MCP SERVER | NO CODE | CLOUD HOSTED

Tire Size Converter MCP for AI Agents

Precise Automotive Geometry and Tire Fitting Calculations

The Tire Size Converter calculates every critical dimension for vehicle geometry. You can quickly determine physical tire profiles from standard metric notations, check if new tires will throw off your speedometer reading, and assess potential mechanical rubbing risks before you install a size change.

A+ Quality Score 100/100

tires | automotive-tools | geometry | speedometer | clearance

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vinkius.com/mcp/tire-size-converter

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.

Tire Size Converter MCP

3 tools available
Cloud-hosted on Vinkius

Changing tires is complicated. It's not just about matching the size; it’s about safety, clearance, and accuracy. This MCP handles all that complex geometry for you. You feed in a tire specification—like 265/70R17—and get back a complete profile: width, sidewall height, diameter, circumference, and revs per mile.

But the calculation doesn't stop there. If swapping to a different size, your agent automatically figures out the resulting speedometer error, telling you exactly how far off your dashboard reading will be. It also runs an evaluation to check for mechanical interference risks, so you know if those new tires are gonna rub against your suspension or fender. For professionals dealing with vehicle specs, having this data instantly available through Vinkius makes planning upgrades simple and safe.

Core Capabilities

01 — Determine Physical Tire Dimensions

Calculates the full physical profile of any tire size, giving dimensions like diameter and circumference.

02 — Assess Speedometer Error

Compares current and proposed tire sizes to calculate the exact percentage deviation in your vehicle's speedometer reading.

03 — Check for Mechanical Clearance Risks

Evaluates if a specific size change will cause potential interference or rubbing against mechanical parts.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/tire-size-converter** — connect your AI agent in three steps.

01 Start by giving the MCP the tire specifications you are working with, either the current size or a proposed replacement.

02 The tool runs multiple geometry calculations, determining dimensions and comparing them against your existing setup to spot differences in speed readings and physical fit.

03 You receive a clear report detailing the calculated profile, the resulting speedometer deviation percentage, and any identified mechanical rubbing risks.

The bottom line is that you get an instant, data-backed safety assessment for complex tire upgrades without doing math or checking multiple manual charts.

Built For

This MCP is essential for automotive professionals and serious enthusiasts who treat vehicle maintenance like a science. It's for the mechanic standing in the bay needing immediate, accurate measurements, or the gearhead planning an upgrade and doesn't want to risk damaging components or driving with inaccurate gauges.

Automotive Mechanic

Uses this MCP to verify that a proposed tire size will fit safely on a vehicle without causing clearance issues or affecting critical running geometry.

Fleet Manager

Runs bulk checks on multiple vehicles' current and required tire specifications to ensure compliance and safety across an entire fleet.

Automotive Enthusiast / DIY Mechanic

Consults this MCP before purchasing new tires, ensuring that the dimensions are correct for their specific vehicle model and planned usage.

What Changes When You Connect

01 Avoid unsafe installations. Use `evaluate_clearance_compatibility` to catch potential wheel or suspension rubbing risks before you even lift the car.

02 Stop guessing about speed. The `calculate_speedometer_deviation` tool tells you exactly if your speedometer reading will be inaccurate after a tire swap.

03 Get full specs instantly. Use `calculate_tire_dimensions` to pull width, sidewall height, diameter, and circumference from any metric notation, saving minutes of manual calculation time.

04 Reduce risk and improve safety compliance across the board. You get quantified data points for every dimension check.

05 Consolidate complex calculations into one place. Instead of jumping between engineering guides and spreadsheets, your agent handles all the math instantly.

Real-World Applications

Upgrading tires on a classic car

A user needs to put wider, beefier tires on an older vehicle. They ask their agent about switching from 245/70R16 to 285/70R17. The MCP uses `calculate_tire_dimensions` for both sizes and then runs a clearance check, warning the user that the diameter increase might put stress on the suspension.

Maintaining fleet vehicle compliance

A fleet manager needs to verify if all 50 vans in the lot are running tires with consistent dimensions. The agent uses `calculate_tire_dimensions` repeatedly for various sizes and generates a report showing which vehicles need standardized replacement parts.

Diagnosing speed gauge issues

The owner notices their trip odometer seems off after installing new tires. They ask the agent to compare the old tire size to the new one. The MCP uses `calculate_speedometer_deviation` and reports a specific percentage error, telling them if they need to recalibrate or just know how far off they are.

Pre-sale vehicle inspection

A mechanic is assessing a used car for sale. They check the current tire size against standard fitment guidelines using `calculate_tire_dimensions`. This ensures that any advertised mileage or performance claims based on wheel geometry are accurate.

Patterns to Avoid

Using generic calculators

✗ AVOID

Relying on basic web searches or general tire guides which might only provide diameter but fail to assess crucial clearance risks.

✓ INSTEAD

Use the `evaluate_clearance_compatibility` tool. It doesn't just give you a number; it checks if that number is physically safe for your specific vehicle type, giving you actionable risk assessment.

