MCP SERVER | NO CODE | CLOUD HOSTED

Filtration Throughput Calculator MCP

Plan your wine filtration cycles with precise technical data.

Filtration Throughput Calculator MCP helps wine producers manage the technical math behind liquid processing. Use it to determine the exact filter media surface area needed, estimate how often you'll need to swap filters, and check if your current equipment can handle a specific batch before you start the run.

A+ Quality Score 100/100

wine | filtration | throughput | maintenance | capacity-planning

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vinkius.com/en/ai-agent-connect/filtration-throughput-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.

Filtration Throughput Calculator MCP

4 tools available
Cloud-hosted on Vinkius

You can stop guessing if your equipment can handle the next batch. This MCP gives your AI client the specific formulas needed to manage wine filtration workflows. Instead of manual calculations, you tell your agent the volume of wine, the solids percentage, and your deadline. It then handles the math to tell you exactly what you need.

You can use it to decide between depth and crossflow strategies based on your specific wine profile. It also helps you avoid mid-process downtime by predicting how many filter changes you'll face. If you have a specific piece of equipment in the cellar, you can verify its capacity against a new batch to ensure you don't run into bottlenecks. It turns your AI into a technical planning partner for the winery.

Core Capabilities

01 — Area Calculation

The AI calculates the exact surface area of filter media required for your volume and timeframe.

02 — Maintenance Forecasting

Your agent predicts the number of filter changes needed for a specific run.

03 — Strategy Comparison

The AI evaluates depth versus crossflow methods for your specific wine profile.

04 — Capacity Validation

The AI checks if your current hardware can handle the volume and solids of a new batch.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/filtration-throughput-calculator** — connect your AI agent in three steps.

01 Connect your preferred client like Claude or Cursor to the Vinkius hosted MCP.

02 Provide your batch details like volume, solids percentage, and time limit to your AI client.

03 The AI uses the specific tools to run the math.

04 Receive direct answers regarding filter area, maintenance, or capacity.

Connect your AI client to Vinkius to start running technical filtration calculations.

Built For

This MCP is built for professionals managing liquid processing in winery environments.

Winemakers

They use the AI to plan batch processing and equipment needs.

Cellar Managers

They hand off maintenance planning and capacity checks to the agent.

Production Engineers

They use the tool to validate technical specifications for filtration setups.

What Changes When You Connect

01 Reduces manual math errors in filtration planning.

02 Prevents equipment bottlenecks by validating capacity before runs start.

03	Provides clear maintenance schedules based on solids and volume.
04	Helps choose the most efficient filtration method for different wine profiles.

Real-World Applications

Pre-Batch Planning

Calculate the necessary filter area before starting a large volume run.

Equipment Auditing

Verify if a specific filter setup can handle a high-solids batch.

Maintenance Scheduling

Estimate how many filter changes to stock up on before a filtration cycle.

Method Selection

Compare depth and crossflow options to find the best fit for a specific wine profile.

4 Tools Available

#	TOOL	DESCRIPTION
01	compare_filtration_strategies	Compares depth and crossflow filtration methods for a specific wine profile. It helps you decide which method fits your current batch better.
02	estimate_maintenance_requirements	Calculates the total processing time and how many filter replacements you'll need. This helps you plan for downtime and supplies.
03	get_required_filter_area	Finds the minimum filter media surface area needed. It uses your target volume and deadline to give you a specific measurement.
04	validate_system_capacity	Checks if your existing filtration setup is large enough for a specific batch. It prevents you from starting a run that your equipment can't finish.

See It in Action

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

U How much filter area do I need for 5000 liters of wine with 2% solids to be filtered in 10 hours using depth filtration?

You need 125.5 square meters of filter media to process 5000 liters in 10 hours with 2% solids using depth filtration.

U Will my 50 square meter filter be enough for 2000 liters of wine with 5% solids in 5 hours using crossflow?

Yes, your 50 square meter filter is sufficient for this batch.

U Compare depth and crossflow for 10000 liters of wine with 1% solids and a 24 hour deadline.

Crossflow filtration is recommended for this profile because it requires fewer filter changes than depth filtration.

Frequently Asked Questions

01 **What can this MCP calculate for wine production?**

It calculates required filter media area, estimated maintenance needs like filter changes, and compares different filtration strategies.

02 **How do I know if my current filter is big enough?**

You can use the validate_system_capacity tool to check if your existing setup can handle a specific batch of wine.

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

Yes, you can connect this MCP to any compatible client including Claude, Cursor, and Windsurf.

04 **Does it help with choosing between depth and crossflow filtration?**

Yes, the compare_filtration_strategies tool provides a side by side comparison based on your wine profile.

05 **How does it estimate maintenance?**

The estimate_maintenance_requirements tool calculates how many times you'll need to replace filters and the total time the process will take.

06 **How do I know if my current equipment is enough?**

You can use the `validate_system_capacity` tool. Provide your existing surface area, the wine volume, the deadline, and the solids level to see if your setup is sufficient.

07 **What is the difference between depth and crossflow in these calculations?**

The tools account for different fouling rates. Depth filtration typically requires more frequent filter changes, while crossflow maintains a more consistent throughput.

08 **Can I compare different filtration methods?**

Yes, the `compare_filtration_strategies` tool provides a side-by-side comparison of depth and crossflow methods based on your specific wine profile.

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 `"filtration-throughput-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

Filtration Throughput 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

DOCUMENT INFORMATION

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MCP Server	Filtration Throughput Calculator MCP
Server ID	`01a0ac6d-75dc-7336-b278-3e73764b7919`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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