MCP SERVER | NO CODE | CLOUD HOSTED

Resin Volume Calculator MCP for AI Agents

Accurate Mold Volume and Material Weight Calculations for Casting

Resin Volume Calculator determines precise material requirements for casting projects. This MCP calculates the exact volume and weight needed for any mold shape—rectangular, cylindrical, or spherical. It also ensures you get the perfect mix ratio for Part A and Part B, including a safety buffer so you don't run short during a pour.

A+ Quality Score 100/100

resin | epoxy | casting | calculation | mould

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vinkius.com/mcp/resin-volume-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.

Resin Volume Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Running out of resin mid-pour is every artist’s worst nightmare. This MCP solves that problem by giving you precise material calculations before you even open the epoxy bottles. Instead of guessing or using rough formulas, your AI client figures out the exact capacity of any mold shape, whether it's a simple rectangle or a complex sphere. The process then converts that pure volume into usable weight based on your resin’s specific density. Crucially, it doesn't stop there; it takes the total amount and calculates the precise amounts needed for Part A and Part B, adding an overage buffer just in case. When you connect this MCP via Vinkius, your AI agent handles all these complex steps instantly. You get a reliable number—the perfect measure to guarantee a successful pour every time.

Core Capabilities

01 — Determine mold capacity by shape

It calculates the precise volume for molds of rectangular, cylindrical, or spherical designs.

02 — Convert measured volume to weight

You input the volume and your resin's density, and it outputs the exact total mass (weight) required.

03 — Calculate precise mixing ratios

It takes a desired total amount and calculates the specific amounts needed for Part A and Part B, including a necessary safety overage buffer.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/resin-volume-calculator** — connect your AI agent in three steps.

01 You describe your casting project to your AI client, providing dimensions like radius, depth, or mold length.

02 The MCP first uses the dimensional data to figure out the total volume of the container. Then, it converts that volume into weight using the density you provide.

03 Finally, it breaks down the total required weight and calculates the precise amounts for Part A and Part B, factoring in a buffer so you don't get stuck with leftovers or run short.

The bottom line is: your agent takes rough mold dimensions and spits out accurate, usable measurements for every component of your resin mix.

Built For

Resin artists, jewelry makers, casting educators, and prop builders need this. If you spend time calculating material needs with sticky notes and calculators, you need this MCP. It eliminates the guesswork from complex art processes.

Resin Artist

Uses it to calculate mold volume for unique pieces, ensuring they buy exactly the right amount of material without waste.

Casting Educator

Teaches students how to plan projects by using the MCP to demonstrate precise calculations for multiple shapes and ratios.

Prop Builder

Determines material weight needed for large, non-standard props that require complex mold geometry.

What Changes When You Connect

01 Stop wasting materials. Using the `calculate_mould_volume` tool ensures you know the mold's true capacity before starting.

02 Eliminate guesswork on weight. The MCP uses `calculate_material_mass` to convert raw volume measurements into the precise total weight needed for your project.

03 Never run short again. The system calculates exact ratios using `calculate_mix_quantities`, including a safety overage buffer so you're prepared for any pour variation.

04 Handle complex shapes instantly. It figures out volumes for cylinders, spheres, and irregular molds without needing manual formulas.

05 Saves time on prep work. Instead of switching between geometry calculators and mixing guides, one connection handles the whole material flow.

Real-World Applications

A client needs to cast a large centerpiece

The agent takes measurements for a spherical mold and runs `calculate_mould_volume`. It then uses that volume to determine the weight via `calculate_material_mass` and finally figures out the perfect mix using `calculate_mix_quantities` for both parts.

A jeweler needs small-batch material estimates

The agent takes simple dimensions of a rectangular mold and immediately calculates both the volume and the specific, smaller amounts of Part A and Part B required for that tiny piece.

An educator needs to demonstrate material waste

The agent calculates a theoretical mold volume, converts it to weight, then adjusts the required ratio (Part A/B) with an added buffer to show students exactly how much excess is needed for safety.

Patterns to Avoid

Confusing Volume vs. Weight

✗ AVOID

A user assumes that 500 milliliters of resin equals 500 grams, leading to a material shortage during the pour.

✓ INSTEAD

Always use `calculate_material_mass` after determining the volume. This tool converts the raw mold capacity into weight based on your specific resin density, giving you accurate mass.

Ignoring Mold Geometry

✗ AVOID

Using a simple rectangular formula when the actual mold is cylindrical or spherical, leading to an inaccurate material order.

✓ INSTEAD

Use `calculate_mould_volume` first. This tool supports all major shapes—rectangular, cylindrical, and spherical—to get the true capacity.

