



ENSURING OVERALL PRODUCT QUALITY

Yamaha Motor Company manufactures a wide range of engine-powered products such as motorcycles, racing-karts and generators, in addition to such diverse products as powerboats and sailboats.

The expertise gained from research in these fields is fed back into product development across our product lines. This enables Yamaha to supply technologically superior products to our customers all over the world.

Production lines at Yamaha are operated under strict quality control, ensuring that every product we make meets international quality standards. And the components that go into Yamaha MZ series multi-purpose engines are manufactured to specifications chosen for maximum performance and quality. This ensures that every engine we produce is of the highest quality, with the performance to match.



- Please read the owner's manual carefully before operating, and be sure to operate the machine properly.
- Regularly inspect the engine and perform maintenance when necessary.
Keep the machine in good operating condition at all times.
- Turn the engine off and keep away from open flames whenever refueling the machine.
Also, immediately wipe up any spilled fuel.
- Operate the engine only in a well-ventilated area.
- Do not touch the engine and muffler during operation or shortly after stopping.
- Specifications are subject to change without notice.

<http://www.global.yamaha-motor/business/pp/>



YAMAHA MOTOR POWERED PRODUCTS CO.,LTD.
200-1 SAKAGAWA KAKEGAWA SHIZUOKA 436-0084, JAPAN

Printed in Japan
339283-1305OGD5-a1

YAMAHA MZ Series MULTI-PURPOSE ENGINES

T o m o r r o w ' s P o w e r N o w !



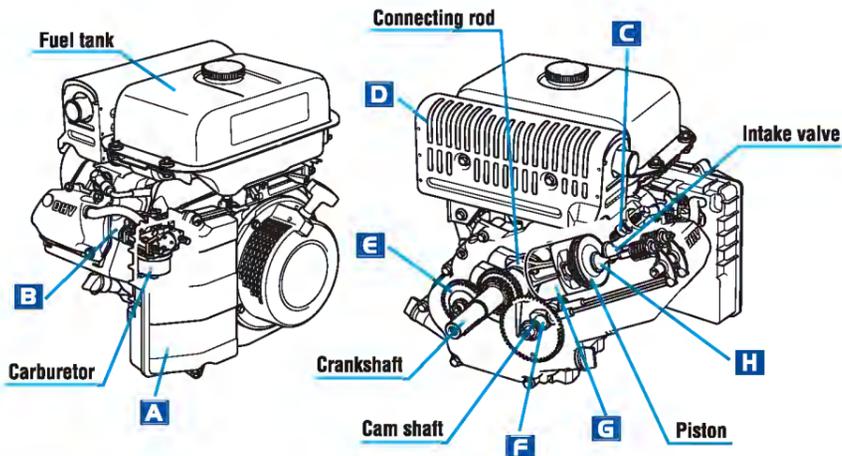
MZ125 / MZ175 / MZ200 / MZ250 / MZ300 / MZ360

YAMAHA MZ Series MULTI-PURPOSE ENGINES

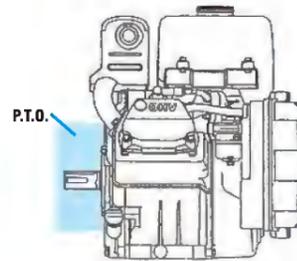


- Engines featuring high durability
- Delivers good RPM stability for high power and high performance operation
- Economical engine with low fuel and oil consumption
- Very quiet operation due to excellent sound reducing design
- Runs long thanks to large sized fuel tank
- Easy operation and maintenance
- Broad variations of P.T.O. make this engine adaptable to a wide range of machineries
- Equipped with a NOISE SUPPRESSOR (Radio Noise Suppression) which is used for Keeping as Minimum Noise as Possible

FEATURES OF MZ ENGINE SERIES



Clean P.T.O. face

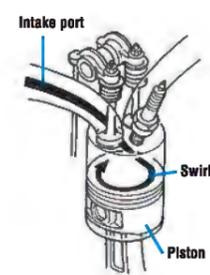


The mounting face of the P.T.O. side, MZ engine is almost flat against applications. This will make customer easier to apply their product fit against our engine compare to others.

