



HVE ENGINE INSTRUCTION MANUAL



HVE-HS ・ HVE-RH

EXEN CORPORATION

☆ SAFETY PRECAUTIONS

- ☆ This product is a drive unit that powers HV flexible shafts and EFP pumps via a shaft joint. Depending on the connected equipment, it is used for concrete consolidation and for pumping muddy water, wastewater, or clean water at factories, construction sites, and building sites.
- ☆ Although this product has been designed with full consideration for safety, read and follow all DANGER, WARNING, and CAUTION instructions in this manual to ensure proper use. Also read the instruction manuals for the HV flexible shaft, EFP pump, and engine before use.
- ☆ Use this product only for its intended purpose. Improper use may result in malfunction, damage, or loss. The manufacturer shall not be liable for any resulting damage or loss.
- ☆ This product must be operated only by qualified and experienced personnel. Improper operation may result in accidents or equipment failure.
- ☆ Read this manual and confirm the latest specifications before use. Use of outdated information may result in improper operation or malfunction. Specifications are subject to change without notice.
- ☆ Provide this manual when transferring the product to a third party. Lack of safety information may result in unsafe operation, accidents, or damage.
- ☆ The following symbols and signal words—DANGER, WARNING, and CAUTION—are used in this manual and on the product to indicate potential hazards and to ensure safe use of this product.



DANGER

【DANGER】 indicates an imminent hazardous situation that will result in death or serious injury.



WARNING

【WARNING】 indicates a hazardous situation that could result in death or serious injury.



CAUTION

【CAUTION】 indicates a hazardous situation that may result in minor or moderate injury.



-  Do not operate the engine in enclosed or poorly ventilated areas such as indoors, tunnels, or areas surrounded by buildings.
 - Exhaust gas contains carbon monoxide and may cause poisoning.
-  Do not place hazardous or combustible materials near the product.
 - This may result in fire or explosion.
-  Use extreme caution when refueling with gasoline or oil.
 - Keep ignition sources away and do not smoke.
 - Stop the engine and allow it to cool before refueling.
 - Perform refueling in a well-ventilated area.
 - Use only the specified fuel and do not overfill.
 - Perform refueling in an area free of combustible materials.
 - Do not spill fuel. Wipe up any spills immediately.
 - Discharge static electricity before refueling, as it may ignite fuel vapors and cause fire or burn injury.

	WARNING
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-  If fuel is spilled on skin or clothing, wash immediately with soap and water and change clothing.
-  If fuel enters the eyes or mouth, seek medical attention immediately.
-  After refueling, tighten the fuel cap securely.
-  Keep hands and clothing away from rotating or moving parts during operation.
 - They may become entangled and cause injury.
-  Do not touch the engine or muffler during or immediately after operation.
 - They may be hot and cause burns.
-  Do not touch the spark plug, spark plug cap, or spark plug wire during operation.
-  Do not operate the product unless the HV flexible shaft is properly connected.
-  Do not move, tilt, or place objects on the product during operation.
-  Place the product on a stable and level surface during operation.
-  Keep the product at least 1 m away from buildings and equipment during operation.
-  Keep children and unauthorized persons away from the work area.
 - Distraction may result in unexpected accidents.
-  Do not use the product under the following conditions:
 - If you are fatigued or ill
 - If you are under the influence of alcohol or medication
 - If you are pregnantUsing the product under these conditions may result in accidents or injury.
-  Do not expose the product to water or use it in rain or snow.
 - This may cause malfunction or accidents.
-  Stop using the product immediately if you notice unusual noise, vibration, or odor during operation.
-  If the product is dropped or subjected to impact, check for damage, cracks, or deformation.
 - This may result in accidents or injury.
-  Always stop the engine before leaving the product unattended.
-  Always stop the engine before inspection or maintenance.
-  Do not disassemble or modify the product.
-  Dispose of engine waste fluids in accordance with applicable regulations.



