



HV SERIES HV FLEXIBLE SHAFT INSTRUCTION MANUAL



HV28ZB · HV32ZB · HV38ZB · HV45ZB · HV60ZB

EXEN CORPORATION

☆ SAFETY PRECAUTIONS

- ☆ This product is a vibrator for compacting concrete.
Do not use this product for any purpose other than concrete consolidation.
- ☆ 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 engine instruction manual before operation.
- ☆ 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 Use of outdated information may result in improper operation or malfunction.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.

 DANGER

-  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 use in areas where flammable liquids or gases are present.
-  Keep ignition sources away when handling gasoline.
 - This Includes cigarettes, open flames, and sparks.
 - This may result in fire or explosion.
-  Do not place hazardous or combustible materials near the product.
 - This may result in fire or explosion.

 WARNING

-  Stop using the product immediately if you notice unusual noise, vibration, or odor during operation.
-  Do not disassemble or modify the product.
-  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.
-  When installing the engine, keep at least 1 m away from buildings and equipment.
-  Allow the engine to cool sufficiently before attaching or removing the shaft joint.
 - Wear protective gloves during work.
-  When working at height, ensure no one is below.
 - Wear fall protection equipment.
 - Falling objects may cause injury.
-  Do not operate the product in the air.
 - The head assembly may become hot within minutes and cause burns.



- ⚠ Read and understand the instruction manual before use.
- ⚠ Operate the product with extreme care.
 - Improper operation or inattention may result in accidents.
- ⚠ 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.
- ⚠ If the product is dropped or subjected to impact, check for damage, cracks, or deformation.
 - This may result in accidents or injury.
- ⚠ 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 pregnant

Using the product under these conditions may result in accidents or injury.
- ⚠ 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.
- ⚠ Ensure the work area is well lit and check the surroundings before operation.
 - Working in cluttered or dark areas may result in accidents.
- ⚠ Keep children and unauthorized persons away from the work area.
 - Distraction may result in unexpected accidents.
- ⚠ Do not work in an unstable posture.
 - On unstable footing such as rebar, use a stable platform before working.
- ⚠ Do not leave the hose in walkways when stopping work.
 - Tripping may cause falls and injury.
- ⚠ Do not touch the head assembly during or immediately after operation.
 - It may be hot and cause burns.
- ⚠ Concrete may splash when working near your feet or in shallow areas.
 - Wear face protection such as safety glasses or a mask.
 - Wear hearing protection in high-noise work.
- ⚠ Securely connect the engine to the HV flexible shaft before use.
 - Insufficient connection may cause malfunction.

-  Do not swing the head assembly by holding the hose.
 - It may strike people or objects and cause injury or damage.
 -  Do not hook the product onto rebar or similar items.
 - This may cause tripping, falls, or injury.
 -  Handle the hose carefully due to its elasticity.
 - It may recoil and cause injury.
 - Use caution when unpacking, coiling, or uncoiling the hose.
 -  Wear hearing protection during operation.
 - Use earplugs or earmuffs in high-noise environments.
 -  Wear anti-vibration gloves during work.
 - Hold the hose at least 1 m away from the head assembly.
 - Avoid holding high-vibration areas for long periods.
 - Working for longer than 30 minutes may cause vibration-related disorders.
-  Employers must manage working time based on the total vibration value (hand-arm vibration) of the concrete vibrator and take measures to prevent vibration-related disorders.
- Comply with the relevant laws and guidelines of the country where the product is used.
-  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.
- Install sound barriers as required for the work conditions.
- Noise may affect surrounding areas and people.

○ INTRODUCTION

Thank you for purchasing the HV concrete vibrator.

Read and understand this instruction manual before use.

Use the product properly according to this manual.