Variety of P.T.O. shaft

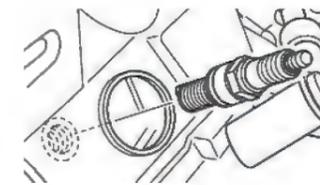
Meets latest emission standard in each country

Intake manifold



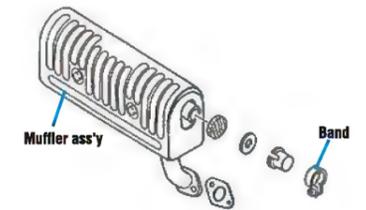
MZ engine mixture air goes into the cylinder having swirl. Mixture air needs to go into the cylinder uniformly. Also during compression and combustion, having swirl will increase the speed of plug's spark spread through the mixture air. This increases the power, fuel consumption, and cleanliness exhaust emission.

Spark plug



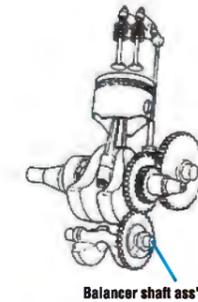
Register plug for noise reduction. Standard equipped a resistance type SPARK PLUG "BPR4ES."

Muffler



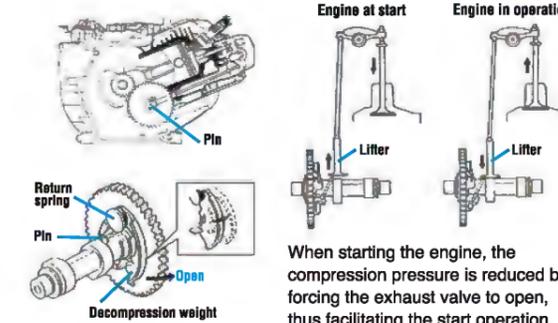
The adoption of a large muffler reduces the exhaust noise. The tail screen is also adopted to MZ125 and MZ175.

Balancer (MZ360)



MZ engine has one balancer on 360. Big capacity single cylinder engine is able to get larger vibration. In order to cure this, balancer is needed. Balancer shape, style, and quantity depend on each company's way of thinking.

Decompression



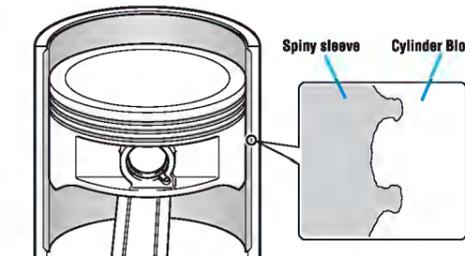
When stopping/starting the engine:
 ① The decomp weight pushes up the pin to push the lifter.
 ② The exhaust valve is not opened or closed as the camshaft turns but forced to open.

When operating engine:
 ① The centrifugal force causes the decomp weight to open, and this movement lowers the pin.
 ② The lifter is not forced to be pushed up but normally moves as the camshaft turns.
 The exhaust valve is not opened and closed with the normal timing.

Air cleaner

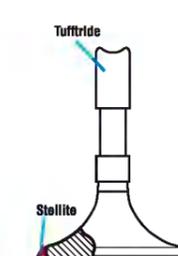
| Silent semidry type | Silent dual type | Semi-cyclone type | Semidry type |
|--|---|---|---|
| | | | |
| DUST CONDITION Low dust condition | DUST CONDITION Intermediate dust condition | DUST CONDITION Severe dust condition | DUST CONDITION Low dust condition |
| APPLICATION EXAMPLE Stationary engines such as pump and generator rice-planting machine | APPLICATION EXAMPLE Harvesting machines (binder, harvester, etc.) Caring machines (tiller, etc.) | APPLICATION EXAMPLE Construction machinery (plate, rammer, etc.) Harvesting machines (binder, harvester, etc.) Caring machines (earth-scattering machine) | |