-  Read and understand the instruction manual before use.
-  Ensure the work area is well lit and check the surroundings before operation.
 - Working in cluttered or dark areas may result in accidents.
-  Operate the product with extreme care.
 - Improper operation or inattention may result in accidents.
-  Wear appropriate clothing during operation.
 - Do not wear loose-fitting clothing or accessories such as necklaces.
 - Wear slip-resistant footwear.
 - Secure long hair with a hat or hair cover.
-  Wear hearing protection during operation.
 - Use earplugs or earmuffs in high-noise environments.
-  Inspect the product before use.
 - Ensure there is no damage and the product operates properly.
 - Check for damaged parts, loose components, and fuel leaks.
 - If any abnormality is found, stop using the product immediately.
-  Use caution when transporting the product.
 - Stop the engine before transport.
 - Securely close the fuel filler cap and fuel valve lever.
 - Drain the fuel before transport.
 - Secure the product to prevent tipping or movement.
-  Comply with local noise regulations.
 - Noise is regulated by local laws and ordinances.Operate the product within permitted noise limits.
 - This may help prevent disturbance to nearby residents.

○ INTRODUCTION

Thank you for purchasing the engine to drive the HV flexible shaft and the EFP pump.

Read and understand this instruction manual before use.

Read the manuals for the HV Flexible Shaft, EFP Pump, and engine together with this manual.

Use the product properly according to this manual.

Keep this manual for future reference.

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○ SAFETY

- Wear appropriate personal protective equipment, including a safety helmet, protective gloves, safety boots, and hearing protection.



CAUTION

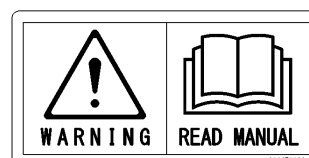
- Add the specified amount of engine oil before starting the engine.
 - Engine oil is not supplied at shipment.
 - Failure to add engine oil may result in engine seizure or serious engine damage.
- Store the product properly when not in use.
- Close the fuel valve lever when not in use.
 - Fuel leakage may result in fire or malfunction.
- Turn the engine switch to the OFF position when storing the product.
- Replace fuel regularly with fresh fuel (at least once a month).
 - Fuel may deteriorate over time and affect performance.
- Follow the engine instruction manual when storing the engine.



Refer to the instruction manuals for the HV Flexible Shaft and EFP Pump for handling instructions.

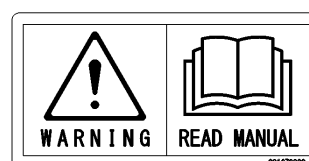
○ LABEL PLACEMENT

■ HVE-HS



EXEN MODEL HVE-HS	
ENGINE TYPE	4 CYCLE GASOLINE ENGINE
ENGINE MODEL	GX160
OUTPUT POWER	2.8kW/3400min ⁻¹
MASS	25kg MFG. NO.
EXEN CORPORATION	

