

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

Caballerial Rotation Speed MCP

Calculate the physics of switch-stance skateboarding maneuvers.

Caballerial Rotation Speed MCP provides technical physics calculations for skateboarding maneuvers. It helps you bridge the gap between skater input and the physical requirements of switch-stance takeoff and fakie landings. Your AI client uses this data to predict rotational velocity, landing stability, and the impact of stance proficiency on performance.

A+ Quality Score 100/100

skateboarding

physics

rotation

maneuver

caballerial



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.

Caballerial Rotation Speed MCP

4 tools available

Cloud-hosted on Vinkius

If you are analyzing the mechanics of a caballerial, you need more than just a guess. This MCP handles the heavy lifting of physics calculations for switch-stance skateboarding. It translates specific skater inputs into actionable data regarding rotational velocity and takeoff trajectories. You can use it to figure out exactly how much spin you need for a specific speed or how much your lack of switch proficiency will drag down your performance. It also accounts for the specific difficulty of fakie landings to predict if a maneuver will actually stick. Instead of guessing if a 540 is physically possible at a certain speed, you can get a concrete breakdown of the rotational demands and landing risks.

Core Capabilities

01 — Rotation Modeling

Your agent calculates the necessary rotational velocity and takeoff angles for specific spins.

02 — Stance Analysis

The AI determines how switch-stance proficiency affects overall maneuver performance.

03 — Landing Prediction

Your client predicts landing stability by factoring in fakie landing conditions.

04 — Maneuver Summarization

The MCP generates a complete overview of the physical demands for any attempted spin.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/caballerial-rotation-speed — connect your AI agent in three steps.

- 01 Connect your MCP-compatible client to Vinkius.
- 02 Provide your skater inputs like speed, pop timing, and stance comfort.
- 03 The AI invokes the necessary physics tools.
- 04 Receive specific data on rotation, trajectory, and stability.

Connect your client to Vinkius and start running physics calculations immediately.

Built For

This MCP is built for anyone analyzing the technical physics of skateboarding maneuvers.

Skateboarding Researchers

They hand off movement data to the AI to model physical feasibility.

Sports Analysts

They use the tool to quantify the difficulty of specific switch-stance tricks.

Physics Enthusiasts

They use the calculations to simulate skateboarding mechanics in digital environments.

What Changes When You Connect

- 01 Calculates specific rotational velocity requirements.
- 02 Quantifies the performance penalty of switch-stance riding.
- 03 Predicts landing success based on fakie conditions.

04 Provides takeoff trajectory data for specific speeds.

Real-World Applications

Feasibility Testing

Check if a 540 spin is physically possible at a given approach speed.

Stance Proficiency Assessment

Determine how much a skater's switch comfort will impact their landing stability.

Trajectory Planning

Find the exact takeoff angle needed to complete a specific rotation.

Risk Evaluation

Use landing stability scores to assess the risk of a specific maneuver attempt.

Patterns to Avoid

Guessing physical feasibility

❌ AVOID

You ask your agent if a skater can land a 720 at a slow speed without checking the math.

✓ INSTEAD

Use ``get_rotation_requirements`` to find the exact velocity and trajectory needed for the spin.

Ignoring switch-stance impact

❌ AVOID

You assume a skater's regular stance proficiency will carry over perfectly to a switch maneuver.

✓ INSTEAD

Run ``get_switch_penalty`` to see exactly how much their lack of switch familiarity will drag down performance.

Overlooking landing risks

❌ AVOID

You plan a high-speed trick and assume the landing will be stable because the rotation was clean.

✓ INSTEAD

Check ``get_landing_stability`` to account for fakie landing conditions before committing to the attempt.

The Right Fit

Connect this MCP if you need to model the physical mechanics of skateboarding maneuvers. Do not connect it if you are looking for general sports trivia or non-physics based skate content. The decision depends on whether you need concrete rotational and trajectory data for specific tricks.

Caballerial Rotation Speed 4 Tools

These tools handle the physics of switch-stance skateboarding. They calculate rotational velocity, takeoff angles, and landing stability.

#	TOOL	DESCRIPTION
01	get_landing_stability	Predicts how stable a skater will be upon landing. It specifically calculates for the fakie landing condition.
02	get_maneuver_summary	Provides a high-level overview of the physical demands for a specific caballerial attempt.
03	get_rotation_requirements	Determines the exact rotational velocity and takeoff trajectory needed to complete a spin.
04	get_switch_penalty	Calculates the performance drop caused by a skater's lack of familiarity with the switch stance.

See It in Action

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

U What are the rotation requirements for a 360 caballerial at 5 m/s with a pop timing of 0.5?



For a 360 rotation at 5 m/s, the required rotation speed is 12.5 deg/s with a takeoff angle of 35 degrees and a landing buffer of 2.1.

U How much stability will I have if I have a stance comfort of 0.4 for a 540 spin?



With a stance comfort of 0.4, your stability score is 0.55 after accounting for the fakie difficulty penalty.

U Give me a summary for a 360 caballerial: 4 m/s speed, 0.8 comfort, 0.4 pop timing.



The total rotation demand is 15.2 deg/s, the estimated takeoff angle is 32 degrees, and the landing risk level is Low.

Frequently Asked Questions

01 What can this MCP calculate for skateboarding?

It calculates rotational velocity, takeoff trajectories, switch-stance penalties, and landing stability for caballerial maneuvers.

02 How does it handle switch-stance riding?

It uses the get_switch_penalty tool to calculate how much a skater's lack of switch proficiency degrades their performance.

03 Can it predict if I will land a trick?

Yes, the `get_landing_stability` tool predicts landing success by accounting for fakie landing conditions.

04 Which AI clients can use this?

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

05 Do I need to host the physics engine myself?

No, Vinkius hosts and manages the MCP so it is ready to use as soon as you connect.

06 How do I calculate the required rotation for a 540 caballeria?

You can use the `'get_rotation_requirements'` tool by providing your approach speed, the 540 spin degree, and your pop timing.

07 How does switch stance proficiency affect my results?

The `'get_switch_penalty'` tool calculates how your stance comfort level increases the required rotation speed and decreases landing stability.

08 Can I get a full summary of my attempt?

Yes, the `'get_maneuver_summary'` tool aggregates rotation demand, takeoff angle, and landing risk into a single overview.

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>"caballeria-rotation-speed": { "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

Caballerial Rotation Speed 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

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DOCUMENT INFORMATION

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Platform	Vinkius Cloud for AI Agents
Endpoint	<code>https://edge.vinkius.com/{token}/mcp</code>

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