Sleeve



Spiny sleeve is used. Since the engine block is aluminum, cast iron sleeve is fitted for more durability and less worn out. This sleeve is called spiny sleeve that has special shape. When aluminum and steel expands by heat, their expand rate is different (aluminum is more than steel). This difference will create air pockets but with spiny sleeve is keeps this level very small. Spiny sleeve is shaped liked jigsaw puzzle and even if aluminum and steel expands in different ratio, the air pocket will not occur largely. This will help to radiate the engine inside heat transfer to sleeve, block, and fin and keep the engine temperature in more idealistic figure.

Exhaust valve



High heat resistant SUH3 steel is used. But since exhaust valve expose to more than 700 degrees Celsius instantly, at the valve face where it meets valve seat has stellite coating. Also, whole valve surface has tufrifide finish in order to increase the hardness. Together when this tufrifide finish is polished, friction of surface becomes very low which makes valve to move smoother against guides.

MZ250 / MZ300 NEW TECHNOLOGY

Hemispherical combustion chamber

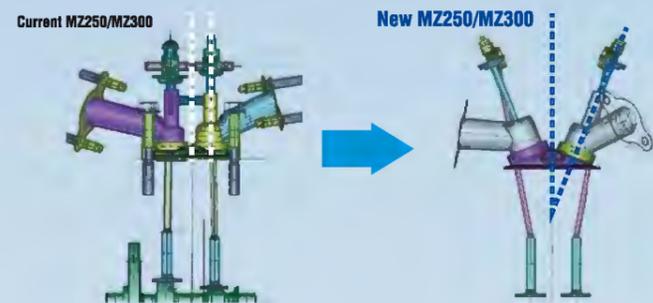
A fast combustion speed is necessary to increase combustion efficiency. Since the compact size and shape of the hemispherical combustion chamber adopted on MZ250/MZ300 reduces the distance that the combustion flame ignited by the spark plug must travel, less gas remains unburned and the combustion speed is increased. This results in improved fuel efficiency.

DIFFERENCE IN COMBUSTION CHAMBER SHAPE



Valve angle

To enable a hemispherical combustion chamber shape, the intake and exhaust valves were set at an angle of 22°. To accommodate this angle, the intake port shape was also changed. The interior of the combustion chamber is conducive to creating a swirl that speeds up combustion, boosts combustion efficiency and helps achieve better fuel efficiency.



Ignition timing

Since the hemispherical combustion chamber increases combustion speed compared to the current engine, the ignition timing (advance) has also been changed from the current model's BTDC23° to the new model's BTDC20°. This made it possible to clear the emissions standard requirements.

Explanation

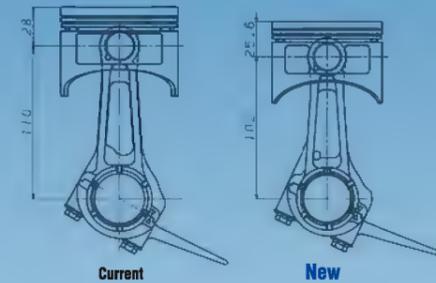
Ignition timing (or ignition advance) means the timing of the firing of the spark plug. It is expressed in terms of the number of degrees of [crank] angle before the piston reaches top dead center in its compression stroke that the ignition is set to fire at. For example, BTDC25° (BTDC = Before Top Dead Center) would mean that the ignition fires at the point where the crank angle is 25° before top dead center, which is designated as 0°. The reason for such an advance in the timing of the ignition is because it would take some time for the ignition flame to spread through the air-fuel mixture in the entire combustion chamber if the ignition was fired when the piston reached top dead center.