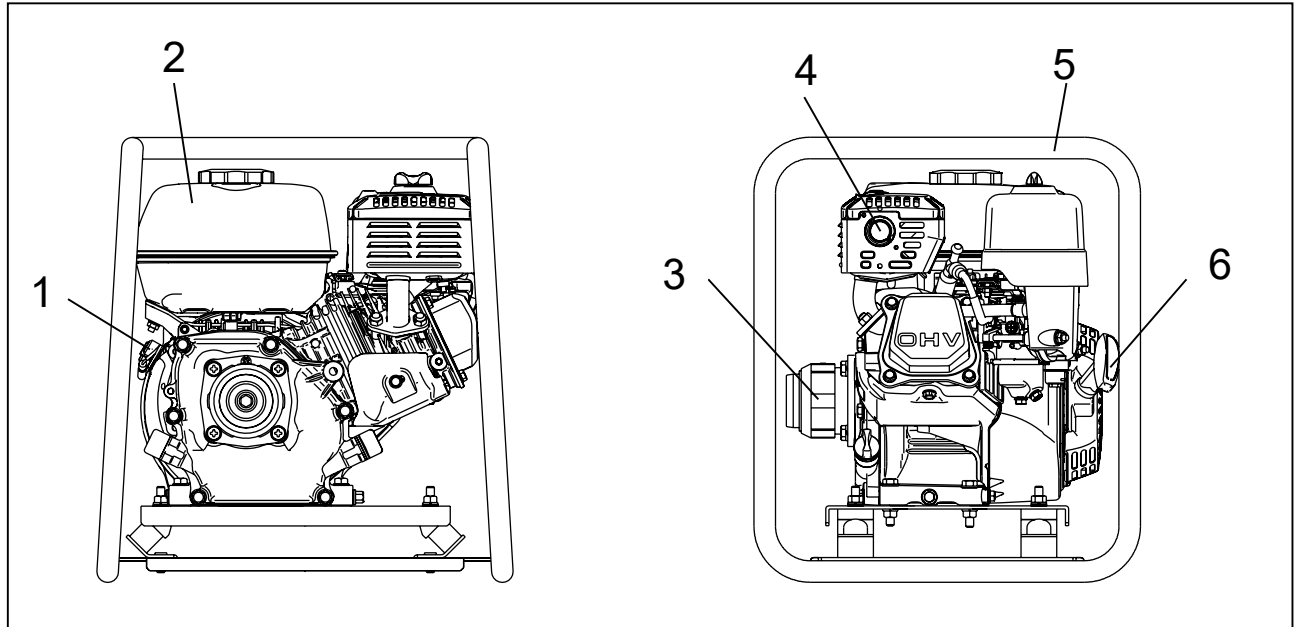
■ HVE-RH



EXEN MODEL HVE-RH	
ENGINE TYPE	4 CYCLE GASOLINE ENGINE
ENGINE MODEL	GX160
OUTPUT POWER	2.8kW/3400min ⁻¹
MASS	25kg MFG. NO.
EXEN CORPORATION	
MADE IN JAPAN	