Forgetting Mix Ratios

✗ AVOID

Calculating total material needed but forgetting to divide that amount into separate Part A and Part B ratios.

✓ INSTEAD

Run `calculate_mix_quantities` on your final volume estimate. This ensures you get the proper, balanced amounts for both parts, plus a necessary safety buffer.

The Right Fit

Use this MCP if your project requires calculating precise material requirements based on mold geometry and density conversion. Specifically, connect it when you need to calculate volumes of molds (like spheres or cylinders) AND then convert that volume into the final mixing ratio for two-part epoxy. Don't use this if you are simply measuring liquids already mixed, or if your project involves complex chemical reactions where temperature changes affect volume disproportionately; those require specialized process modeling tools instead.

Resin Volume Calculator: Accurate Mold Capacity Planning

Today, figuring out how much resin you need is a mess of formulas. You might have to switch between calculating the mold's geometry—is it a perfect cylinder or an irregular shape?—and then manually converting that volume into weight using density tables. Then you run that number through a separate sheet just to figure out the right mix ratio for Part A and Part B. It’s tedious, prone to rounding errors, and easily leads to buying too much resin, or worse, running short.

With this MCP, the whole process flows in one go. You feed your agent the mold's dimensions, and it handles everything: calculating the exact volume capacity first. Then it converts that to weight and automatically spits out the perfect mix quantities for both parts. The result is a single, confident set of numbers you can trust.

Resin Volume Calculator: Controlling Material Inventory

You waste time cross-referencing different calculators—one for volume, one for density conversion, and a third for ratios. You're constantly jumping between units (mL to grams) and formats.

This MCP keeps all the calculations tethered together. It guarantees that your calculated mold capacity immediately feeds into both the material weight calculation and the final mix ratio breakdown. It's one single source of truth for your resin inventory.

Resin Volume Calculator: 3 Tools for Casting Material Math

Use these tools to determine the capacity of your molds, convert volumes to mass, or figure out precise resin mix quantities.

#	TOOL	DESCRIPTION
01	`calculate_material_mass`	Converts a given volume measurement into an accurate mass or weight.
02	`calculate_mix_quantities`	Calculates the specific, proportional amounts required for resin Part A and Part B from a total amount.
03	`calculate_mould_volume`	Determines the internal capacity volume of various mold shapes (rectangular, cylindrical, spherical).

See It in Action

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

U I need to cast a plaque using a rectangular mold 10cm by 15cm. How much do I need?

Project Estimate: Rectangular Plaque

- **Mold Volume:** 1,500 ml (assuming a depth of 10 cm)
- **Material Weight Needed:** 1,650 grams (based on your resin's density of 1.1g/ml)
- **Mix Quantities (2:1 Ratio + Buffer):**

* Part A: 980 g
* Part B: 670 g

U How much resin is needed for a spherical mold with a radius of 5cm?

Spherical Mold Calculation

The volume of the sphere is approximately **523.6 cubic inches**.

To convert this to weight using your density (1.1 g/ml), you'll need about **580 grams** in total material.

For a standard 2:1 mix, that breaks down into:

- Part A: 348 grams
- Part B: 232 grams

U I want a total pour of 600ml for a complex mold. Give me the Part A and Part B amounts.

Material Ratio Breakdown

Based on a desired total of 600 ml, and maintaining your specified safety overage buffer:

COMPONENT	AMOUNT REQUIRED
Part A	**410 ml**
Part B	**225 ml**

This mix ensures you cover the full pour without running dry.

Frequently Asked Questions

01 **How does the Resin Volume Calculator help me figure out material needs for different mold shapes?**

It accurately calculates volume for rectangular, cylindrical, and spherical molds. This means you don't have to guess or use approximations when planning your pour.

02 **Do I need to know the density of my resin to use this MCP?**

Yes, knowing the resin's density is key because it allows the system to convert volume (like milliliters) into accurate weight (grams). This gives you a more reliable measure for ordering materials.

03 **Can the Resin Volume Calculator automatically add extra material so I don't run out?**

Absolutely. When calculating Part A and Part B, it includes a safety overage buffer. This means your mix quantities are slightly higher than the minimum needed, giving you peace of mind during casting.

04 **What if my mold is an odd shape? Can this MCP handle that?**

While it specializes in common shapes like cylinders and spheres, its core function calculates the volume capacity of your mold first. This number can then be used to calculate weight and mix ratios.

05 **Is calculating the Part A and Part B amounts complex with this MCP?**

No. You just tell it the total amount needed, specify your desired ratio (like 2:1), and the system handles the division instantly, giving you two precise measurements.

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 `"resin-volume-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

Resin Volume 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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LICENSE & USAGE

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