Compact design and engineering [MZ300]

Until now, the MZ300 model had been the same size as the MZ360, but now compact design changes throughout the engine have reduced the size of the new model sufficiently to make it the same size as the MZ250.

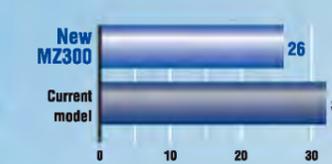
First of all, the forward incline angle of the cylinder was changed from 28° to 22° from the horizontal to enable a decrease in overall height. At the same time, the shape of the piston and its skirt was changed and the length of the connecting rod shortened (110 mm > 102 mm) for an optimum design that reduced the dimension in the direction of the cylinder head. In addition, a review was made of the head assembly from the standpoint of space efficiency, resulting in a reduction in overall width by setting the breather chamber in the head at an angle.



Furthermore, the recoil assembly was made thinner through design changes like positioning a pair of cooling air ducts on two sides, and a thinner air cleaner design was also adopted to contribute to overall compactness. Despite its compact design, the new MZ300 maintains the same level of power output as the current model. As a result, it now has the largest displacement of all the competing models in its size category.*

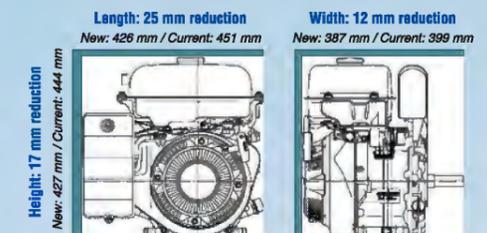
*As of June, 2012 according to Yamaha Motor surveys

WEIGHT COMPARISON



SIZE COMPARISON

■ = Current model external dimensions P.T.O. B type



Canister Cap
for U.S.A. Emission Standard

Chain for prevent from coming off.

AIR CLEANER DIFFERENCE



Air cleaner with new air intake position (only on Silent Semi-dry series)

Both the MZ250/MZ300 models have a new air cleaner design with the intake vents located at the top of the box where the intake air is less influenced by engine heat and less likely to draw in dusty air.

Also, a new filter material has been chosen to minimize dust intake and improve fuel efficiency and maintenance.

Comparison of fuel consumption per hour

*As of June, 2012 according to Yamaha surveys

MZ250



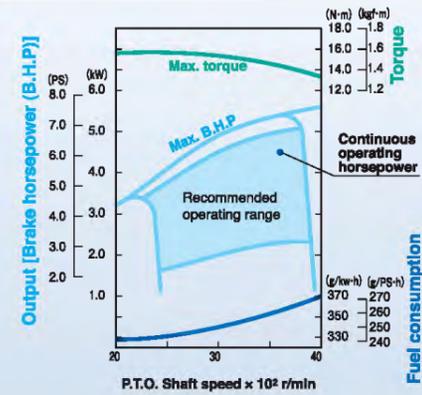
MZ300



YAMAHA MZ Series of Multi-Purpose Engines
NEW MZ250



PERFORMANCE CURVE



SPECIFICATIONS

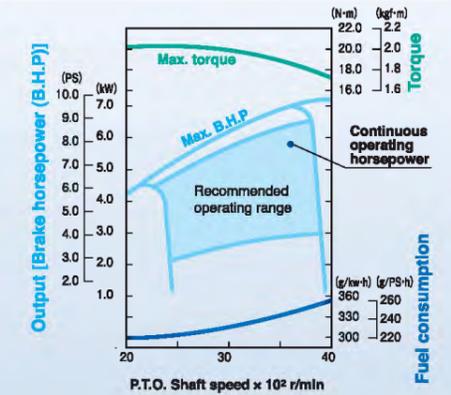
| Model name | MZ250 |
|--------------------|---------------------------------|
| Bore x Stroke | 74 x 59 mm |
| Displacement | 253 cm ³ |
| Compression Ratio | 8.7 |
| Max Power (Net) | 5.4 kW (7.3 PS) / 3600 rpm |
| Rated Power (Net) | 4.5 kW (6.1 PS) / 3600 rpm |
| Max Torque (Net) | 15.7 N·m (1.6 kgf·m) / 2400 rpm |
| Fuel Consumption | 328 g/kW·h (242 g/PS·h) |
| Fuel | GASOLINE |
| Fuel Tank Capacity | 5.8 L |
| Ignition System | T.C.I |
| Spark Plug | NGK BPR4ES |
| Lubrication System | Mechanical Splashing |
| Oil Capacity | 1.0 L |
| Dry Weight | 26 Kg |
| Dimensions(LxWxH) | 362 x 426 x 427 mm |

