MCP SERVER | NO CODE | CLOUD HOSTED

Pattern Grading Calculator MCP for AI Agents

Automating Size Scaling and Garment Pattern Adjustments

The Pattern Grading Calculator automates the complex math behind scaling sewing patterns. It uses established ASTM industry standards for Women, Men, and Children's sizes. You don't have to calculate circumference changes or distribute growth across multiple body points manually; this MCP handles those calculations instantly.

A+ Quality Score 100/100

sewing | pattern-making | grading | astm | garment-production

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vinkius.com/mcp/pattern-grading-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.

Pattern Grading Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Pattern grading is tedious. When you need to scale a pattern from size Small to size Large, it's not enough just to add an inch everywhere—you have to account for how much the bust increases versus how much the waist stretches, all while sticking to specific industry rules. The Pattern Grading Calculator handles this complexity automatically.

It applies recognized ASTM standards (like D5585 and D6458) to precisely calculate grade rules across key anatomical points. Instead of spending hours on spreadsheets full of complex math, you feed the calculator your base measurements and target sizes. It returns exact instructions for every point on the pattern piece. You can then use this MCP within any compatible client, like Claude or Cursor, via Vinkius. This means your AI agent can manage the entire technical drafting process from simple calculation to generating a full grading table, letting you focus on design rather than geometry.

Core Capabilities

01 — Calculate standard size jumps

Determine the total necessary circumference change required when moving between sizes using specific ASTM standards.

02 — Split growth increments by body area

Divide a total measured increase or decrease across key landmarks like the bust, waist, and hip for accurate pattern scaling.

03 — Generate complete grading measurements

Produce a full table detailing how every individual measurement point on a pattern piece must shift to match a specific target size.

One Click on Vinkius — From Prompt to Execution

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

01 Input your base garment measurements and the desired size jump (e.g., from Medium to Large) along with the standard (ASTM Women's, Men's).

02 The MCP calculates the total required change in circumference for that specific size leap according to industry standards.

03 Finally, you use the resulting data to generate either a detailed distribution map or a complete grading table showing every point shift.

The bottom line is: it takes complex pattern math and turns it into simple, actionable measurements for your next garment run.

Built For

This MCP is built for technical designers, sample makers, and small-batch apparel production houses. If your workflow involves moving patterns between sizes or adapting historical garments for modern fits, you need this tool. It eliminates the most frustrating part of garment math.

Technical Designer

Uses this to ensure new designs adhere strictly to industry grading standards before any physical pattern creation begins.

Pattern Maker

Calculates the necessary size shifts for a full line of garments, guaranteeing consistency across all sizes using ASTM rules.

Apparel Production Manager

Quickly validates if initial grading calculations meet manufacturing standards, reducing costly errors in the sample phase.

What Changes When You Connect

01 You get precise size changes without guesswork. The `calculate_standard_increment` tool tells you the total circumference change needed, eliminating rough estimates.

02 Stop guessing where growth happens. By using `distribute_size_increments`, you accurately split a total size jump into specific measurements for the bust, waist, and hip.

03 Never deal with random numbers again. The `compute_pattern_grading_table` gives you a full map, showing every single point on the pattern that needs shifting for a target size.

04 You maintain compliance instantly. It enforces recognized ASTM standards (D5585, D6458, etc.), keeping your production accurate and professional.

05 Saves massive amounts of time. What used to take hours of manual math in spreadsheets now completes in seconds via your AI agent.

Real-World Applications

Scaling a seasonal collection line

A designer needs to grade a new jacket pattern from size 8 to size 12. They ask their agent, which uses the `calculate_standard_increment` tool, to determine the total required circumference change for the women's standard jump, ensuring the entire line fits consistently.

Adapting historical patterns

A costumer wants a vintage dress pattern adapted for an adult size. The agent uses `distribute_size_increments` to split the total required growth into usable measurements for the bust, waist, and hip zones.

Finalizing production specs

A sample maker needs a final, precise document for manufacturing. The agent runs `compute_pattern_grading_table` to generate a comprehensive map of every single point shift needed for the target size, ready for the factory floor.

Patterns to Avoid

Using generic size increases

✗ AVOID

Manually adding 1 inch everywhere across all pattern measurements because 'it looks right' or because a quick online guide told them to.

✓ INSTEAD

Use the Pattern Grading Calculator MCP. First, run `calculate_standard_increment` to get the required total jump based on ASTM rules. Then, use `distribute_size_increments` to split that number into body zones before generating the final table.

Ignoring size differences by gender

✗ AVOID

Applying the women's standard measurements to men's garments because they are both called 'sewing patterns.'

✓ INSTEAD

Always specify the correct ASTM standard (D5585 for Women, D6458 for Men) when running `calculate_standard_increment` or any other grading tool.