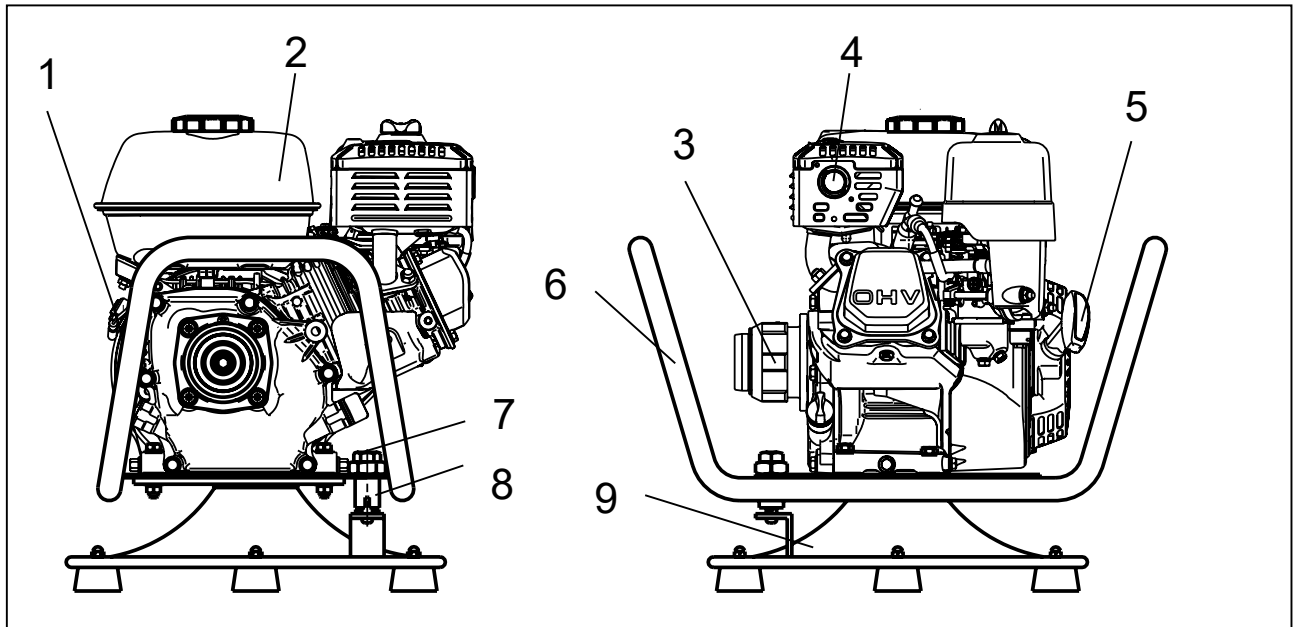
○ NAMES OF PARTS

■ HVE-HS



1	Engine Switch	4	Muffler
2	Fuel Tank	5	Base Frame
3	Set Handle	6	Recoil Starter

■ HVE-RH



1	Engine Switch	6	Base Frame
2	Fuel Tank	7	Slide Bolt
3	Set Handle	8	Spring Case
4	Muffler	9	Rotating Base
5	Recoil Starter	—	—

○ OPERATION

⚠ WARNING

Do not operate the engine in enclosed or poorly ventilated areas such as indoors, tunnels, or areas surrounded by buildings.

- Exhaust gas contains carbon monoxide and may cause poisoning.

Do not operate the product in rain or allow it to be exposed to water.

Place the product on a stable and level surface.

- Stop the engine and allow it to cool before performing any work.

Keep ignition sources away and do not smoke.

Do not spill fuel. Wipe up any spills immediately.

Remove combustible and hazardous materials from the surrounding area.

Do not increase the engine speed.

- The engine is set to 3,400 min⁻¹.
- Excessive speed may cause damage or failure of the rotary shaft.

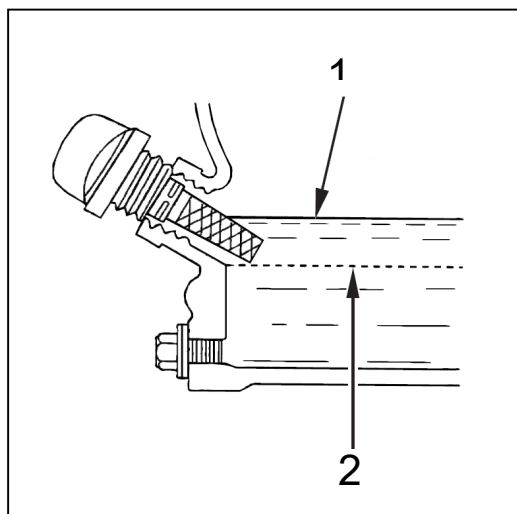
<PRE-OPERATION INSPECTION>

■ ENGINE OIL

Check the engine oil level on a level surface using the oil gauge. Refill oil if the level is low.

Use the correct oil level and change intervals.

- Insufficient or deteriorated oil may reduce the service life of moving and rotating parts.

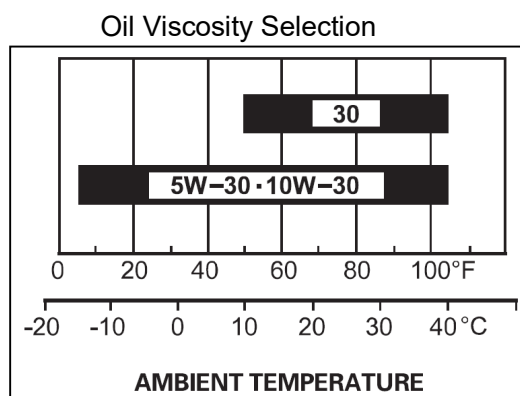


▶ 1. Upper limit 2. Lower limit

Oil capacity: 0.58 L

Recommended oil:

SAE 10W-30 oil meeting API SE or higher



■ REFUELING

Place the engine on a level surface. Remove the fuel filler cap and add fuel.