*Engine Output described above is representative net output measured at 3600rpm.

YAMAHA MZ Series of Multi-Purpose Engines
NEW MZ300



PERFORMANCE CURVE

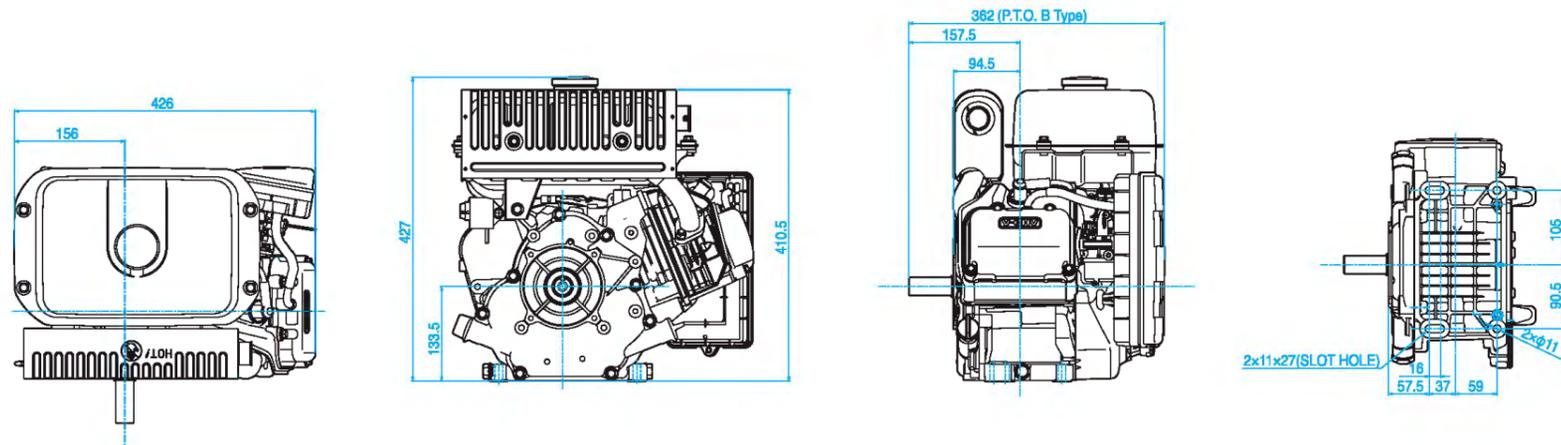


SPECIFICATIONS

| Model name | MZ300 |
|--------------------|---------------------------------|
| Bore x Stroke | 80 x 59 mm |
| Displacement | 296 cm ³ |
| Compression Ratio | 8.4 |
| Max Power (Net) | 7.0 kW (9.5 PS) / 3600 rpm |
| Rated Power (Net) | 5.8 kW (7.9 PS) / 3600 rpm |
| Max Torque (Net) | 20.3 N·m (2.0 kgf·m) / 2400 rpm |
| Fuel Consumption | 298 g/kW·h (219 g/PS·h) |
| Fuel | GASOLINE |
| Fuel Tank Capacity | 5.8 L |
| Ignition System | T.C.I |
| Spark Plug | NGK BPR4ES |
| Lubrication System | Mechanical Splashing |
| Oil Capacity | 1.0 L |
| Dry Weight | 26 Kg |
| Dimensions(LxWxH) | 362 x 426 x 427 mm |

