



Free Suspended Vibrators (FSVs)



Important Notes

All excavation work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for Free Suspended Vibrators. Non-standard applications should be approved by a suitably qualified engineer.

Ensure all personnel engaged in piling operations are properly briefed and adequately supervised by a competent person.

THIS USER GUIDE IS NOT CONTROLLED WHEN PRINTED

You can access this User Guide to [download as a pdf](#) from the Groundforce Technical Library.



A video showing a selection of Piletec equipment, and other ancillary products is available to [watch now](#) on our YouTube channel.

**IF IN ANY DOUBT SEEK FURTHER ADVICE:
ON FREEPHONE - 0800 731 4960**



Certification Number 14419
ISO 9001 • ISO14001 • ISO45001

Rev	Date	Comments	Initial
1.7	01/12/23	Models removed	DSW






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SAFETY

Common Symbols and Meanings

Safety Note: It is recommended that hand and eye protection are used when operating hydraulic equipment.

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
	Use eye protection
	Use hearing protection
	Wear protective gloves
	Wear head protection
	Wear protective footwear

WARNING SYMBOLS	
	General warning
	Crushing of hands
	Hot surface or oil

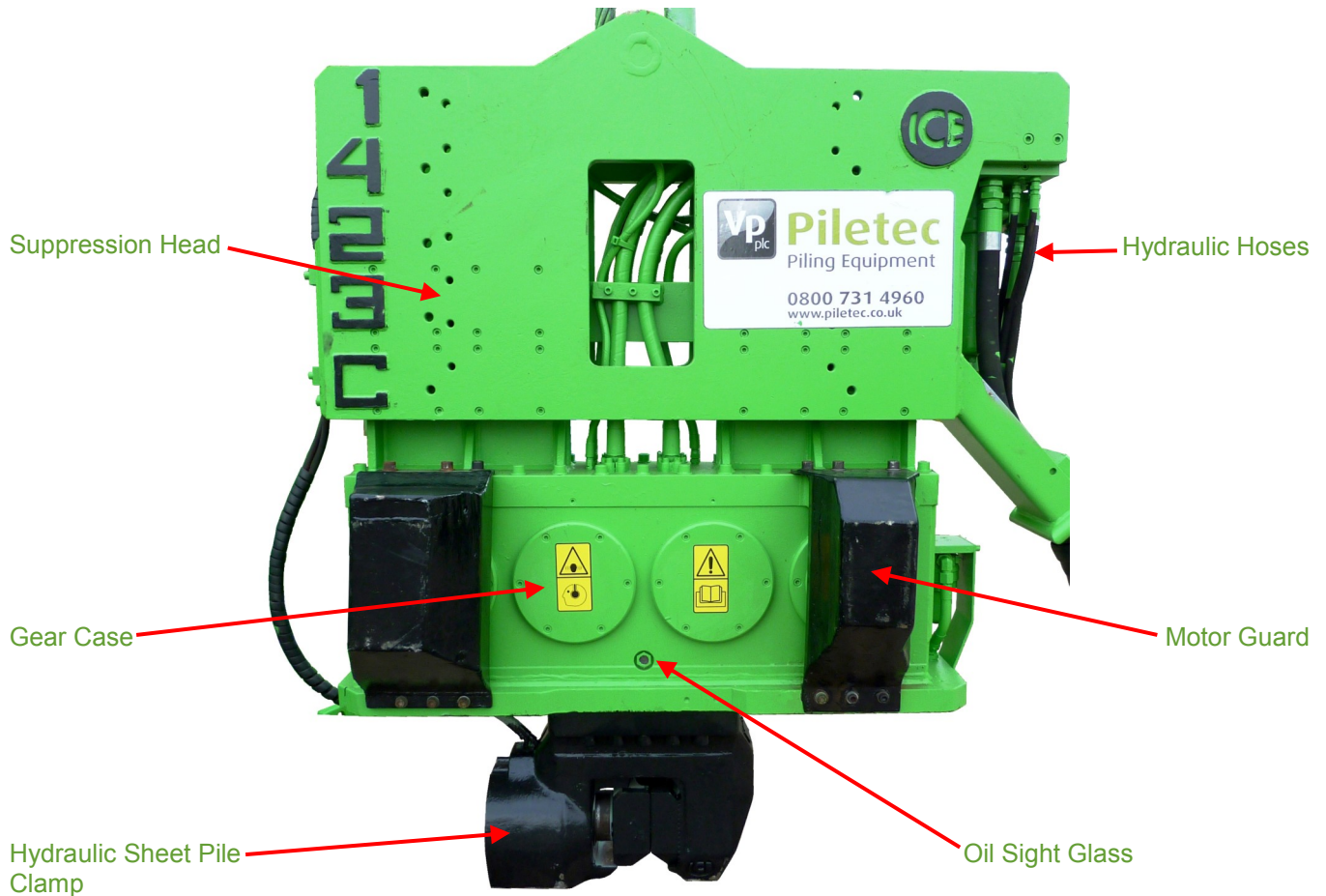
Introduction

Free Suspended Vibrators can be used to drive and extract sheet piles, steel tubes and H beams: they are available in High Frequency and Resonance Free models.