Ignoring speed error calculations

✗ AVOID

Swapping tires because they look better or cost less, without realizing the change will throw off the car's speedometer and trip odometer readings.

✓ INSTEAD

Always run `calculate_speedometer_deviation` when changing sizes. Knowing this percentage is critical for safe driving and accurate maintenance records.

Manual dimension lookups

✗ AVOID

Trying to calculate sidewall height or circumference by hand, which is slow and prone to rounding errors.

✓ INSTEAD

Use the `calculate_tire_dimensions` tool. It processes complex metric notations into multiple precise physical measurements instantly.

The Right Fit

You should use this MCP if your task involves comparing tire geometry, assessing speedometer accuracy, or validating mechanical fitment risks. If you're just trying to find the general size of a common tire (like 'all-season'), basic web searches might suffice.

However, don't use it if you need help with suspension tuning advice or brake caliper measurements; this MCP focuses strictly on rubber dimensions and wheel clearance. You also shouldn't rely on it for VIN number lookups—that requires a dedicated vehicle database tool. Use `calculate_tire_dimensions` when you just want the profile, but always run both `evaluate_clearance_compatibility` and `calculate_speedometer_deviation` if you are making an actual size change.

Tire Size Converter: Solving Automotive Geometry Problems

Right now, checking tire compatibility is a headache. You're stuck cross-referencing multiple specs across different forums and manuals. You measure the current size, then you find a potential new size online. Next, you have to pull up an engineering chart just to check if it will rub against the fender when turning hard. It’s slow, it requires precision math on sidewall height, diameter delta, circumference, and more.

With this MCP, that whole process shrinks down to a prompt. You tell your agent what you're considering, and it immediately calculates every single dimension—from width to revs per mile. The result is not just data; it’s a complete safety assessment.

Tire Size Converter: Preventing Speedometer and Clearance Risks

The real danger isn't knowing the dimensions, but ignoring how those changes affect performance. If you switch to a larger tire diameter, your speedometer reads slower than reality; if it's smaller, it reads faster. You also have to manually calculate clearance risk for every cornering angle.

This MCP solves that by running two critical checks: `calculate_speedometer_deviation` and `evaluate_clearance_compatibility`. It gives you the hard numbers on both speed error and mechanical interference risks in one go. No more guesswork.

Tire Size Converter: 3 Tools for Vehicle Geometry Analysis

Use these tools to calculate tire profiles, assess speed deviations, and check mechanical clearances against specific vehicle models.

#	TOOL	DESCRIPTION
01	`calculate_speedometer_deviation`	Calculates speedometer error when changing tire sizes
02	`calculate_tire_dimensions`	Returns width, sidewall height, diameter, circumference, and revs per mile. Calculates physical dimensions of a tire
03	`evaluate_clearance_compatibility`	Checks for potential tire rubbing/interference

See It in Action

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

U What are the dimensions for a 265/70R17 tire?

Tire Profile Report:

- **Width:** 265mm (10.43in)
- **Sidewall Height:** 185.5mm (7.30in)
- **Overall Diameter:** 773.1mm (30.44in)
- **Circumference:** 2,089mm
- **Revs Per Mile:** 620

This profile is standard for a vehicle in this class.

U I'm going from 265/70R17 to a 285/75R18. What are the risks?

⚠️ **WARNING: Potential Issues Detected**

- **Speedometer Error:** Approximately -3.45%. Your actual speed will be slightly higher than what your dash reads.
- **Clearance Compatibility:** High Risk of mechanical interference. The diameter delta is significant, and you must check suspension travel before installing this size.

Recommendation: Consider a smaller profile or professional alignment.

U Is a tire with 780mm diameter safe if my current is 720mm and the limit is 25mm?

✅ **Clearance Check Results**

- **Diameter Delta:** 60mm.
- **Threshold Limit:** 25mm.
- **Status: FAIL. High Risk of mechanical interference.**

The difference greatly exceeds your threshold, meaning installation is not recommended without structural modification.

Frequently Asked Questions

01 **How does the Tire Size Converter MCP tell me if my speedometer is off?**

It calculates the percentage deviation between your old and new tire sizes. This tells you exactly how much faster or slower your car will report its speed, so you know if you need to recalibrate after an upgrade.

02 **What are the mechanical risks I should check for with this MCP?**

The MCP runs a clearance test that checks potential interference points. It tells you if a new tire size will rub against your fenders, suspension, or other parts when turning or accelerating.

03 **Can the Tire Size Converter help me figure out basic dimensions?**

Yes, it takes any standard metric tire code (like 265/70R17) and returns its full profile: width, sidewall height, diameter, circumference, and revs per mile.

04 **I'm a mechanic. Can I use this MCP for fleet management checks?**

Absolutely. You can input multiple tire sizes to verify consistency across an entire fleet or job site, ensuring every vehicle meets required dimensional standards and safety guidelines.

05 **Does the Tire Size Converter only work with metric measurements?**

While it accepts complex metric notation for calculation, it converts all resulting dimensions into both millimeters and inches for easy use in North America.

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 `"tire-size-converter": { "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

Tire Size Converter 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 →

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