MCP SERVER | NO CODE | CLOUD HOSTED

Carbon Stripping Circuit Designer MCP

Build precise gold recovery elution circuits in seconds.

Carbon Stripping Circuit Designer MCP handles the heavy math for gold recovery engineering. It calculates vessel dimensions, elution cycles, and chemical requirements for Zadra and AARL stripping methods. You can run these calculations directly through your AI client to validate circuit designs against specific gold loading and operating conditions.

A+ Quality Score 100/100

gold-recovery | elution | zadra | aarl | circuit-design

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vinkius.com/en/ai-agent-connect/carbon-stripping-circuit-designer

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.

Carbon Stripping Circuit Designer MCP

1 tools available
Cloud-hosted on Vinkius

Designing gold recovery elution circuits requires precise calculations for vessel geometry, timing, and chemical consumption. This MCP gives your AI client the engineering math needed to design Zadra and AARL stripping systems. Instead of manually calculating volumes or cycle times, you can ask your agent to size a vessel based on throughput or estimate how much reagent you'll need for a specific carbon load. It handles the physics of temperature and pressure to predict elution durations, ensuring your circuit design meets the necessary operating parameters. You can use it to check if a proposed design will actually perform under your specific gold loading conditions.

Core Capabilities

01 — Vessel Sizing

Your agent calculates the necessary diameter and height for stripping columns.

02 — Elution Timing

The AI predicts cycle durations based on temperature and pressure inputs.

03 — Reagent Estimation

Your agent determines the volume and flow rate of chemicals needed for a circuit.

04 — Design Validation

The AI checks circuit efficiency against gold loading and operating conditions.

05 — Method Support

The MCP handles calculations for both Zadra and AARL stripping methods.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/en/ai-agent-connect/carbon-stripping-circuit-designer** — connect your AI agent in three steps.

01 Connect your preferred MCP-compatible client to Vinkius.

02 Provide your engineering parameters like throughput or temperature to your agent.

03 The agent uses the MCP tools to run the specific math.

04 Receive precise dimensions, times, or volumes in your chat interface.

Connect your AI client to Vinkius to access these engineering tools instantly.

Built For

This MCP is built for mining engineers and metallurgical specialists who need to model elution circuits.

Metallurgical Engineer

Uses the MCP to quickly model circuit parameters and reagent needs.

Process Engineer

Hands off complex sizing and timing calculations to the AI.

Mining Consultant

Uses the tool to validate circuit designs for client projects.

What Changes When You Connect

01 Reduces manual calculation errors in vessel dimensioning.

02 Provides rapid estimates for reagent consumption.

03 Standardizes Zadra and AARL design math.

04 Speeds up the validation of circuit performance.

Real-World Applications

Initial Circuit Design

Use the MCP to determine the starting dimensions for a new gold recovery plant.

Reagent Planning

Calculate the exact volume of chemicals required for a specific carbon volume.

Process Optimization

Adjust temperature and pressure inputs to see how they change elution timing.

Capacity Verification

Check if a proposed vessel size can handle your target throughput.

1 Tools Available

#	TOOL	DESCRIPTION
01	`strip_vessel_sizing`	Calculates the physical dimensions required for stripping vessels or columns.

See It in Action

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

U Calculate the vessel size for a Zadra process with a throughput of 50 m3/h.

The required vessel for the Zadra process at 50 m3/h is 120 m3 with a diameter of 4.5m and a height of 7.5m.

U How long will the elution take for an AARL process with 10 units of gold capacity at 95 degrees Celsius?

The total elution duration is 480 minutes with 2 required cycles.

U Estimate reagent needs for a Zadra circuit with 20 m3 of carbon.

The estimated total reagent volume is 150 m3 with a flow rate of 15 m3/h.

Frequently Asked Questions

01 **What stripping methods does this MCP support?**

The MCP is designed to work with both Zadra and AARL stripping methods.

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

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

03 **What kind of engineering data can the AI calculate?**

The AI can calculate vessel sizes, elution cycle durations, and reagent consumption requirements.

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

No, Vinkius hosts and manages the MCP for you. You just connect your client and start working.

05 **How does temperature affect the calculations?**

Temperature is used as an input to predict the duration of elution cycles.

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 `"carbon-stripping-circuit-designer": { "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

Carbon Stripping Circuit Designer 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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Endpoint	`https://edge.vinkius.com/{token}/mcp`

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