MCP SERVER | NO CODE | CLOUD HOSTED

Dimensional Weight Calculator MCP for AI Agents

Accurate Global Shipping Rates and Volumetric Pricing Analysis

The Dimensional Weight Calculator determines the volumetric weight of any package for major global carriers. It calculates dimensional weights across FedEx, UPS, DHL, and USPS based on dimensions alone. Plus, it identifies the true billable weight and quantifies any discrepancies between actual mass and required shipping volume.

A+ Quality Score 100/100

dimensional-weight | shipping-calculator | logistics-tools | carrier-weights | volumetric-weight

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vinkius.com/mcp/dimensional-weight-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.

Dimensional Weight Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Shipping costs are brutal because they rarely match your gut feeling about how much a package weighs. This MCP handles the complexity of volumetric pricing across multiple global carriers so you don't get hit with surprise fees at checkout or on invoicing day. Instead of guessing, you feed in dimensions and immediately see what FedEx, UPS, DHL, and USPS will charge for that space.

It doesn't just give one number; it gives a full picture. It figures out the dimensional weight, which is the amount of space the package takes up. Then, it resolves the final billable weight by comparing your actual mass against that volume requirement. Finally, you can quantify exactly how much extra cost you're running into due to low-density shipments. All this critical logistics math runs through a single connection. When you connect this MCP via Vinkius, your AI agent has instant access to global shipping rates and weight calculations without needing manual API calls or messy spreadsheets.

Core Capabilities

01 — Calculate Multi-Carrier Dimensional Weights

Determine the volumetric weight for a package across all supported carriers (FedEx, UPS, DHL, USPS) using only dimensions.

02 — Determine Final Billable Weight

Identify the final actual or dimensional weight that the carrier will use when generating an invoice.

03 — Quantify Shipping Cost Gaps

Calculate the specific difference between a package's physical mass and its calculated billable weight, flagging potential extra charges.

One Click on Vinkius — From Prompt to Execution

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

01 Give your AI agent the precise dimensions (L x W x H) of the shipment.

02 The MCP runs these dimensions against multiple carrier algorithms to return a comprehensive set of dimensional weights for every supported service.

03 You review the results to find the final billable weight and calculate any gaps between actual weight and required volumetric charge.

The bottom line is, you get an instant, accurate cost assessment from all major carriers without doing manual calculations or switching between rate sheets.

Built For

This MCP is essential for e-commerce operations managers and logistics planners. If unexpected carrier invoices are a monthly headache, you need this tool. It lets you model shipping costs accurately before they hit your ledger.

E-commerce Operations Manager

Models shipping rates for new products or changes in packaging size to ensure the checkout cost estimate is accurate and profitable.

Freight Forwarder

Compares volumetric weights across different carriers (FedEx, UPS, DHL) when building a multi-leg international shipment plan.

Warehouse Planner

Checks if changes to packing materials or pallet dimensions will trigger unexpected dimensional weight increases for major carriers.

What Changes When You Connect

01 Avoid surprise charges: Use the `calculate_weight_gap` tool to instantly quantify how much extra cost low-density shipments will incur, letting you adjust pricing upfront.

02 Compare carriers efficiently: The `get_all_carrier_dim_weights` function returns dimensional weights for all major global carriers (FedEx, UPS, DHL, USPS) simultaneously, saving hours of manual lookups.

03 Accurate billing prediction: By running the `resolve_billable_weight` tool, you determine the true weight used for invoicing, ensuring your quotes are billed correctly and completely.

04 Cost optimization: Test different packaging dimensions to find the optimal size that minimizes both dimensional and physical shipping weights.

05 Speed up quoting: Your AI agent gets instant rate data from multiple carriers at once, turning a multi-day process into a single prompt.

Real-World Applications

New Product Launch Pricing Check

A marketing director is launching a new widget and needs to know the shipping cost. They ask their agent: 'What's the dimensional weight for 10×5×2 inches across all carriers?' The agent uses `get_all_carrier_dim_weights` to provide instant, comparative rates, allowing the director to set an accurate price point.

Over-sized Shipment Audit

A warehouse manager receives a shipment that seems heavy but is bulky. They ask their agent: 'My package weighs 5kg, but what's the billable weight?' The agent uses `resolve_billable_weight` and determines the carrier will charge based on volume, not actual mass.

Freight Consolidation Cost Review

A logistics planner is consolidating several small boxes into one large crate. They ask their agent to analyze the cost difference: 'How much extra weight am I paying for this consolidated shipment?' The agent uses `calculate_weight_gap` to quantify potential savings or unexpected fees.

Carrier Rate Comparison

A shipping consultant needs to recommend the best carrier choice. They ask their agent: 'Calculate all carrier weights for a box measuring 50×40×30 cm.' The agent uses `get_all_carrier_dim_weights` and lists rates for FedEx, UPS, DHL, and USPS side-by-side.

Patterns to Avoid

Calculating weights manually in a spreadsheet

✗ AVOID

The user copies dimensions into Excel and tries to find the correct dimensional weight formulas for FedEx, UPS, and DHL separately. This takes hours and requires cross-referencing multiple carrier rate sheets.