- Do not exceed the maximum fuel level.
- Overfilling may cause fuel leakage and fire.

Use unleaded gasoline.

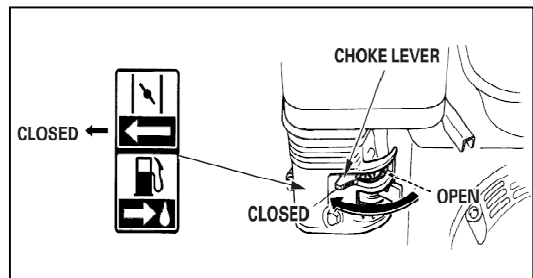
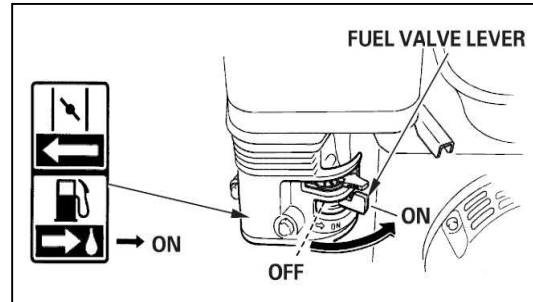
Fuel tank capacity: 3.1 L

 Refer to the engine instruction manual for engine oil inspection, oil replacement, and refueling procedures.

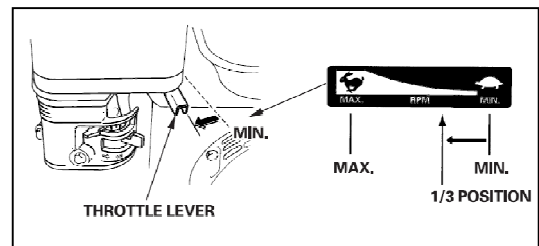
<Starting The Engine>

1. Open the fuel valve.
Move the fuel valve lever to the ON position.

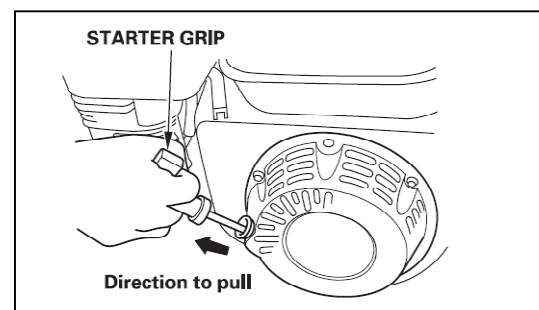
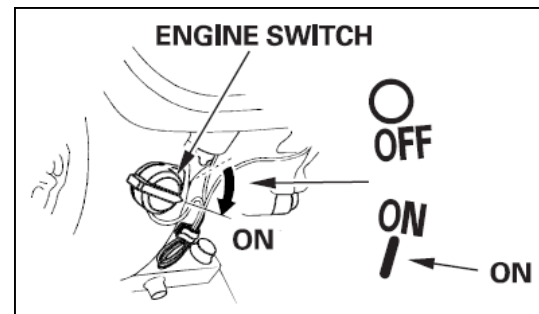
Set the choke lever to the START position when starting a cold engine.
This is not required when the engine is warm.



2. Move the throttle lever away from the MIN. position, about 1/3 of the way toward the MAX. position.



3. Turn the engine switch to the ON position.
4. Hold a secure part of the product and pull the starter grip slowly.
Stop when resistance is felt, then return the grip.
Pull the starter grip quickly in the direction of the arrow.