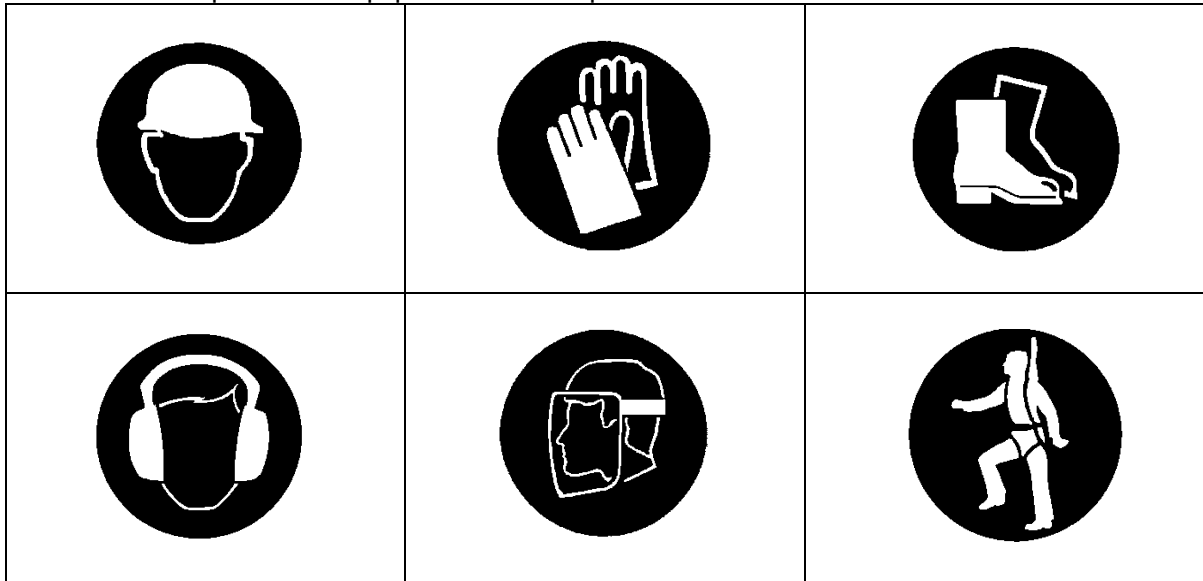
Keep this manual for future reference.

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○ SAFETY

- Wear appropriate personal protective equipment when performing work, including a safety helmet, protective gloves (anti-vibration gloves), safety boots, hearing protection, and face protection such as safety glasses and a mask.
- Wear fall protection equipment when required.



- Store the product properly when not in use.
- Place the engine on a stable and level surface.
 - Tipping over may result in accidents or malfunction.
- Do not operate the head assembly on hard surfaces such as concrete or steel plates.
 - This may cause bearing damage or rotor failure.
- Do not place heavy objects on the product.



Handle fuel with care.

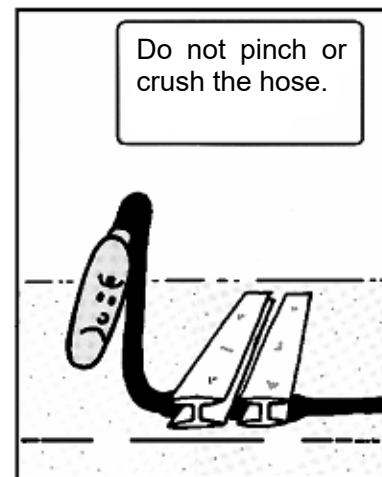


Follow the engine instruction manual for fuel handling and refueling.

- The head assembly is cooled by inserting it into concrete.
Do not operate it outside the concrete (in the air).



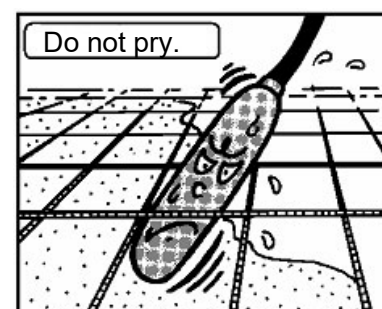
- Do not place heavy objects on or drop objects onto the hose.
The hose may be damaged, resulting in malfunction.



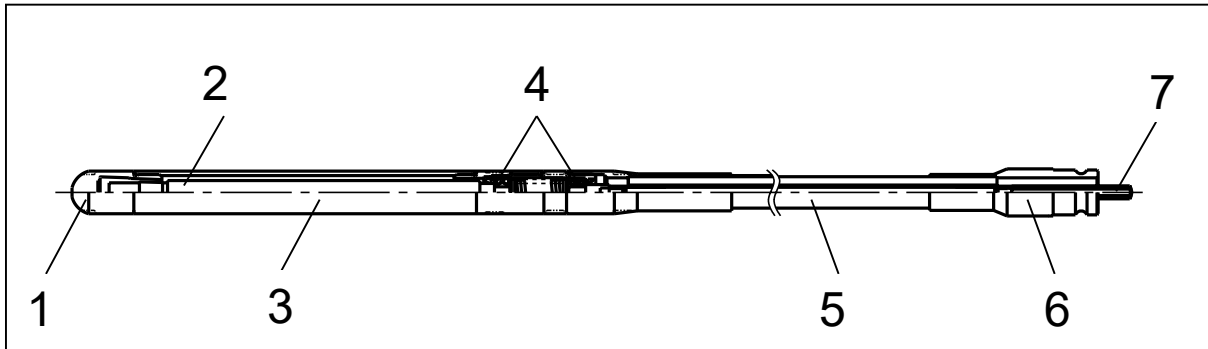
- Start and stop operation only when the head assembly is not inserted into the concrete. Stopping the product while the head assembly is inserted in the concrete may cause it to become stuck.