✓ INSTEAD

Use this MCP to run `get_all_carrier_dim_weights` in one prompt. You'll get all four major carriers' weights instantly, letting you compare rates accurately in seconds.

Ignoring the billable weight discrepancy

✗ AVOID

The user calculates the dimensional weight but assumes that number is the final charge. They forget to check if the actual physical mass exceeds the calculated volume weight.

✓ INSTEAD

Always use `resolve_billable_weight` first. This tool determines the definitive, invoiced weight, preventing you from underestimating your true shipping costs.

Under-designing packaging

✗ AVOID

The user packages an item too loosely, resulting in a low-density box that is physically light but massive. They then only calculate the actual weight and get surprised by the bill.

✓ INSTEAD

Run `calculate_weight_gap` against your planned dimensions. This tool flags the cost incurred specifically because of volume versus mass.

The Right Fit

Use this MCP if your primary pain point is predicting unpredictable shipping costs and comparing volumetric rates across multiple global carriers. It's perfect for e-commerce businesses that need to accurately quote international freight or optimize packaging dimensions to reduce carrier fees.

Don't use it if you only need to calculate the actual weight of a single item, or if your shipping needs are limited to one specific local courier (like USPS only). In those cases, a simple unit conversion tool would suffice. If you need complex international tariff codes or customs documentation filing, this MCP focuses solely on weight calculation and isn't equipped for that legal complexity.

Dimensional Weight Calculator: Solving Complex Logistics Billing Issues

Today, figuring out shipping costs means logging into three different carrier websites. You enter dimensions once to check UPS rates; then you repeat the process for FedEx, and if you're international, you have to tackle DHL separately. This manual cycle is prone to human error and always feels like a massive time sink.

With this MCP, your agent takes those dimensions and instantly compares them across all major global carriers. You get an immediate side-by-side comparison of dimensional weights for FedEx, UPS, DHL, and USPS, letting you know exactly which carrier offers the best volumetric rate right now.

Dimensional Weight Calculator: Controlling Shipping Cost Prediction

Manually assessing weight discrepancies is a nightmare. You calculate the dimensional weight, but then you have to remember whether that volume or the physical mass determines the final

This MCP resolves that ambiguity for you. It doesn't just give weights; it tells you what the carrier will actually invoice you for, letting you predict your total shipping costs with high confidence.

bill. The risk of miscalculating the true charge keeps finance teams up at night.

Dimensional Weight Calculator: 3 Tools for Volumetric Shipping Analysis

Use these tools to calculate dimensional weights, resolve final billable weight, and quantify discrepancies across all major global shipping carriers.

#	TOOL	DESCRIPTION
01	`resolve_billable_weight`	Figures out the single final weight that the shipping carrier uses when generating your invoice.
02	`calculate_weight_gap`	Calculates how much extra cost or weight discrepancy exists between a package's actual mass and its required billable volume.
03	`get_all_carrier_dim_weights`	Returns the dimensional weights for FedEx, UPS, DHL, and USPS based on provided dimensions.

See It in Action

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

U What's the dimensional weight for a 12×6×4 box using all major carriers?

Dimensional Weight Comparison

CARRIER	DIMENSIONAL WEIGHT (LBS)
FedEx	8.5 - 9.2
UPS	7.9 - 8.8
DHL	10.1 - 11.5
USPS	6.5 - 7.2

Note: The final rate depends on the actual weight, but these are your volumetric baselines.

U My package weighs 4 lbs, but its dimensions suggest a much higher billable weight. What's the gap?

Weight Gap Analysis

- **Actual Weight:** 4.0 lbs
- **Calculated Billable Weight (UPS):** 6.2 lbs
- **Discrepancy:** You are paying for an additional 2.2 lbs of weight due to the package volume, which is common in low-density goods.

U Calculate all carrier weights for a box measuring 50×40×30 cm.

Dimensional Weight Results (cm)

- **FedEx:** 5.39 kg
- **UPS:** 5.39 kg
- **DHL:** 5.39 kg
- **USPS:** 4.32 kg

These figures show the volumetric space required, which is key when comparing rates.

Frequently Asked Questions

01 **How does the Dimensional Weight Calculator MCP help me estimate shipping costs?**

It calculates what carriers charge based on volume (dimensional weight) versus actual weight. By checking multiple global carriers, you get a full rate comparison right in your workflow.

02 **I keep getting surprise fees from UPS. Can the Dimensional Weight Calculator MCP help?**

Yes. The MCP lets you determine the final billable weight by comparing your item's real mass to its required volume, so you know exactly why they are charging more.

03 **What if I change my packaging size? Does the Dimensional Weight Calculator MCP account for that?**

Absolutely. Just input new dimensions and run the calculator. It instantly updates all carrier dimensional weights, allowing you to find the most cost-effective box size.

04 **Does this MCP cover international shipping rates for DHL and FedEx?**

Yes, it provides volumetric data for major global carriers including DHL, FedEx, and USPS. This helps you build accurate rate sheets for international shipments.

05 **Is the Dimensional Weight Calculator MCP better than just looking up carrier rates online?**

It's much faster and more comprehensive. Instead of visiting four separate sites, your agent uses this MCP to run all necessary weight calculations in one single step.

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 `"dimensional-weight-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

Dimensional Weight 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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