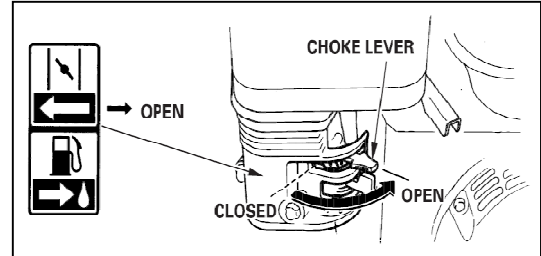


NOTE

- Do not pull the rope to the full length.
- Release the starter grip slowly back to the original position.
- Releasing the grip suddenly may cause injury or damage.
- Do not pull the starter grip while the engine is running.
- Pulling the starter grip may cause engine damage.

5. Warm up the engine for 2 to 3 minutes.

6. If the choke lever was moved to the closed position to start the engine, gradually move it to the open position as the engine warms up.



7. Check that no abnormal noises is present in the engine.

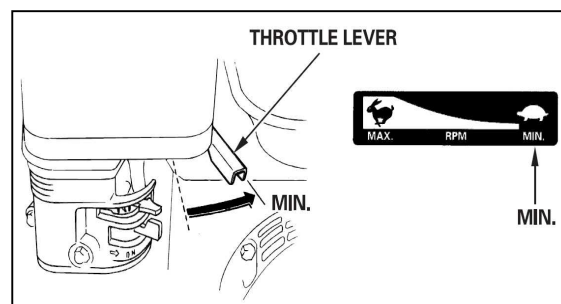
8. Stop the engine before connecting the HV flexible shaft.

NOTE

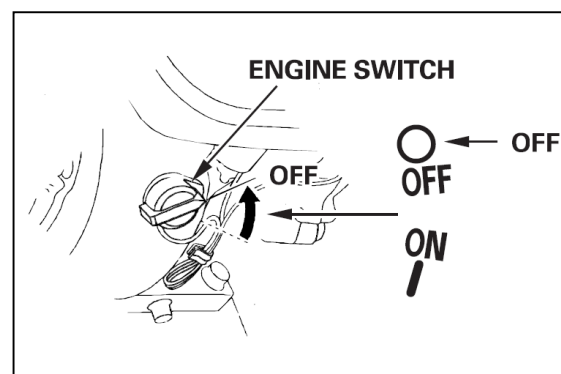
- Make sure the engine has completely stopped.
- Connecting parts while the engine is running may cause injury or equipment damage.

<Stopping The Engine>

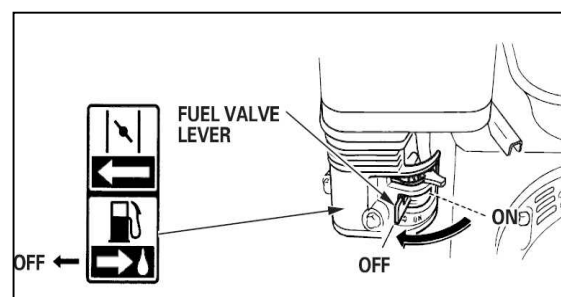
1. Move the throttle lever to the MIN. position and let the engine idle for 2 to 3 minutes.



2. Turn the engine switch to the OFF position.



3. Turn the fuel valve lever to the off position.



CAUTION

Allow the engine to cool sufficiently before covering it with a sheet or cover.

○ ENGINE TO HV FLEXIBLE SHAFT CONNECTION



WARNING

Place the product on a stable and level surface before connecting.

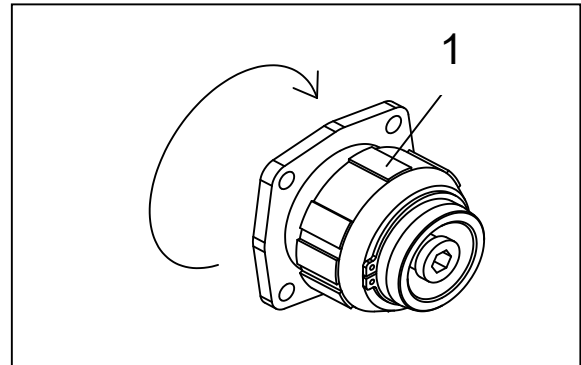
- Stop the engine and allow it to cool before performing any work.