- Do not pry against rebar, formwork, or other hard objects with the head assembly.
This may cause wear or damage and result in malfunction.



○ NAMES OF PARTS



1	Cap	5	Hose
2	Rotary Shaft	6	Hose Joint AN
3	Housing	7	Shaft Joint
4	Bearing	—	—

○ 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.

When connecting the product to the engine, keep the connection area free of concrete, soil, or sand.

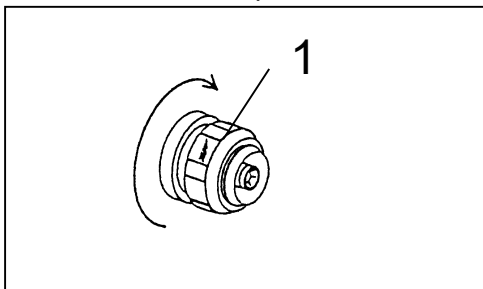
- Contamination may cause damage or failure of the rotary shaft.

When using an engine from another manufacturer, read the engine instruction manual carefully.

- Follow the instructions when connecting the product.

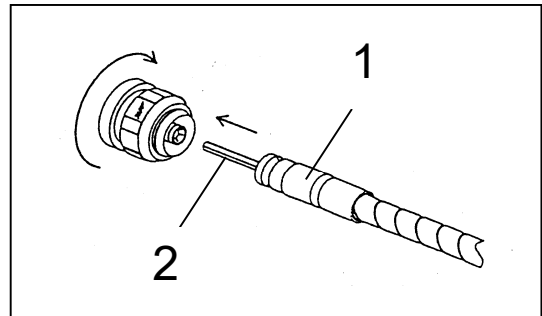
The connection procedure for the HV engine and this product is as follows.

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



▶ 1. Set Handle

2. With the set handle in this position, align the hexagonal shaft joint of this product with the connection point on the HV 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 product is securely connected.

○ OPERATIONS



WARNING

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

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

Do not operate in poorly ventilated areas.

Do not increase the engine speed.

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

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

When using an engine from another manufacturer, read the engine instruction manual carefully.

- Follow the instructions when connecting the product.

■ Operation Procedure (Use with HV Engine)

1. Warm up the HV engine for 3–5 minutes without connecting this product.

Refer to the engine manual for start/stop procedures.

2. Check that no abnormal noise is present in the HV engine.
3. Stop the HV engine.
4. Confirm the engine has completely stopped, then connect this product.
5. Hold the hose and suspend the head assembly.
6. Start the HV engine to operate the product.
The rotary shaft starts rotating simultaneously with engine start.
7. Move the HV engine throttle lever to the stop position.

NOTE

- If the vibrator does not operate, apply a light impact to the head assembly.
- Hold the hose at a low-vibration point during operation.

8. Insert the vibrator vertically into the concrete at proper spacing within the effective compaction range.

NOTE

- Use approximately 10 times the head assembly diameter as a guide for the effective compaction range.

9. After insertion, wait until settlement stops and mortar rises uniformly with a glossy surface, then move to the next position.

NOTE

- Do not over-vibrate at one location; this may cause segregation of the concrete.
- If segregation occurs during placement, redistribute the coarse aggregate evenly before continuing.
- When placing on slopes, start from the lower side to prevent mortar separation.

10. Pull out the vibrator slowly to avoid leaving voids.
11. After completing placement, return the HV engine throttle lever to “MIN,” idle for 2–3 minutes, then stop the HV engine.
12. Confirm the engine has completely stopped before disconnecting this product.
Wear protective gloves, as the connection area becomes hot.