All vibrators are supplied with power packs, hydraulic hoses and suitable clamping devices.

Note: Without proper maintenance and skillful operation, the equipment is considered as Self-Destructive. Piletec has no control over how the hirer uses the equipment or any deterioration of the equipment that may occur during the hire period.

Typical Configuration

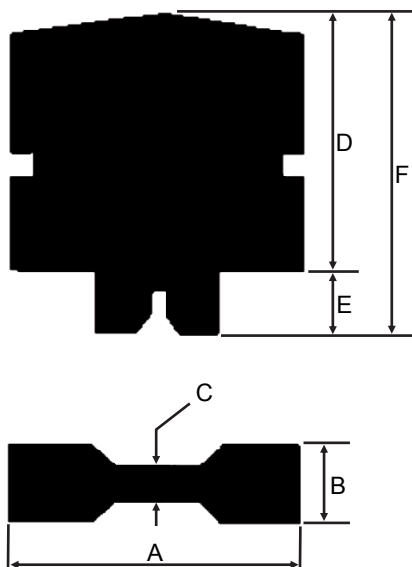


Equipment Specification

High Frequency Vibrator	
MODEL	328B [#]
Vibrator Specifications	
Eccentric moment - kgm	3.2
Max. centrifugal force - kN	275
Max. frequency - rpm	2800
Max. amplitude - mm (inc. univ clamp)	8.5
Max. amplitude - mm (exc. univ clamp)	9.5
Max. static line pull - kN	100
Dimensions (mm) - see diagram below	
Length A	1115
Width B	530
Width C	258
Height D	980
Height E	340
Height F	1320
Weights	
Clamp (universal)	165
Total Weight (inc univ clamp)	1090
Recommended Power Pack	
	100
Hydraulic Hoses	
Length (metres)	30
Weight (kg)	150

[#]The 328B can also be used as an Excavator Mounted Vibrator (EMV). See the EMV user guide for details.

Resonance Free Vibrators		
MODEL	7RF	14RF
Vibrator Specifications		
Eccentric moment - kgm	0-7	0-14
Max. centrifugal force - kN	0-410	0-810
Max. frequency - rpm	2300	2300
Max. amplitude - mm (inc. univ clamp)	13.5	9.5
Max. amplitude - mm (exc. univ clamp)	17.5	11.5
Max. static line pull - kN	120	240
Dimensions (mm) - see diagram below		
Length A	1418	1919
Width B	615	590
Width C	346	355
Height D	1557	2043
Height E	385	515
Height F	1942	2558
Weights		
Clamp (universal)	250	490
Total Weight (inc univ clamp)	1575	3910
Recommended Power Pack		
	180RF	335RF
Hydraulic Hoses		
Length (metres)	30	30
Weight (kg)	350	375



A = Length
B = Width
C = Throat width
D = Hammer height
E = Clamp height
F = Total height

Equipment Specification Cont...

POWER PACKS AND CLAMPS					
MODEL	100	180RF	330RF	PP320	550RF
Engine (make)	J-DEERE	J-DEERE	CAT	VOLVO PENTA	CAT
Engine (type)	4045T	6068T	3306DITA	TAD873 VE Tier 4	C15ACERT
Power (kW/hp)	77/103	126/171	239/325	235/320	403/548
Max Flow l/min	120	190	400	460	650
Max. Pressure (bar)	340	340	340	350	350
Length (mm)	2500	2500	3500	4200	4500
Width (mm)	1200	1200	1520	1650	1740
Height (mm)	1570	1750	2100	1740	2250
Weight (kg)	2000	3350	4950	6450	7600

Installation and Commission

A fully trained service engineer will visit site to install and commission the equipment, it is our aim that the Service Engineer is able to see the equipment in operation on the application it was hired for.

