MCP SERVER | NO CODE | CLOUD HOSTED

Edge Angle Force Calculator MCP

Get precise mechanical physics for carving turns.

Edge Angle Force Calculator provides the physics math needed to analyze ski and snowboard performance. Your AI client uses this MCP to calculate total edge force, pressure distribution across the contact area, and remaining grip margins based on speed, turn radius, and snow conditions.

physics | skiing | snowboarding | carving | mechanics

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · SEPTEMBER 2026
vinkius.com/en/ai-agent-connect/edge-angle-force-calculator

SCAN TO VIEW

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.

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.

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.

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	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	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.

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.

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.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken 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.

Agent Activity

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

FinOps

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

Tool Health

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

Firewall & DLP

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

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.

Edge Angle Force Calculator MCP

4 tools available
Cloud-hosted on Vinkius

You can use this MCP to bring mechanical engineering precision to your winter sports analysis. Instead of guessing how a turn feels, your agent can calculate the exact physics behind the maneuver. It handles the heavy lifting of determining how much force is actually hitting the edge and how that pressure spreads across the snow.

Whether you are modeling equipment performance or analyzing turn stability on ice versus soft snow, this MCP gives your AI client the data it needs. It looks at variables like rider weight, velocity, and edge angle to output real-time dynamics. You can check if a specific turn radius will result in a loss of grip or if the pressure distribution is optimized for the current surface conditions. It turns raw movement data into actionable mechanical insights.

Core Capabilities

01 — Force Calculation

Your agent calculates the total magnitude of force applied to the ski or snowboard edge.

02 — Pressure Mapping

The AI determines how force is distributed across the contact area.

03 — Stability Assessment

Your client evaluates the remaining grip margin to predict if an edge will hold.

04 — Maneuver Summaries

The MCP provides a physics overview of specific turns and movements.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/edge-angle-force-calculator** — connect your AI agent in three steps.

01 Connect your preferred MCP-compatible client to Vinkius.

02 Provide the rider weight, speed, and edge angle to your agent.

03 The agent calls the relevant physics tool from this MCP.

04 The MCP returns precise force or pressure data.

05 Your agent uses the results to answer your questions or complete a model.

Connecting to this MCP gives your AI client immediate access to mechanical physics tools.

Built For

This MCP is built for professionals analyzing the mechanics of winter sports performance.

Ski Equipment Engineers

They hand off equipment design parameters to the AI to test edge performance.

Sports Scientists

They use the AI to model how different snow surfaces affect rider stability.

Performance Coaches

They provide rider data to the agent to analyze turn dynamics and grip.

What Changes When You Connect

01 Replaces manual physics calculations with direct tool calls.

02 Provides specific pressure data for different snow surfaces.

03	Quantifies grip margins to predict turn stability.
04	Translates rider speed and angle into Newton-based force values.

Real-World Applications

Equipment Testing

Model how different edge angles affect force on new ski prototypes.

Surface Analysis

Compare how pressure distribution changes when moving from soft snow to ice.

Rider Safety Modeling

Calculate if a specific turn radius will exceed the available grip margin.

Performance Review

Summarize the physics of a specific maneuver based on rider weight and velocity.

4 Tools Available

#	TOOL	DESCRIPTION
01	`calculate_edge_hold_margin`	This tool evaluates turn stability by calculating how much grip capacity remains before the edge slips.
02	`get_pressure_distribution`	This tool determines how force spreads across the specific contact area of the edge.
03	`get_total_edge_force`	This tool calculates the total magnitude of force acting on the equipment edge.
04	`get_turning_dynamics_summary`	This tool provides a high-level overview of the physics involved in the current maneuver.

See It in Action

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

U Calculate the total force for a 75kg rider going 10m/s with a 15m turn radius and a 30 degree edge angle.

The total force acting on the edge is 525.4 Newtons, consisting of a centripetal component and a gravitational component.

U What is the pressure distribution for a 500N force on ice with a 10cm contact length and 25 degree edge angle?

The pressure is 50.0 N/cm, with a high contact area effect due to the ice surface.

U Give me a summary of the dynamics for a 80kg rider at 12m/s, 20m radius, 35 degree angle on soft snow.

The maneuver has a force magnitude of 612.5 N, a medium pressure intensity, and a stable rating.

Frequently Asked Questions

01 **What kind of physics does this MCP calculate?**

It calculates mechanical forces, pressure distribution on edges, and grip margins for skiing and snowboarding.

02 **Can I use this with Claude or Cursor?**

Yes, you can connect this MCP to any MCP-compatible client like Claude, Cursor, or Windsurf.

03 **Does it account for different snow types?**

Yes, the tools allow you to factor in surface conditions like ice or soft snow to see how they impact pressure and stability.

04 **How do I get the results in my AI chat?**

Once connected, your agent will automatically use the tools to perform calculations when you ask questions about edge force or turning dynamics.

05 **Do I need to host the MCP myself?**

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

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 `"edge-angle-force-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → 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

Edge Angle Force Calculator 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 Edge Angle Force Calculator. 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	Edge Angle Force Calculator MCP
Server ID	`01a0a250-fe72-70ed-b608-277239c1222a`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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/edge-angle-force-calculator.