○ CLEANING AND TRANSPORT AFTER USE



WARNING

Stop the engine and allow it to cool sufficiently before removing this product for cleaning or transport.

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 any concrete from the head assembly before it hardens.
2. Coil the product to a diameter of approximately 1 m for transport.

○ INSPECTION AND MAINTENANCE



WARNING

Stop the engine and allow it to cool sufficiently before removing this product for inspection or maintenance.

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 the head assembly has no excessive wear, cracks, or looseness.
2. Check that the hose has no excessive wear, tears, or damage.
3. Check that the shaft joint has no wear.
4. Check that there are no abnormal noises during operation.

A steady operating sound is normal.

○ REPLACEMENT INTERVALS FOR CONSUMABLE PARTS



WARNING

Stop the engine and allow it to cool sufficiently before removing this product to replace wear 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	Visual and Auditory Criteria for Replacement	Replacement Timing (Guideline)
Head assembly	Judge by wear condition (Visual)	300–500
Rotary Shaft	Judge by operating sound and wear condition (Visual / Auditory)	1,000
Cap	Judge by wear condition (Visual)	300–500
Grease	Judge by operating sound (Auditory)	200–250
Bearing	Judge by operating sound (Auditory)	100–300
Oil Seal	Judge by wear condition (Visual)	1,000
Hose	Judge by wear and damage condition (Visual)	Replace upon detection
Flexible Shaft	Judge by wear condition (Visual)	Replace upon detection
Shaft joint	Judge by wear condition (Visual)	Replace upon detection

NOTE

- Replacement intervals are guidelines only.
- Replace parts earlier depending on operating conditions.

○ TROUBLESHOOTING

Symptom	Symptom	Cause	Solution
Vibrates	Abnormal noise (e.g., metallic noise)	Grease deterioration	Replace the grease
		Bearing failure (rough rotation / wear)	Replace the bearing
		Abnormal wear of the rotary shaft cap	Replace the rotary shaft
	Weak vibration (stops intermittently)	Insufficient degreasing (oil contamination)	Perform degreasing
		Shaft joint wear	Replace the shaft joint
Does not vibrate	Rotating noise	Insufficient degreasing (oil contamination)	Perform degreasing
		Shaft joint wear	Replace the shaft joint
	No sound at all	Bearing failure (wear / damage)	Replace the bearing
		Flexible shaft breakage	Replace the flexible shaft

○ SPECIFICATIONS AND DIMENSIONS

■ HV flexible shaft assembly Type

Model	Hose Length (m)	Frequency (Hz)	Overall Length (mm)	Head Assembly (Diameter × Length) (mm)	Mass (kg)
HV28ZB	4	158–200	4,559	28 × 420	10.1
HV32ZB	4		4,562	32 × 423	10.1
	6		6,562		14.1
HV38ZB	4		4,585	38 × 440	11.2
	5		5,585		13.2
	6		6,585		15.2
HV45ZB	4		4,596	45 × 451	12.3
	5		5,596		14.2
	6		6,596		16.1
	8		8,596		19.8
HV60ZB	6	150–200	6,593	60 × 448	19.1
	7		7,593		22.0

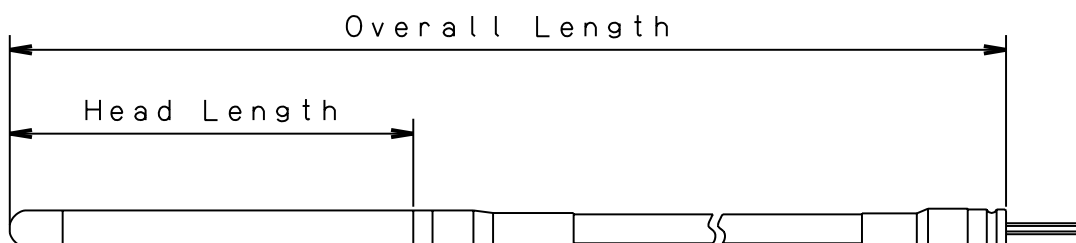
■ Total Vibration Value (ahv) [m/s²]

Model	Total Vibration Value (ahv) [m/s ²]
HV28ZB	5.6
HV32ZB	5.0
HV38ZB	7.8
HV45ZB	8.8
HV60ZB	11.6

NOTE

- The vibration value is the total vibration value measured in accordance with ISO 5349-1 and ISO 5349-2.

■ Dimension Drawing



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