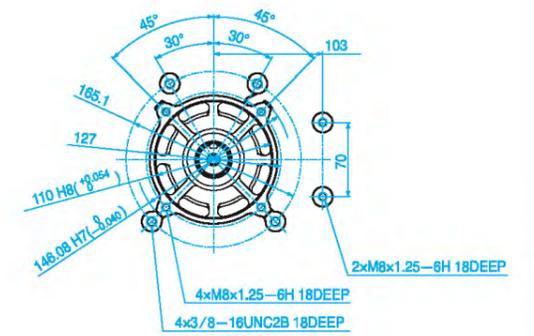
*Engine Output described above is representative net output measured at 3600rpm.

DIMENSIONS (MZ250/MZ300 P.T.O. B Type)

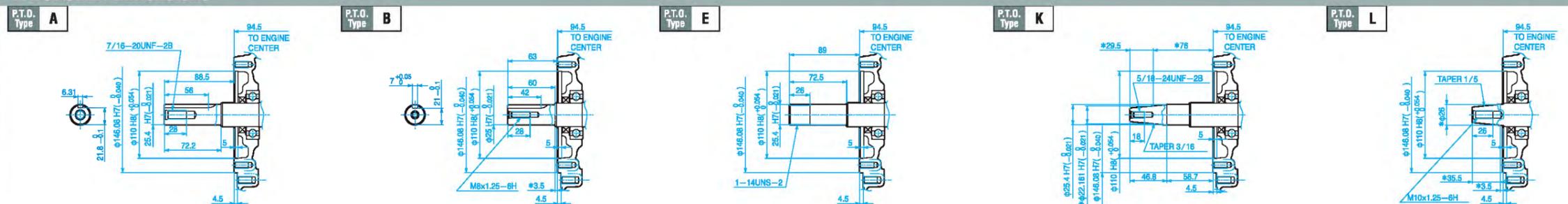


Mounting Face Dimensions

Direct Type



P.T.O. Shaft Dimensions

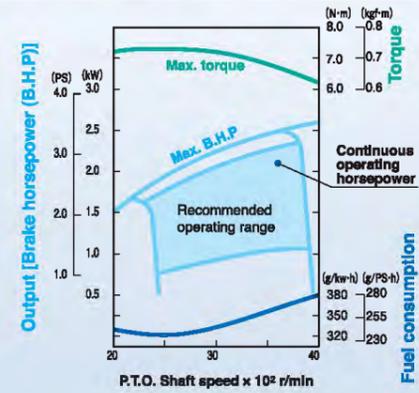


YAMAHA MZ Series of Multi-Purpose Engines

MZ125



PERFORMANCE CURVE



SPECIFICATIONS

| Model name | MZ125 |
|--------------------|--------------------------------|
| Bore x Stroke | 56 x 50 mm |
| Displacement | 123 cm ³ |
| Compression Ratio | 8.3 |
| Max Power (Net) | 2.5 kW (3.4 PS) / 3600 rpm |
| Rated Power (Net) | 2.1 kW (2.9 PS) / 3600 rpm |
| Max Torque (Net) | 7.3 N-m (0.7 kgf-m) / 2400 rpm |
| Fuel Consumption | 322 g/kW-h (237 g/PS-h) |
| Fuel | GASOLINE |
| Fuel Tank Capacity | 4.5 L |
| Ignition System | T.C.I |
| Spark Plug | NGK BPR4ES |
| Lubrication System | Mechanical Splashing |
| Oil Capacity | 0.6 L |
| Dry Weight | 15.5 Kg |
| Dimensions(LxWxH) | 323.5 x 352 x 370 mm |

