

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

Cement TOC Calculator MCP.

Get precise wellbore volumetric data through your AI agent.

Cement TOC Calculator MCP gives your AI client the math needed for wellbore operations. It handles complex volumetric calculations like Top of Cement depth, displacement requirements, and annular capacity. Instead of manual formulas, your agent uses these tools to account for hole size, casing, slurry volume, and washout to provide accurate engineering data.

A+ Quality Score 100/100

cementing

wellbore

toc

drilling

volumetric



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.

Cement Top of Cement (TOC) Calculator MCP

4 tools available

Cloud-hosted on Vinkius

You can stop running manual volumetric checks for wellbore operations. This MCP gives your AI client the specific tools needed to handle cement job calculations with precision. When you're planning a job, your agent can determine the exact Top of Cement depth by factoring in hole size, casing diameter, slurry volume, and even washout or formation losses.

It's built for the technical realities of drilling and cementing. You can use it to figure out how much fluid you'll need to move cement to its target position or to calculate the annular capacity for specific well sections. It also handles bottom fill volumes, so your agent can account for material occupying the bottom of the wellbore. By connecting this to your AI client, you turn a conversational interface into a specialized engineering calculator that understands the nuances of wellbore geometry and fluid displacement.

Core Capabilities

01 — TOC Depth Determination

Your agent calculates the cement surface depth by accounting for hole size and washout.

03 — Annular Capacity Math

Your agent computes the volume per unit of depth for any well section.

02 — Fluid Displacement Planning

The AI determines the fluid volume required to move cement to a specific target.

04 — Bottom Fill Assessment

The AI calculates the volume of material occupying the bottom of the wellbore.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/cement-top-of-cement-toc-calculator — connect your AI agent in three steps.

- 01 Connect your AI client to the Vinkius-hosted MCP.
- 02 Provide the wellbore parameters like hole size, casing, and slurry volume.
- 03 The agent calls the specific calculation tool needed.
- 04 You receive the calculated depth, volume, or capacity immediately.

Connect the MCP to your client and start asking for engineering data.

Built For

This MCP is for engineers and operators managing wellbore and cementing operations. You can hand off the heavy lifting of volumetric math to your AI agent.

Cementing Engineer

Uses the agent to verify TOC depths and displacement volumes during job planning.

Drilling Engineer

Hands off annular capacity and hole volume calculations to the AI.

Wellsite Supervisor

Uses the agent to quickly check bottom fill or displacement needs on the fly.

What Changes When You Connect

- 01 Reduces manual calculation errors in wellbore geometry.
- 02 Accounts for real-world variables like washout and formation losses.

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- 03** Provides instant volumetric data through a conversational interface.
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- 04** Speeds up displacement and fluid requirement planning.
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Real-World Applications

Cement Job Planning

Calculate the exact slurry and displacement needed before a cement job begins.

Wellbore Volume Audits

Check annular capacity and bottom fill volumes to ensure accurate fluid management.

Washout Compensation

Adjust TOC depth calculations to account for hole enlargement.

Target Depth Verification

Confirm that the cement will reach the required depth based on current hole conditions.

4 Tools Available

#	TOOL	DESCRIPTION
01	calculate_annular_capacity	This tool calculates the volume per unit of depth for a specific well section.
02	calculate_bottom_fill	This tool determines the volume of material sitting at the bottom of the wellbore.
03	calculate_displacement_requirements	This tool finds the exact amount of fluid needed to push cement to its target depth.
04	calculate_toc_depth	This tool finds the depth where the cement surface reaches within the wellbore.

See It in Action

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

- U** Calculate the TOC depth for a 12-inch hole with 9.625-inch casing, 100 cubic feet of slurry, and 5% washout.



The calculated Top of Cement (TOC) depth is 450.25 feet.

- U** How much fluid is needed to displace cement to a target TOC of 500 feet in a 12-inch hole with 9.625-inch casing?



The required displacement volume is 125.4 cubic feet.

- U** What is the volume of 10 feet of fill in a 12-inch hole?



The fill volume for 10 feet of material in a 12-inch hole is 7.85 cubic feet.

Frequently Asked Questions

01 What can this MCP calculate?

It calculates Top of Cement (TOC) depth, displacement requirements, annular capacity, and bottom fill volumes.

02 Does it account for hole washout?

Yes, the TOC depth tool accounts for washout and formation losses to provide accurate results.

03 Which AI clients can I use with this MCP?

You can use it with any MCP-compatible client like Claude, Cursor, Windsurf, or VS Code.

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 Can I use this for displacement volume math?

Yes, the displacement tool calculates how much fluid is needed to move cement to its target position.

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>"cement-top-of-cement-toc-calculator": { "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

Cement Top of Cement (TOC) 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

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DOCUMENT INFORMATION

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

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