Viking Marine Vibratory

VMV Series Technical Specification Report

MANUFACTURING

Viking Attachments™ engineers and manufactures the VMV Series in the United States with a clear focus on control, performance, and long-term reliability. What started from real contractor demand has evolved into a dedicated manufacturing operation in Morgan City, Louisiana, allowing us to maintain tighter quality standards, faster lead times, and direct responsiveness to the field. "Made in the USA" for us means more than location, it means accountability, consistency, and reinvesting into the workforce and community that support every unit we build. As we continue to expand, we're focused on refining the product, strengthening our process, and building lasting partnerships with the contractors who rely on this equipment every day.

COMPANY NEWS & STORY

VIKING MARINE VIBRATORY

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EXECUTIVE OVERVIEW

The Viking Marine Vibratory (VMV) Series is Viking Attachments LLC's excavator-mounted vibratory pile driver product line for marine, foundation, dock, bulkhead, bridge, retaining-wall, shoring, and heavy construction work. The product line is built around the same operating principle: use the carrier's hydraulic power to generate high-frequency vibration, reduce soil resistance, and drive or extract piles with controlled force.

This expanded report organizes the VMV Series into a contractor-facing technical reference. It is intended to support sales review, model selection, carrier compatibility screening, hydraulic setup, warranty activation, and customer onboarding.

The report does not replace the final model-specific quotation, owner manual, hydraulic test record, carrier load chart, or warranty document. Before any unit is operated, the actual carrier must be checked for hydraulic flow, pressure, back pressure, mounting compatibility, lift capacity, and safe operating configuration.

Core Value Proposition

- A scalable lineup: compact, mid-size, and heavy-duty VMV models for different carrier classes.
- Excavator-powered operation that reduces the need for separate power units on suitable jobsites.
- High-frequency vibration designed for pile driving and extraction across marine and civil applications.
- Marine-ready construction focus for docks, bulkheads, seawalls, bridges, foundations, and retaining structures.
- Louisiana-based Viking Attachments support for freight coordination, documentation, and customer service.

Contractor Quick Reference

Contractors typically need the fastest path to three answers: whether the attachment fits the carrier, whether it has the right force and hydraulic demand for the pile, and what must be documented before the unit goes to work.

Spec Data	Why Contractors Need It
Carrier class and operating weight	Confirms the excavator can lift, carry, and work safely at the required radius.
Hydraulic flow, pressure, and max back pressure	Confirms the carrier can power the unit without overheating, weak performance, or warranty risk.
Centrifugal force, vibration rate, and frequency	Helps compare driving/extraction capability by model and job size.
Grapple opening and closed dimension	Confirms the pile can be seated, clamped, positioned, driven, and extracted properly.
Pile/application fit	Connects the model to bulkheads, seawalls, docks, retaining walls, bridges, foundations, and shoring work.
Mounting, return/case drain, inspection, and documentation requirements	Reduces setup surprises, service delays, safety risk, and warranty claim friction.

MODEL OVERVIEW

The Viking Marine Vibratory (VMV) Series is engineered for marine, foundation, and construction pile-driving applications. Each unit is powered by excavator hydraulics and is designed to deliver controlled vibration, efficient driving force, and reliable field performance for pile installation and extraction.

The current VMV product line includes compact through heavy-duty models. Each model is sized around carrier class, hydraulic flow, operating pressure, and jobsite requirements so the attachment can be matched to the correct machine before delivery.

Model	Carrier Class	Operating Weight	Primary Use
VMV 57	5-10 Ton	1,140 lb	Compact marine, residential, dock, and tight-access work
VMV 818	10-20 Ton	2,200 lb	Bulkheads, retaining walls, mid-size contractor work
VMV 1835	20-35 Ton	5,700 lb	Large marine, foundation, bridge, and production work

Each unit is intended for use with properly sized excavators, correctly configured auxiliary hydraulic circuits, and a dedicated return/case drain path where required. Final machine compatibility must be confirmed before operation.

Model Selection Logic

Model selection should begin with the pile type, soil conditions, required production rate, and available carrier. A smaller unit may be more efficient when access is tight or pile size is limited. A larger unit may be required when the project involves heavier pile sections, deeper penetration, dense soil, bridge work, or production-level contractor use.

- Select the VMV 57 when maneuverability, lower carrier weight, and light-duty production are the controlling factors.

- Select the VMV 818 when the contractor needs a balanced mid-size unit for routine marine, retaining-wall, and sheet-pile work.

- Select the VMV 1835 when the job requires high-force output, heavier piles, larger carriers, or high-production field conditions.