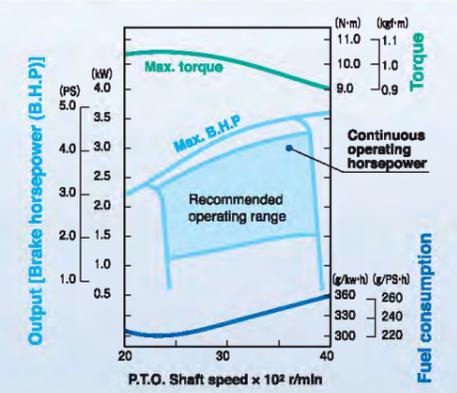
*Engine Output described above is representative net output measured at 3600rpm.

YAMAHA MZ Series of Multi-Purpose Engines

MZ175



PERFORMANCE CURVE

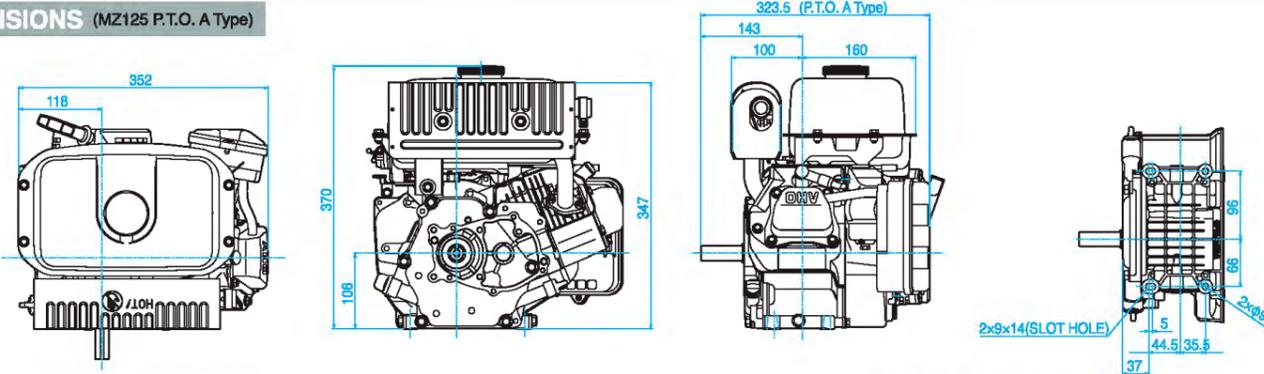


SPECIFICATIONS

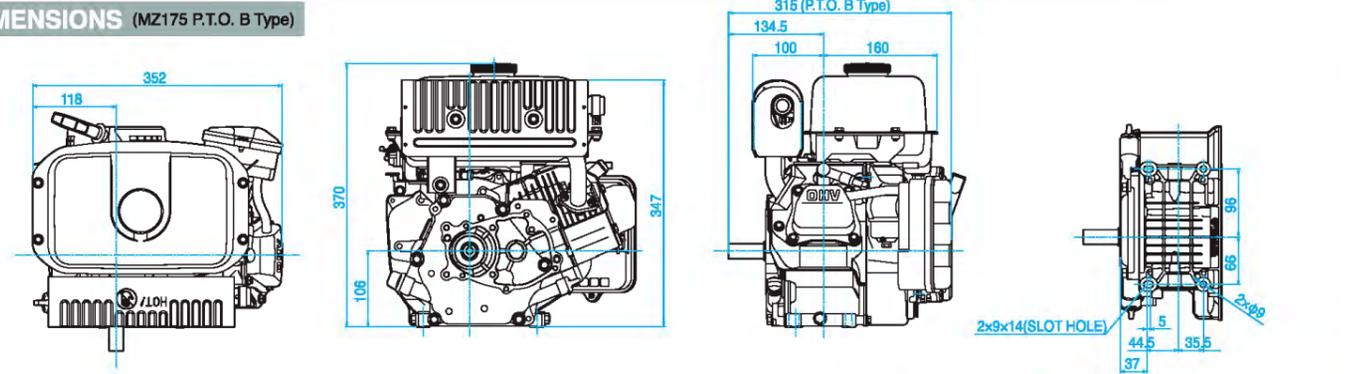
| Model name | MZ175 | MZ175 Reduction Type |
|--------------------|---------------------------------|---------------------------------|
| Bore x Stroke | 66 x 50 mm | |
| Displacement | 171 cm ³ | |
| Compression Ratio | 8.5 | |
| Max Power (Net) | 3.5 kW (4.8 PS) / 3600 rpm | 3.5 kW (4.8 PS) / 1800 rpm |
| Rated Power (Net) | 3.0 kW (4.1 PS) / 3600 rpm | 3.0 kW (4.1 PS) / 1800 rpm |
| Max Torque (Net) | 10.5 N-m (1.0 kgf-m) / 2400 rpm | 21.1 N-m (2.0 kgf-m) / 1200 rpm |
| Fuel Consumption | 300 g/kW-h (221 g/PS-h) | |
| Fuel | GASOLINE | |
| Fuel Tank Capacity | 4.5 L | |