Only calculating circumference changes

✗ AVOID

Knowing the total hip change but not knowing how that specific growth affects the armscye points on the pattern piece.

✓ INSTEAD

Run `compute_pattern_grading_table`. This tool accounts for all interconnected body points, giving you a complete map of every shift required, not just the major measurements.

The Right Fit

Use this MCP if your process requires mathematically verifiable pattern scaling based on industry-approved standards. Specifically, use it when you need to calculate total circumference jumps with `calculate_standard_increment`, or when you must break down those totals into specific body parts using

`distribute_size_increments`. If your job is just rough drafting—like sketching a new concept piece that doesn't yet have size variations—you don't need this. If you only need to adjust one single measurement (e.g., 'add 1 inch to the waist'), then a simple calculator works. But if you need to scale an entire pattern set across multiple sizes, Pattern Grading Calculator is mandatory.

Pattern Grading Calculator for ASTM Standards in Garment Production

Today, scaling patterns requires intense manual labor. Designers are forced to juggle complex math rules: calculating total circumference changes using specific ASTM standards, then figuring out how that change should be distributed across the bust, waist, and hip while maintaining garment integrity. This process involves endless cross-referencing between multiple industry rulebooks.

With this MCP, your agent handles the entire calculation loop. You provide the base pattern and the target size; you get back a mathematically perfect grade map that adheres to recognized standards. It's not just a number; it’s confidence in your fit.

Pattern Grading Calculator for Pattern Making Consistency

The biggest time sink is the transition between calculating total growth and applying that growth. You calculate the overall size jump, but then you waste time trying to figure out if a 6cm increase should be split 30/30/30 or something else entirely for the pattern pieces.

This MCP solves that by giving you granular control. Use `distribute_size_increments` and it provides the exact, usable growth amounts for key body landmarks. Your patterns are now consistently graded across every point.

3 Pattern Grading Tools for Accurate Garment Sizing Math

These tools break down the complex math of pattern scaling, allowing your agent to calculate required circumference changes or generate full size grade maps using recognized ASTM standards.

#	TOOL	DESCRIPTION
01	`compute_pattern_grading_table`	Generates a complete table showing how much every individual pattern point should move for a specific target size
02	`distribute_size_increments`	Splits a total circumference change into specific, usable increments for key body landmarks
03	`calculate_standard_increment`	Determines the total amount of circumference change required for a single size jump within a chosen standard

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 grade a jacket pattern from Men's size 40 up to size 50. What total circumference increase should I expect?

ASTM D6458: Men's Grading Standards

For this specific jump, the total required cumulative change in chest circumference is **7.2 inches**. This number applies across several key areas and must be distributed to maintain a proper fit.

- Bust/Chest Points: +5.0 inches
- Waist Line: +2.2 inches
- Shoulder Slope: +0.0 inches

U If I have 8 cm of total growth, how should it be split across the bust, waist, and hip for a women's pattern?

Standard Distribution Split (ASTM D5585)

To distribute an 8cm size increment using standard practices:

- Bust: 3.0 cm
- Waist: 2.5 cm
- Hip: 2.5 cm

This ensures the growth is balanced across primary pattern landmarks.

U Give me a full grading table for Men's size 1 up from base measurements of {'chest': 40, 'waist': 32, 'hip': 45}.

Grading Table: Size +1 (Men's Standard)

The generated table shows the required shift in centimeters for all major points:

POINT NAME	BASE MEASUREMENT (CM)	TARGET SHIFT (CM)
Chest Apex	102.0	+2.5
Waist Narrowest	81.3	+1.7
Hip Curve	114.3	+1.9
Neckline Yoke	40.0	+0.8

Frequently Asked Questions

01 **What is the difference between using this Pattern Grading Calculator MCP and a manual spreadsheet?**

The calculator uses specific, regulated ASTM standards (D5585, D6458, etc.) that are built into its logic. A spreadsheet requires you to manually input those rules; the MCP enforces them automatically, giving you guaranteed compliance.

02 **Can I use this Pattern Grading Calculator for non-apparel items?**

No, it is strictly designed for garment production and pattern scaling. It uses body landmarks specific to clothing patterns (bust, waist, hip) and requires the ASTM standards data.

03 **How do I generate a grading table for my collection line?**

You feed the MCP your base measurements and list all target sizes. It processes them step-by-step, generating one comprehensive table that shows every point shift needed across the entire size range.

04 **Does Pattern Grading Calculator account for different gender standards?**

Yes. You must specify whether you are using ASTM D5585 (Women's), D6458 (Men's), or D6192 (Children's) when running the calculations to ensure accuracy.

05 **What if I only need to know how much the hips change?**

You can use the `calculate_standard_increment` tool first, and then use `distribute_size_increments` to isolate the exact percentage or measurement increase for just the hip area.

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 `"pattern-grading-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

Pattern Grading 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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