Commercial Positioning

The VMV Series is positioned as a field-ready attachment family for contractors who need practical jobsite performance, fast support, and clear documentation. The line is designed to help customers move from product selection to carrier setup, hydraulic verification, warranty activation, and field operation with fewer gaps in the handoff process.

OPERATING PRINCIPLE

A vibratory pile driver uses rotating eccentric masses to generate vertical oscillation. Once the pile is clamped, vibration is transferred through the pile section and into the surrounding soil. This vibration reduces soil resistance, allowing the pile to advance or be extracted with less impact shock compared with conventional hydraulic hammers.

VMV pile drivers use rotating eccentric weight systems to create controlled vertical oscillation for pile-driving and extraction applications. This makes them effective in environments where controlled vibration, lower noise levels, and efficient installation or removal are operational advantages.

Key Operating Characteristics

- High-frequency vibration supports efficient pile penetration and extraction.

- Counter-rotating eccentric action helps control vibration during start-up, operation, and shut-down.

- Proper hydraulic setup is critical to protecting the carrier, attachment, seals, bearings, motor, hoses, and control components.

- Operators must maintain safe exclusion zones and monitor machine stability during all pile-driving activity.

Series Model Specifications

The following sections present the model-specific positioning, hydraulic expectations, and application fit for each VMV unit.

All values should be reviewed against the final quote, serial-number file, and actual machine configuration before customer use, delivery, or documentation release.

VMV 57 - COMPACT PILE DRIVER

The VMV 57 is the compact model in the VMV line. It is designed for smaller excavators and jobsites where access, maneuverability, and lower attachment weight are important. This model is well suited for dock work, residential marine structures, light sheet-pile applications, smaller timber or pipe piles, and support work where larger carriers are not practical.

VMV 57 Specification	Value
Carrier class	5-10 ton excavators
Operating weight	1,140 lbs
Hydraulic flow	15 GPM
Operating pressure	2,100-2,600 PSI
Maximum back pressure	210 PSI
Centrifugal force	50 kN
Vibration rate	Approx. 2,140 RPM
Approx. frequency	Approx. 36 Hz

Application Guidance

- Best for compact excavators working around docks, piers, small bulkheads, residential seawalls, and limited-access marine sites.
- Useful where site conditions do not support a larger carrier or where a smaller footprint improves operator control.
- Appropriate for light-duty pile driving, smaller pipe, lighter sheet pile, and tight-access service work when matched to the pile and soilconditions.

Operational Notes

Because the VMV 57 is the compact model, correct carrier setup is especially important. The carrier must provide enough flow and operating pressure without exceeding return-line/back pressure limits. Operators should confirm the excavator is in the correct hydraulic mode and that the machine has enough lift and stability margin for the attachment, pile, and working radius.

VMV 818 - MID-SIZE CONTRACTOR MODEL

The VMV 818 is the mid-size model in the VMV Series. It is intended to bridge the gap between compact utility work and heavy production pile driving. This model gives contractors a broader operating window for bulkhead, retaining-wall, dock, utility, and civil construction projects without requiring the largest carrier class.

VMV 818 Specification	Value
Carrier class	10-20 ton excavators
Operating weight	2,200 lbs
Hydraulic flow	30 GPM
Operating pressure	2,500-2,700 PSI
Maximum back pressure	210 PSI
Centrifugal force	70 kN
Vibration rate	Approx. 2,140 RPM
Approx. frequency	Approx. 33 Hz

Expanded Application Guidance

- Best suited for general contractor use where pile sizes and soil conditions exceed compact model requirements.
- Strong fit for sheet-pile driving and extraction, marine bulkheads, docks, utility work, civil construction, and retaining structures.
- Appropriate for contractors who need a versatile attachment that can handle recurring marine and foundation work without moving into the largest carrier category.

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VMV 818 Ho-Pac Feature Advantage

The VMV 818 is supported by a Ho-Pac-style compactor-driver feature set for mid-size carriers. The configuration emphasizes controlled hydraulic flow, pressure management, regeneration/oil-flow direction control, oil-splash bearing lubrication, abrasion-resistant hose protection, and a larger eccentric mass positioned farther from shaft centerline to help increase impulse force.

- More controlled hydraulic behavior: the four-function valve concept helps manage flow, pressure, regeneration, and oil direction so the attachment can work more consistently across mid-size carriers.
- Lower service burden: oil-splash bearing lubrication reduces routine greasing points and keeps daily maintenance simpler.
- Better jobsite durability: tough-coat hose protection helps reduce cut damage and downtime.
- Stronger working feel: the eccentric mass layout helps build impulse force for bulkheads, retaining walls, docks, and sheet-pile work.
- Why it stands apart: it gives the VMV 818 a contractor-friendly middle ground - more force and control than a compact unit without pushing the customer into the largest carrier class.