| Ignition System | T.C.I | |
| Spark Plug | NGK BPR4ES | |
| Lubrication System | Mechanical Splashing | |
| Oil Capacity | 0.6 L | |
| Dry Weight | 16.0 Kg | 19.5 Kg |
| Dimensions(LxWxH) | 315 x 352 x 370 mm | 353 x 352 x 370 mm |

*Engine Output described above is representative net output measured at 3600rpm.

DIMENSIONS (MZ125 P.T.O. A Type)



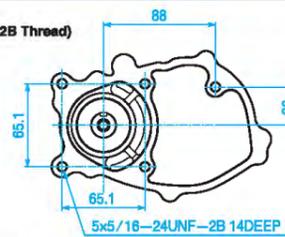
DIMENSIONS (MZ175 P.T.O. B Type)



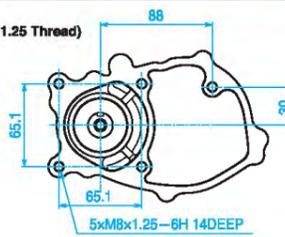
Mounting Face Dimensions

Direct Type

A UNF (5/16 UNF-2B Thread)

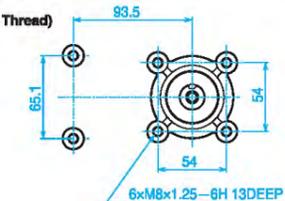


B M8 (8mm x 1.25 Thread)

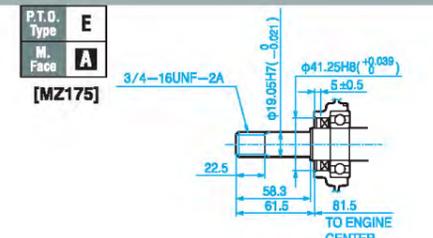
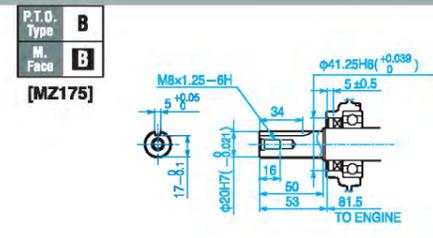
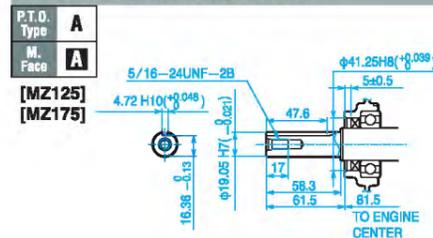


Reduction Type [MZ175]

C M8 (8mm x 1.25 Thread)



P.T.O. Shaft Dimensions



DIMENSIONS MZ175 Reduction Type