Keep dirt, concrete, and sand away from the mating surfaces when connecting the HV flexible shaft.

- Contamination may cause damage or failure of the HV flexible shaft.

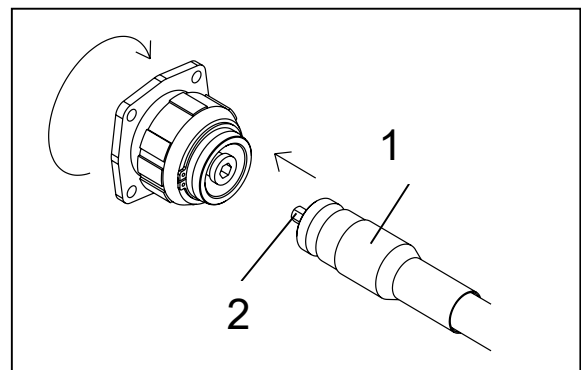
The connection procedure for the engine and the HV flexible shaft is as follows

1. Turn the set handle of the engine clockwise until it stops.



▶ 1. Set Handle

2. With the set handle in this position, align the shaft joint (hexagonal) of the HV flexible shaft with the connection point on the engine, and fully insert the hose joint (AN).



▶ 1. Hose joint (AN)

2. Shaft joint (Hexagonal)

3. Release the set handle and confirm that the flexible shaft is securely connected.

○ CLEANING AND TRANSPORT AFTER USE

WARNING

Perform cleaning and transport after stopping the engine and allowing it to cool sufficiently.
Do not touch the engine or muffler immediately after stopping.
- Hot parts may cause burns.
Follow the engine instruction manual for cleaning and transport procedures.

1. Remove dirt and dust from the engine after use.
2. Carry the engine by holding the base frame.

○ INSPECTION AND MAINTENANCE

WARNING

Perform inspection and maintenance after stopping the engine and allowing it to cool sufficiently.
Do not touch the engine or muffler immediately after stopping.
- Hot parts may cause burns.
Follow the engine instruction manual for inspection and maintenance procedures.

- Perform the following checks before using the product.
These checks help prevent trouble during operation.

1. Check that no parts are damaged and that bolts and screws are not loose before use.
2. Check that the vibration isolators are not cracked, damaged, or deformed.
3. Check that there are no fuel or engine oil leaks.
4. Check that the engine oil level is within the specified range.
5. Check that the engine oil is not excessively dirty.
6. Check that the engine switch operates properly and stops the engine.
7. Check that the set handle operates smoothly.
8. Check that there are no abnormal noises during operation.
A steady operating sound is normal.

○ CONSUMABLE PART REPLACEMENT INTERVALS

WARNING

Stop the engine and allow it to cool completely before replacing consumable parts.

Do not touch the engine or muffler immediately after stopping.

- Hot parts may cause burns.

Follow the engine instruction manual for replacement of consumable parts.

○ Refer to the following information when replacing consumable parts.

Consumable Part	Inspection	Oil Change Interval
ENGINE OIL	- Check the engine oil level before each use. - Refill oil if the level is low.	- First replacement: after 1 month or 20 hours of operation. - Subsequent replacements: every 6 months or 100 operating hours.

NOTE

- Follow the engine instruction manual for oil replacement procedures.
- Replacement intervals are guidelines only.
- Replace parts earlier depending on operating conditions.

