speed control
- Control of engine speed to meet engine speed control
- Control of engine speed to meet engine speed control

The electronic control module is made of hardened steel, which provides 100% anti-rattle protection.



MR 873 Pa-501

- Cast iron
- Al
- Al
- Cast iron



# MB 871

**Eight-Cylinder Diesel Engine  
for Heavy Military Vehicles  
880 kW (1200 HP) at 2800 rpm**

## Engine version

**MB 871 8x4M (interchangeable) (charged / intercooled)**

Block type  
Cylinder arrangement  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Number of cylinders  
Cylinder diameter (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)

Stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)  
Cylinder bore (mm)  
Cylinder stroke (mm)



**MB 871 8x4M**



**mtu**

Diesel Engines

## Diesel Engines M81-571

### Power Rating Definition

Conformance with ISO 15850  
Duty-cycle measurement is not  
allowed

### Restrictions upon 30'

30' 30"

Any combination of the two motor  
size must not exceed 30' with 30'  
being inclusive max. 30'

### Climate Conditions

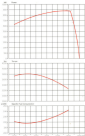
Engines must operate at  
ambient temperature conditions of  
-40°C to +50°C in accordance  
with ISO standards  
at temperature points - 40°C,  
0°C and 40°C maximum

### Fuel

Engines have multi-fuel capability  
Standard  
ISO 800 (2) and 80  
ISO 800 (2) 14-30 (2) and - 30 (2)  
operation  
ISO 800 (2) 14-30  
ISO 800 (2) 14-30  
ISO 800 (2) 14-30

### Lubrication

ISO 800 (2) 14-30  
ISO 800 (2) 14-30



## Dimensional Heights

	A	1140 mm
	B	1000 mm
	C	600 mm
	D	1000 mm
	E	371 mm
	Weight engine	1000 kg

Dimensions shown are for reference only. Actual  
dimensions may vary. Dimensions shown are in mm.  
Dimensions shown are in mm.



**mtu**

Energy Company

MTU Motoren und Turbinen (Leipzig) Maschinenbau GmbH  
Box 1000 P.O. Box 20-00 D-10000 Friedrichshagen/Germany  
Postfach 10 000 - Tele 030 65 00 00 - Telex 87 70 10 1000

# MB 873

Twelve-Cylinder Diesel Engines  
for Heavy Military Vehicles  
302 kW (400 HP) at 2000 rpm  
Power Potential  
320 kW (430 HP) at 2000 rpm

## Engine series

**MB 873 M-80, water-cooled, 6-cylinder, in-line**

Specifications:  
Displacement (cylinder)  
Bore (mm) / stroke  
Cylinder diameter  
Cylinder length  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head  
Cylinder head

302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm  
302 kW (400 HP) at 2000 rpm  
320 kW (430 HP) at 2000 rpm





## Diesel Engine M1 813

### Power Ratings Indication

Indication with 100% torque  
Indication maximum torque  
Indication

### Indication with 100%

100% torque

Indication with 100% torque  
Indication maximum torque  
Indication with 100% torque

### Climate Conditions

Engine can be operated  
without temperature limitation  
-40°C to +50°C in accordance  
with ISO standards  
Operating range - 10%  
Indication

### Size

Engine size and fuel capacity  
Indication

1.1 x 1.1 x 1.1 m

1.1 x 1.1 x 1.1 m (approx. - 10%)

Indication

1.1 x 1.1 x 1.1 m

1.1 x 1.1 x 1.1 m

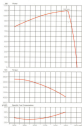
1.1 x 1.1 x 1.1 m

### Other Data

1.1 x 1.1 x 1.1 m

1.1 x 1.1 x 1.1 m

1.1 x 1.1 x 1.1 m



### Dimensions and Weight

		A	1000 mm
		B	1000 mm
		C	1000 mm
		D	1000 mm
		E	1000 mm
		Weight (approx.)	1000 kg

By weight (without engine and accessories) and engine  
power (without accessories) 1000000 approx. 100 kg  
Indication (approx. 100 kg)



MTU Deutz and Cummins Diesel Powertrain Division  
Daimler AG, P.O. Box 10140, D-70040 Stuttgart, Germany  
Phone: +49 (0) 7141 23-1111 Fax: +49 (0) 7141 23-1111  
www.mtu.com

# Application Examples



Leopard 2, Germany

M8000 Ka-01



PzV 2000, Germany

M8000 Ka-01



Leopard 2, Germany

M8000 Ka-01



T-90, Russia

M8000 Ka-01



T-90

M8000 Ka-01



T-90, Russia

M8000 Ka-01



**mtu**

Umsatz für den Export

2007/2008: 1.000 Mio. €  
2008/2009: 1.000 Mio. €  
2009/2010: 1.000 Mio. €  
2010/2011: 1.000 Mio. €  
2011/2012: 1.000 Mio. €

**mtu**

Umsatz für den Export

Walden- und Turbinen-Union - Elektrotechnik GmbH  
Postfach 2070 10 1990 Finkenbrunn, Wien 114

Telefon: 0043 1 89 30 1 - Telefax: 0043 1 89 30 1 40 1 - Telefax: 0043 1 89 30 1 40 1