

# HALCO CUSTOM HOOK AND LOOP CABLE TIES

## FOR AI-DRIVEN DATA CENTERS

### EXECUTIVE SUMMARY

The data center industry is experiencing unprecedented transformation driven by artificial intelligence (AI) and machine learning workloads. With AI data center capacity growing at 33% annually and rack densities skyrocketing from traditional 5-10kW to 50-250kW per rack, the need for advanced cable management solutions has never been more critical.

This white paper explores how Halco's innovative die-cut hook and loop cable ties provide essential solutions for managing the complex cabling infrastructure required by modern AI data centers, while meeting stringent safety standards and enabling rapid reconfiguration capabilities.



## THE EXPLOSIVE GROWTH OF DATA CENTERS

### AI-driven expansion

The global data center market has entered a period of explosive growth, with the AI data center segment projected to expand from \$17.73 billion in 2025 to \$93.60 billion by 2032, representing a compound annual growth rate (CAGR) of 26.8%<sup>1</sup>. This growth is fundamentally reshaping infrastructure requirements:

- **By 2025:** 33% of global data center capacity will be dedicated to AI workloads<sup>2</sup>
- **By 2030:** AI workloads will account for 70% of total data center capacity<sup>3</sup>
- **Investment Scale:** Tech giants alone will invest over \$450 billion in AI infrastructure in 2025<sup>4</sup>

### The power density revolution

Traditional data centers operating at 5-15kW per rack are rapidly becoming obsolete. Modern AI workloads demand:

- **GPU-Intensive Racks:** 40-130kW per rack (typical)<sup>5</sup>
- **Cutting-Edge Deployments:** Up to 250kW per rack<sup>6</sup>
- **Power Consumption:** Individual GPUs consuming 700-1000W (NVIDIA H100 and B200 series)<sup>7</sup>

This dramatic increase in power density creates unprecedented challenges for cable management, as traditional solutions cannot handle the heat, electromagnetic interference (EMI), and physical constraints of high-density environments.

# HOOK AND LOOP CABLE TIES: THE OPTIMAL SOLUTION

## Why hook and loop surpasses traditional solutions

In the demanding environment of AI data centers, hook and loop cable ties offer critical advantages over plastic zip ties:

- 1. Reusability:** Essential for environments requiring frequent reconfiguration
- 2. Adjustability:** Prevents over-tightening that can damage sensitive fiber optic and high-speed data cables
- 3. Heat Resistance:** Maintains integrity in high-temperature environments
- 4. Non-Conductive:** Critical for safety in high-voltage environments
- 5. Time Savings:** Eliminates cutting, reduces rework, and allows easy adjustments during installation

## Technical requirements for data center applications

Modern data center hook and loop cable ties must meet specific performance criteria:

- 1. High Holding Strength:** 35-50 lbs/in<sup>2</sup> shear strength, 3.5-5.0 lbs/inch peel strength
- 2. Temperature Resilience:** -40°F to 220°F operating range, with FR versions rated to 400°F
- 3. Safety Compliance:** UL 94 V-2 fire rating and NEC Section 300-22 plenum certification
- 4. Reusability:** Engineered for hundreds of cycles without significant degradation
- 5. Environmental Resistance:** UV-stable and chemical-resistant options available

## HALCO'S CABLE-TIE FASTENING MATERIALS

Halco offers three specialized hook and loop solutions engineered for data center environments:

### STANDARD BACK-TO-BACK (B2B) BUNDLING TAPE

- **Material:** High-grade nylon construction
- **Applications:** General cable bundling, moderate density environments
- **Key Features:**
  - + Excellent cycle life (10,000+ uses)
  - + Temperature resistance to 220°F
  - + Available in 11 colors for cable identification
- **Compare to:** Velcro® Brand QUIK Tie



### AGR (AGGRESSIVE) BACK-TO-BACK BUNDLING TAPE

- **Material:** Enhanced nylon with aggressive hook profile
- **Applications:** High-vibration environments, heavy cable bundles
- **Key Features:**
  - + 40% higher shear strength than standard
  - + Superior holding power for vertical cable runs
  - + Ideal for power cable management
- **Compare to:** Velcro® Brand ONE-WRAP®



### FIRE RETARDANT (FR) BACK-TO-BACK BUNDLING TAPE

- **Material:** Intumescent coated AGR back-to-back material
- **Applications:** Air handling spaces, critical infrastructure
- **Key Features:**
  - + UL 94 V-2 fire rating
  - + Low smoke generation
  - + Meets NEC Section 300-22 and UL 2043 requirements
- **Compare to:** Velcro® Brand ONE-WRAP®



In addition to our standard materials, Halco offers environmentally conscious solutions including hook and loop materials manufactured from ocean-recovered nylon.