○ TROUBLESHOOTING

Condition	Symptom	Cause	Solution
Starts	HV flexible shaft does not vibrate	Worn connection parts	Replace the parts
Does not start	Does not start at all	Engine failure	Repair or replace

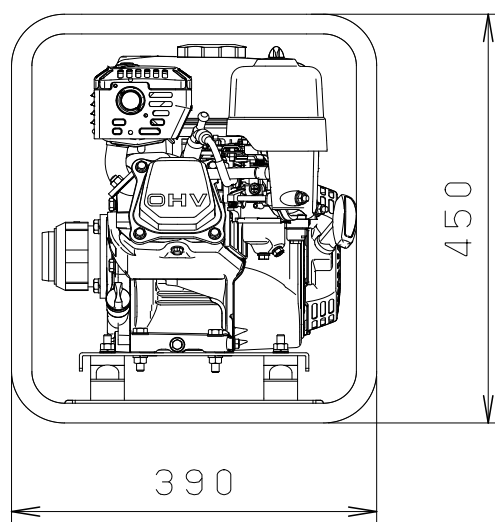
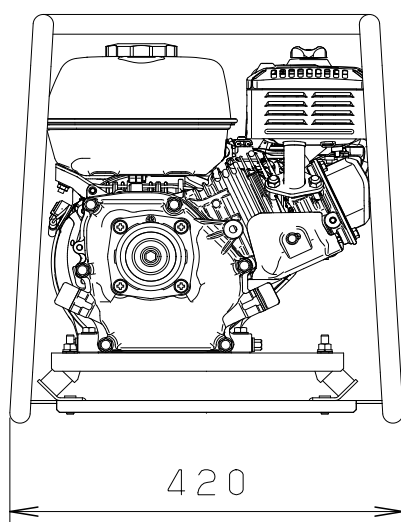
○ SPECIFICATIONS AND DIMENSIONS

■ Specifications

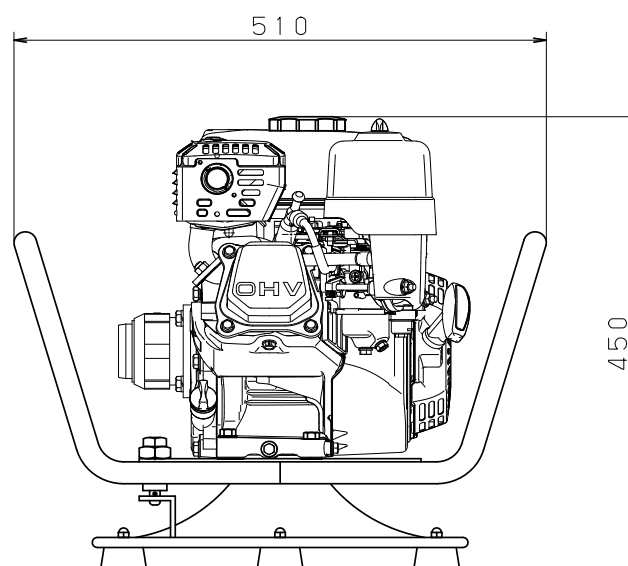
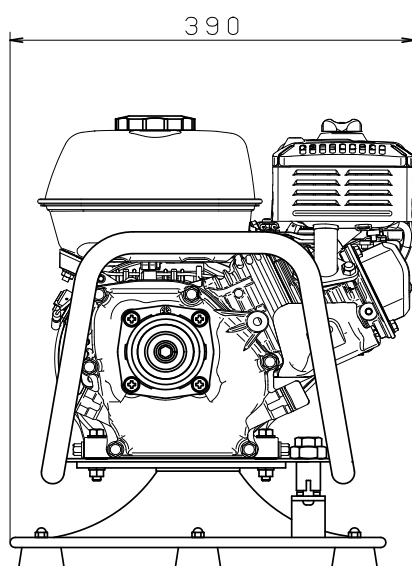
Model	Engine Model	Max. Output (kW)	Continuous Rated Output (kW/min ⁻¹)	Mass (kg)
HVE-HS	GX160H2 KHJE	3.6	2.8/3,400	25
HVE-RH				

■ Dimensions

HVE-HS



HVE-RH



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