MCP SERVER | NO CODE | CLOUD HOSTED

Destemming & Crushing Efficiency MCP

Fine-tune your winery machinery for better grape processing.

Destemming & Crushing Efficiency MCP gives your AI client the math needed to manage vinification machinery. You can monitor real-time mass flow, check how well stems are being removed, and predict berry breakage based on your specific machine settings. It turns raw grape data into actionable adjustments for your rollers and drums.

A+ Quality Score 100/100

viticulture | vinification | throughput | machine-optimization | grape-processing

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · SEPTEMBER 2026
vinkius.com/en/ai-agent-connect/destemming-crushing-efficiency

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.

Destemming & Crushing Efficiency MCP

4 tools available
Cloud-hosted on Vinkius

You can use this MCP to manage the technical variables of the destemming and crushing stage. Instead of guessing how your machine settings affect your fruit, you provide your agent with cluster morphology and grape variety data to get precise answers. It handles the heavy lifting of calculating how mass flow changes based on your equipment's current state. You can use it to prevent excessive berry breakage by testing different roller spacings and drum speeds before you even turn the machine on. It's a way to bridge the gap between your physical winery equipment and your digital planning tools, ensuring that your throughput stays high while keeping fruit damage within your target range.

Core Capabilities

01 — Throughput Monitoring

Your agent calculates the real-time mass of grapes moving through the system.

02 — Damage Prediction

The AI predicts berry breakage percentages based on your specific equipment configurations.

03 — Stem Separation Analysis

Your client evaluates how well the machine is stripping stems from the fruit.

04 — Setting Optimization

The MCP suggests specific roller and drum adjustments to meet your damage targets.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/destemming-crushing-efficiency** — connect your AI agent in three steps.

01 Connect your preferred MCP-compatible client to Vinkius.

02 Provide your grape variety and cluster data to your agent.

03 Ask the agent to calculate throughput or predict damage.

04 Apply the recommended machine settings to your equipment.

Getting this running in your workflow is straightforward.

Built For

This MCP is built for professionals managing the technical side of grape processing.

Winemakers

They use the tool to ensure fruit quality remains consistent during crushing.

Vignerons

They hand off cluster data to the AI to predict machine performance.

Winery Technicians

They use the optimized settings to adjust physical machinery on the floor.

What Changes When You Connect

01 Reduces berry breakage by testing settings digitally first.

02 Maintains consistent mass flow through real-time throughput tracking.

03 Connects grape variety characteristics to machine performance.

04 Provides specific roller and drum adjustments for target damage rates.

Real-World Applications

Preventing Fruit Damage

Use the tool to find the right roller spacing for delicate varieties like Pinot Noir.

Managing Throughput

Calculate how much mass you are actually processing per hour to plan your day.

Optimizing Stem Removal

Check if your current machine settings are effectively separating stems.

Pre-crush Planning

Input cluster weights and MOG to get predicted efficiency before starting the run.

4 Tools Available

#	TOOL	DESCRIPTION
01	analyze_stem_removal	This tool evaluates how effectively your machine is separating stems from the fruit.
02	calculate_berry_damage	Use this to predict the percentage of berry breakage based on your current machine settings.
03	get_current_throughput	This tool determines the actual mass of grapes being processed per hour.
04	optimize_machine_settings	This tool recommends the ideal roller spacing and drum speed to hit your target damage rate.

See It in Action

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

U What is the current throughput for a Cabernet Sauvignon with a 5kg cluster weight and 2% MOG at 1000kg/h capacity?

The actual throughput is 945 kg/h with an Optimal efficiency rating.

U Predict the berry damage for Pinot Noir with 4kg clusters, 15mm roller spacing, and 30 drum speed at a 10% target damage rate.

The predicted berry breakage is 12%, with a juice loss of 3% and a deviation of 2% from your target.

U Recommend settings for Merlot with 6kg clusters to hit a 5% damage rate.

The recommended settings are 18mm roller spacing and 25 drum speed, with a predicted efficiency of 0.85.

Frequently Asked Questions

01 **How do I use this MCP with my AI client?**

You connect your client, such as Claude or Cursor, to Vinkius. Once connected, your agent can immediately use the tools provided in this MCP.

02 **Can I use this to adjust my machine settings?**

Yes. The optimize_machine_settings tool provides specific recommendations for roller spacing and drum speed based on your target damage rate.

03 **What data do I need to provide for berry damage predictions?**

You should provide the grape variety, cluster weight, roller spacing, and drum speed to get an accurate prediction.

04 **Does this work for different grape varieties?**

Yes. The calculations account for how different varieties and cluster morphologies affect the crushing process.

05 **Is this tool hosted by Vinkius?**

Yes. Vinkius hosts the MCP and manages all the technical connections so it is ready to use immediately.

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 `"destemming-crushing-efficiency": { "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

Destemming & Crushing Efficiency 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

Generated	September 2026
MCP Server	Destemming & Crushing Efficiency MCP
Server ID	`01a0ac0d-d468-7125-9809-066cdbf2ef06`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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