

M C P S E R V E R

N O C O D E

C L O U D H O S T E D

Blast Vibration Predictor MCP

Predict ground vibration and ensure regulatory compliance.

Blast Vibration Predictor MCP gives your AI client the math and regulatory data needed for blasting engineering. It handles Peak Particle Velocity (PPV) modeling, structural risk assessment based on frequency, and compliance checks against US and European standards. You can simulate how different geological conditions change vibration profiles to keep sites safe and legal.

A+ Quality Score 100/100

blasting

vibration

ppv

compliance

seismic



The connectivity layer between AI and the world's software.



Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest
managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.

— Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256

Encryption at rest

Ed25519

PKI vault signatures

24h TTL

Ephemeral session keys

V8 Isolate

Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT`https://edge.vinkius.com/{token}/mcp`

Claude



Cursor



VS Code



Windsurf



Grok



Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

06 — Honeypot Trap System

Phantom credentials are injected into isolated environments. If a honeypot is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1)
Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

Get started at cloud.vinkius.com — connect your AI agent in under 60 seconds.

Blast Vibration Predictor MCP

4 tools available

Cloud-hosted on Vinkius

This MCP gives your AI agent the specific engineering tools required to manage blasting events. Instead of guessing at ground impact, you use it to model Peak Particle Velocity (PPV) through square root scaling. It helps you move from raw charge data to actionable safety assessments. You can evaluate if specific vibration frequencies threaten nearby structures or if your planned blast hits the limits set by USA and European regulators. It also lets you run simulations to see how varying geological conditions might change your vibration profiles, giving you a range of possible outcomes before you ever set a charge. It's built to turn complex seismic math into direct answers for your planning and compliance workflows.

Core Capabilities

01 — PPV Modeling

Your agent uses square root scaling to predict vibration intensity.

02 — Structural Risk Assessment

The AI evaluates frequency content to see if vibrations threaten buildings.

03 — Regulatory Validation

Your agent checks predicted values against US and European safety standards.

04 — Geological Simulation

The AI models how different ground conditions change attenuation profiles.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/blast-vibration-predictor — connect your AI agent in three steps.

- 01

Connect your preferred MCP-compatible client to Vinkius.
- 02

Provide your blasting parameters like charge weight and distance to your AI agent.
- 03

The agent uses the MCP tools to run the math or check compliance.
- 04

Receive specific PPV, risk, or compliance results directly in your chat interface.

Connect your AI client to Vinkius and start running engineering calculations immediately.

Built For

Blasting engineers and site managers use this MCP to automate seismic calculations and compliance checks.

Blasting Engineer

Hands off charge weight and distance data to the AI to get PPV predictions.

Site Manager

Uses the AI to verify that planned blasts won't violate local regulations.

Geotechnical Consultant

Asks the AI to simulate how different soil or rock conditions affect vibration.

What Changes When You Connect

- 01

Calculates PPV using standard square root scaling.
- 02

Checks vibration limits against US and European regulatory standards.
- 03

Identifies structural risks by analyzing frequency content.

04 Simulates attenuation across different geological profiles.

Real-World Applications

Pre-Blast Planning

Model expected vibrations based on charge weight and distance before starting work.

Risk Mitigation

Determine if low frequency vibrations at a specific site could damage nearby infrastructure.

Regulatory Compliance

Confirm that predicted seismic activity stays under legal thresholds for residential areas.

Geological Analysis

Run simulations to see how varying ground conditions change the expected vibration range.

4 Tools Available

#	TOOL	DESCRIPTION
01	analyze_frequency_risk	This tool determines if specific vibration frequencies pose a risk to nearby structures.
02	calculate_ppv	This tool predicts the Peak Particle Velocity (PPV) for a specific blasting event.
03	check_compliance	This tool validates whether your predicted vibrations stay within legal safety limits.
04	simulate_attenuation_profile	This tool generates a range of potential PPV values by accounting for different geological conditions.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Calculate the PPV for a 50kg charge at 100m distance with a site condition factor of 1.2.



The predicted Peak Particle Velocity (PPV) is 12.45 mm/s with a scaled distance of 14.43.

U Is a vibration of 15 mm/s compliant with USA regulations?



No, the predicted PPV of 15 mm/s exceeds the USA residential threshold of 12.5 mm/s.

U What is the risk level for a 20 mm/s vibration at 5 Hz?



The risk level is High because low frequency vibrations at this PPV can cause significant structural damage.

Frequently Asked Questions

01 What regulatory standards does this MCP check?

The MCP validates compliance against both USA and European regulatory standards for vibration limits.

02 How does the PPV calculation work?

The tool uses square root scaling to predict the Peak Particle Velocity for a given blasting event.

03 Can I use this to check if a blast is safe for a nearby house?

Yes, you can use the frequency risk tool and compliance tool to see if vibrations exceed residential thresholds.

04 Does the MCP account for different types of ground?

Yes, the simulation tool allows you to model different attenuation profiles based on varying geological conditions.

05 Which AI clients can I use with this MCP?

You can use this with any MCP-compatible client, including Claude, Cursor, Windsurf, and VS Code.

Go Live in 60 Seconds

Get your connection token from cloud.vinkius.com, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

`https://edge.vinkius.com/[TOKEN]/mcp`

CLIENT	WHERE TO CONFIGURE
 Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
 Cursor	Settings → Features → MCP Servers → "+" Add New MCP Server" → Type: SSE → Paste endpoint
 VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add <code>"blast-vibration-predictor": { "url": "..." }</code>
 Windsurf	MCP Settings → <code>mcp_settings.json</code> → Add endpoint URL
 ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
 Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

-  Ask ChatGPT 
-  Ask Claude 
-  Ask Perplexity 
-  Ask Gemini 
-  Ask Grok 

READY TO CONNECT

Blast Vibration Predictor is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and
start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

INDEPENDENT PLATFORM DISCLAIMER

Vinkius is an independent platform and is not affiliated with, endorsed by, sponsored by, verified by, or otherwise authorized by Blast Vibration Predictor. All third-party trademarks, logos, and brand names are the property of their respective owners. Their use in this document is strictly for informational purposes to identify service compatibility and interoperability.

DOCUMENT INFORMATION

Generated	September 2026
MCP Server	Blast Vibration Predictor MCP
Server ID	01a07f4e-d67c-726a-a07f-e585730749b9
Platform	Vinkius Cloud for AI Agents
Endpoint	<code>https://edge.vinkius.com/{token}/mcp</code>

LICENSE & USAGE

This document is generated automatically by the Vinkius PDF Engine. Content reflects the MCP server configuration at the time of generation and may change as updates are deployed. For the most current information, visit vinkius.com/en/ai-agent-connect/blast-vibration-predictor.