Operational Notes

The VMV 818 should be treated as a mid-production unit. Hydraulic flow and pressure must be measured under normal operating RPM, and the return/case drain line must be verified before the unit is placed into service. If the carrier is near the lower end of the recommended class, lift capacity and hydraulic performance must be checked carefully.

VMV 1835 - HEAVY-DUTY PRODUCTION MODEL

The VMV 1835 is the heavy-duty model in the VMV line. It is intended for large carriers, heavier pile sections, and production environments where force output, duty cycle, and jobsite durability are critical. It is positioned for marine piling, bridge work, infrastructure projects, deep foundations, and high-production contractor operations.

VMV 1835 Specification	Value
Carrier class	20-35 ton excavators
Operating weight	5,700 lbs
Hydraulic flow	36 GPM
Operating pressure	3,000-3,500 PSI
Maximum back pressure	210 PSI
Centrifugal force	180 kN
Vibration rate	Approx. 2,140 RPM
Approx. frequency	Approx. 35 Hz

Expanded Application Guidance

- Best for deep foundation work, heavier marine piling, bridge and infrastructure projects, and high-production environments.
- Appropriate when the job requires stronger pile penetration, larger carrier support, and sustained contractor-grade use.
- Useful for marine and offshore environments where productivity and durability are primary purchase factors.

Operational Notes

The VMV 1835 requires the greatest attention to carrier match, hydraulic output, lift capacity, and jobsite planning. The carrier must be able to safely handle the attachment and pile at the working radius. Operators should confirm hydraulic requirements, verify back pressure, inspect the mount, and document setup before field use.

PERFORMANCE SPECIFICATIONS

Performance specifications help the customer understand the relative force, speed, and hydraulic demand of each VMV model. These values should be used for preliminary model comparison and carrier screening. Final compatibility must be confirmed using the model-specific documentation and actual hydraulic readings from the carrier.

Specification	VMV 57	VMV 818	VMV 1835
Centrifugal force	50 kN	70 kN	180 kN
Vibration rate	Approx. 2,140 RPM	Approx. 2,140 RPM	Approx. 2,140 RPM
Approx. frequency	Approx. 36 Hz	Approx. 33 Hz	Approx. 35 Hz
Hydraulic flow	15 GPM	30 GPM	36 GPM
Operating pressure	2,100-2,600 PSI	2,500-2,700 PSI	3,000-3,500 PSI
Maximum back pressure	210 PSI	210 PSI	210 PSI

How to Read the Table

- Centrifugal force indicates the vibratory force available to help overcome pile and soil resistance.
- Vibration rate and frequency describe the oscillation speed of the unit during operation.
- Hydraulic flow and pressure define what the excavator must supply for the unit to perform properly.
- Back pressure is a protection limit. Exceeding the stated value can create component stress and may affect warranty eligibility.

Performance Risk Controls

The most common performance gap is not the attachment itself - it is mismatch between the attachment and the carrier. A unit may underperform if auxiliary flow is low, hydraulic mode is incorrect, return pressure is too high, hoses are undersized, couplers are restrictive, or the excavator cannot maintain the required pressure at operating RPM.

HYDRAULIC REQUIREMENTS & OPERATING PARAMETERS

Hydraulic setup is a mandatory operating and warranty-control step for the VMV Series. Each unit must be connected to a carrier that can supply the required flow at the specified pressure while maintaining acceptable return-line or case drain pressure.

The hydraulic system should be tested at normal operating RPM. Gauge readings should be documented before the customer places the unit into service. This provides a baseline record for performance, warranty activation, troubleshooting, and dealer support.

Hydraulic Setup Workflow

- Start with carrier identification: excavator make, model, serial number, and hydraulic configuration.
- Confirm the correct VMV model and serial number.
- Connect calibrated gauges and measure flow, operating pressure, and return/case drain pressure at normal operating RPM.
- Record the results on the Hydraulic Settings Submission Form.
- Submit gauge photos, serial number plate photo, and the completed form to Viking Attachments for warranty activation.

GRAPPLE / CLAMP CAPACITY

The VMV clamp/grapple system is designed to handle, position, secure, and transfer vibration into approved pile sections. The clamp opening and closed dimensions support a practical range of pile materials used in marine and foundation work.

Specification	All VMV Models
Grapple opening	Up to 22 inches
Grapple closed	4 inches
Primary function	Secure pile handling, positioning, driving, and extraction
Use condition	Use within attachment, pile, and carrier capacity limits

Clamp Use Notes

- The pile must be properly seated and secured before vibration is applied.
- The operator should avoid side-loading, dragging, or using the attachment outside its intended pile-driving function.
- Clamp surfaces, pins, bushings, hoses, and connection points should be inspected before daily use.
- The carrier must remain stable at the working radius with the combined weight of the VMV attachment and pile section.