## Custom laminated materials

While Halco's standard back-to-back materials meet most data center requirements, our advanced lamination capabilities enable custom solutions for specialized applications. Using precision pressure-sensitive adhesive technology, we can combine different hook and loop materials to create products with specific performance characteristics. Custom options include:

- **Specialized hook profiles** for applications requiring maximum strength or extended cycle life
- **Material combinations** optimized for extreme environments or unique performance requirements
- **Engineering collaboration** to develop solutions for challenging cable management applications

# HALCO CABLE-TIE MANUFACTURING AND CONVERTING

## Engineering support, prototyping and small runs

Halco offers comprehensive manufacturing support from concept through high-volume production. Our engineering team assists with parts drawings and design optimization, while laser cutting enables rapid prototyping without tooling requirements. For smaller quantities with unique geometries, our steel rule die press provides a cost-effective solution with inexpensive tooling and quick turnaround times.

## Rotary die-cutting: The Ideal solution for higher volumes

For data center applications requiring high volumes, rotary die-cutting delivers unmatched efficiency and precision. This advanced manufacturing process offers two critical options:

### Complete cut-through

Individual cable ties are fully separated for packaging in bags, boxes, or custom kits. This option is ideal for:



- Pre-counted quantities for specific installation zones
- Mixed-size kitting for comprehensive projects
- Clean, professional packaging presentation

### Kiss-cut perforation

Cable ties remain on the roll with easy-tear perforations, enabling:



- Rapid dispensing during installation
- Reduced packaging waste
- Lower material handling costs
- Convenient storage and transport

The rotary die-cutting process ensures consistent quality at high speeds, making it the most cost-effective solution for large data center deployments. With precise control over cut patterns and spacing, we can optimize material usage while meeting exact specifications for any cable management requirement.

## Custom printing and hardware Integration

Halco enhances cable tie functionality through precision printing and hardware integration. Custom printing options include company logos, cable identification labels, warning messages, and technical specifications directly on the tie material. For applications requiring permanent attachment points, we can integrate grommets or other hardware during the manufacturing process. These value-added capabilities enable branded installations, simplified cable identification, and secure mounting solutions—all produced in a single manufacturing step for maximum efficiency.



# PACKAGING, DELIVERY AND INVENTORY MANAGEMENT

Understanding that hook and loop cable ties are critical MRO (Maintenance, Repair, and Operations) items for data centers, Halco has developed packaging and delivery solutions that meet the specific needs of technicians and installers.

## Optimized packaging for Installer efficiency

Data center technicians require cable ties to be readily accessible, clearly labeled, and dispensed efficiently. Halco offers:

- **Bulk dispensing boxes** containing 500-5000 pieces, minimizing packaging waste while providing easy access during installation
- **Clear labeling** with product specifications, color coding, and quantity information visible without opening packages
- **Perforated rolls** that allow technicians to quickly tear off the exact length needed without tools or waste
- **Pre-counted quantities** matching typical installation requirements, reducing counting time and ensuring accuracy

## Just-in-time delivery and Inventory solutions

As an MRO item, cable ties must be available when needed without creating excessive inventory. Halco provides:

- **Scheduled delivery programs** aligned with construction phases to minimize on-site storage requirements
- **Direct-to-jobsite shipping** with clear documentation for receiving and inventory tracking
- **Blanket order capabilities** allowing predetermined quantities to be released as needed
- **Emergency stock availability** for unexpected requirements or design changes

## Supporting lean operations

Halco's approach helps data centers implement lean inventory practices by providing consistent quality, reliable delivery schedules, standardized packaging that stacks efficiently and reduces storage space, and usage tracking support for accurate reorder point management. These capabilities ensure that cable ties—though a small component—never become a bottleneck in critical data center construction or maintenance operations.

## CONCLUSION

The explosive growth of AI-driven data centers demands revolutionary approaches to cable management. Halco's die-cut hook and loop cable ties provide the perfect combination of performance, safety, and flexibility required by modern high-density installations. With advanced materials, precision manufacturing, custom engineering capabilities, and comprehensive support services, Halco enables data center operators to meet today's challenges while preparing for tomorrow's innovations.

Our commitment to understanding installer needs and data center requirements drives every aspect of our solution—from material selection through packaging design and delivery logistics. As data centers continue evolving to support AI workloads approaching 250kW per rack and beyond, the importance of professional-grade cable management solutions cannot be overstated.



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**HALCOUSA.COM**

**You can request a sample of some of our most popular cable-ties and our hook and loop materials used in cable-tie manufacturing. Just let us know what you need!**



### Footnotes and sources

<sup>1</sup> Fortune Business Insights, "AI Data Center Market Size, Share | Global Growth Report [2032]," 2025.

<sup>2</sup> The Network Installers, "25+ AI Data Center Statistics & Trends (2025 Updated)," 2025; AllAboutAI, "AI Data Center Statistics 2025: The \$200 Billion Revolution in Global Infrastructure," 2025.

<sup>3</sup> McKinsey & Company, "AI Data Center Growth: Meeting the Demand," October 2024.

<sup>4</sup> The Network Installers, "25+ AI Data Center Statistics & Trends (2025 Updated)," 2025.

<sup>5</sup> Multiple industry sources including The Network Installers, AllAboutAI, and AFL Hyperscale Solutions reports, 2024-2025.

<sup>6</sup> AFL Hyperscale Solutions, "The Square-Foot Race for AI Space: Physical Requirements for AI Data Centers," December 2024.

<sup>7</sup> The Network Installers, "25+ AI Data Center Statistics & Trends (2025 Updated)," 2025.