Function Test

When the engineer has connected the hydraulic couplings to the power pack, the following function test will be conducted:

1. Position the power pack on level ground with sufficient space for air flow
2. Lift the vibrator and suspend it from the crane
3. Check the gear oil level is half way on the sight glass
4. Advise the crane driver that the vibrator is about to be tested
5. Close the jaws
6. Start the vibrator, check the frequency and amplitude
7. Stop the vibrator, open the jaws, check for leaks and loose bolts


User Instructions

Operating the Clamp


1. Ensure all the hoses are connected and the couplings are tight
2. Start the engine and warm up for 10-15 minutes
3. Position the vibrator over the pile
4. Turn the Clamp switch to 'Close' position on the remote control pendant
5. **Note:** When the clamp is closed the clamp light will be illuminated to indicate that sufficient pressure has been achieved. The light will blink to indicate the clamp pressure is being topped up.

Starting the Vibrator

1. Ensure the engine rpm is set at maximum
2. Press the Start button or turn the Vibrate switch to Forward on the remote control pendant
3. Turn the Amplitude switch to the + position on the remote control pendant (if a Variable or RF vibrator)
4. Once vibrator has reached full speed commence piling



Safety Note: Always ensure operator has a clear view of the vibrator and surrounding area and communication between the operator and banksman/crane driver is always achieved.



User Instructions Cont...

Stopping the Vibrator

1. When the piling operation is complete turn the Amplitude switch to the - position on the remote control pendant (if a Variable or RF vibrator)
2. Press the Stop button or turn the Vibrate switch to Neutral on the remote control pendant

Opening the Clamp

1. Ensure the vibrator has completely stopped and that there is no tension or line pull on the crane
2. Ensure the crane driver and all other personnel are aware before opening the clamp
3. Turn the Clamp switch to the Open position on the remote control pendant
4. When piling operation is finished let the engine idle for 5 minutes to cool down before shutting down the engine and lay the vibrator on the ground the correct way



Safety Note: Do not open the clamp or lift the vibrator off the pile until a visual check indicates the area is safe and clear of personnel.



Vibrator Refusal Limits



Safety Notes: Failure to follow refusal rate guidelines may result in health and safety issues to site personnel and may cause irreparable damage or destruction of the equipment.



For vibratory driving and extracting, Piletec recommends the following refusal limits are adhered to for health and safety reasons, efficient operation and to avoid equipment failure or destruction.

Normal driving conditions definition

Normal driving conditions are defined when the penetration or extraction rate is approximately 5 minutes per metre.

Refusal limit definition

The refusal limit is defined when the penetration or extraction rate is greater than 5 minutes per 250mm. In this occurrence, do not continue. Continuing to use the equipment at the refusal limit means considerable damage may occur which could result in charges for repairs.

Note: Piletec will commission and function test the equipment but will not operate the equipment whilst it is in operation.

Daily Checks

1. Check all oil, water and fuel levels
2. Check the clamping jaws for dirt or wear. Clean with a wire brush if necessary
3. Check gear oil is half way on the sight glass of the vibrator
4. Check hydraulic hoses for damage, leaks, abrasions etc
5. Check hydraulic couplings are tight
6. Check hoses hang free without any kinks
7. Check all bolts on the vibrator and clamp are tight, tighten as necessary
8. Inspect all lifting equipment for damage and wear, ensure it is in test before use

Note: Never attempt to service or repair any part of the unit without prior authorisation from Piletec

Do	Do Not
<ul style="list-style-type: none"> ✓ Ensure operator and piling crew are trained, familiar and competent ✓ Always maintain a practical exclusion zone whilst piling is in progress ✓ Check all nuts and bolts before every use ✓ Check the rubber elastomers ✓ Check daily that the gear oil sight glass is half full ✓ Perform the function check on a daily basis ✓ Take care to avoid trapping fingers at all times 	<ul style="list-style-type: none"> ✗ Carry a pile around in the sheet pile clamp ✗ Stand under or near the vibrator whilst in operation ✗ Continue to use the vibrator if the pile is not moving, contact Piletec for advice ✗ Open clamp whilst the pile is suspended ✗ Continue past the refusal limit guidelines

Excavator Mounted Vibrator (EMV) and Pre Auger Course

This safety critical course introduces the learner to the theoretical and practical dangers of Excavator Mounted Vibrators (EMVs) and Augers.

Upon completion of the course learners will be able to differentiate between the various types of piling activities, understand Piling and Auger hazards along with the implementation of specific controls measures to reduce risk. [Visit the course page](#) for more details.

The half day course can accommodate up to 8 delegates per day.

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