APPLICATIONS

The VMV Series supports a wide range of pile-driving and extraction applications. The correct model depends on pile type, pile size, soil resistance, carrier class, jobsite access, production requirements, and hydraulic capability.

Pile Types & Field Use Cases

Pile type has a direct impact on model selection. The same VMV model may perform differently depending on soil density, pile material, embedment depth, pile length, pile shape, and whether the job is driving or extracting.

Pile / Application Type	Typical Field Use
Steel sheet piles	Seawalls, cofferdams, bulkheads, and other marine or civil retaining structures.
Vinyl / PVC sheet piles	Residential seawalls, light bulkheads, and lower-load waterfront work.
H-beams / I-beams	Soldier-pile walls, bridge abutments, shoring, and structural support applications.
Timber piles	Docks, piers, dolphins, mooring posts, and small marine structures; commonly used in 8-16 inch diameter and 20-80 foot length ranges where the selected model, soil, and carrier are appropriate.
Pipe / casing	Foundation, shoring, marine, and utility support applications where pile shape, wall thickness, and soil resistance are within capacity.

Model	Best Application Fit	Primary Decision Factors

VMV 57	Light-duty pile driving; compact marine and tight-access work	Carrier size, access, lighter piles, smaller production demand

Model	Best Application Fit	Primary Decision Factors
VMV 818	Mid-size marine, bulkhead, retaining-wall, utility, and civil projects	Balanced force, broader contractor use, mid-size carrier availability
VMV 1835	Heavy-duty marine, infrastructure, bridge, deep foundation, and production work	Higher force, larger carrier, heavier piles, production schedule

ENGINEERING & BUILD

The VMV Series is designed around field durability, hydraulic efficiency, and jobsite practicality. The structure, vibration system, dampening, hydraulic drive, and mounting interface must work together as a complete attachment system.

Build Feature	Description
Welded structural steel construction	Provides the main strength and durability required for marine and contractor use. Welds and structural plates should be inspected.
High-frequency eccentric vibration system	Generates the oscillation required to reduce soil resistance and move pile sections efficiently.
Elastomer vibration dampening	Helps reduce vibration transfer into the carrier and can reduce machine stress during operation.
Hydraulic motor-driven system	Uses excavator hydraulic power, eliminating the need for a separate power source when the carrier is properly configured.
Mounting compatibility	Supports quick coupler or custom mounting solutions when engineered and installed correctly.
Industrial finish and branding	Supports Viking Attachments product identity while protecting the attachment for field use.

COMPATIBILITY & SAFETY

Compatibility must be confirmed before installation and operation. A correct match requires more than carrier weight class. The carrier must provide the proper hydraulic flow, pressure, return/case drain configuration, lift capacity, mounting geometry, and stability at the working radius.

Compatibility Area	Required Review
Carrier class	Confirm excavator size is within the recommended model range.
Hydraulic output	Confirm flow, pressure, and back pressure using calibrated test equipment.
Mounting geometry	Confirm coupler, pins, bracket, and linkage fit before field operation.
Lift capacity	Use the exact carrier load chart and deduct the weight of the attachment, coupler, bucket if installed, and pile section.
Jobsite conditions	Review ground stability, overhead hazards, water work, nearby structures, utilities, and exclusion zones.

Safety and Operational Notes

- Use the VMV Series only for pile driving, sheet-piling, pile handling, positioning, and extraction within approved capacity.
- Do not use the VMV attachment to lift personnel or loads outside approved attachment and carrier limits.
- Wear gloves, steel-toe boots, hearing protection, eye protection, and high-visibility clothing.
- Maintain a controlled exclusion zone around the active machine and pile-driving area.
- Inspect all components before daily use, including mounting pins, bolts, hoses, fittings, clamps, guards, welds, and quick-coupler engagement.
- Stop operation immediately if abnormal noise, vibration, hydraulic leakage, excessive heat, unstable pile movement, or carrier instability occurs.

Daily Torque Reference

Fastener Size	Torque
M12	80 Nm
M16	200 Nm
M20	400 Nm

CUSTOMER SUPPORT

Item	Information
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Final Field Use Disclaimer

Technical specifications are provided for planning and compatibility review. Values must be confirmed against the final quotation, model-specific owner manual, final specification sheet, and actual hydraulic test readings before operation. Viking Attachments LLC may update specifications, documentation, and product configurations as the VMV Series continues to develop.

The VMV Series delivers a full-spectrum solution for contractors - from compact jobsite efficiency to high-force production-level pile driving - engineered for reliability, performance, and real-world field conditions.