



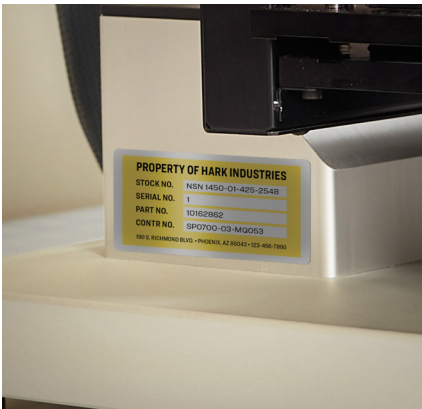
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Asset Tag Evaluator's Guide: Affordable On-Site Solutions for Industrial Use

Barcode label printers typically require investments starting at \$400– per facility. Traditional printable paper labels don't work in industrial environments. New material innovations allow you to print asset tags on demand from desktop laser printers using industrial-grade materials. Understanding the technical features of industrial-grade asset tags is required for evaluating the best onsite asset tag solutions for an industrial facility or work space.

- ✓ Technical features for evaluating asset tag solutions
- ✓ How to benefit your business with asset tracking
- ✓ Asset tag substrate guide & applications by industry



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Asset Tag Evaluator's Guide: Affordable Onsite Solutions for Industrial Use

Asset tags are critical to any asset tracking system, yet there has not been an affordable and effective solution for creating custom asset tags onsite. Barcode label printers typically require investments starting at \$400– per facility and traditional printable paper labels are not practical or durable enough for use in most industrial workspaces. However, new innovations in printable film asset tags have reduced asset tagging material costs, as well as solved the durability problem associated with using paper labels.

Understanding the technical features of industrial-grade asset tags is required when evaluating the best onsite asset-tracking solutions for an industrial facility or workspace. It is also good to have a well-developed understanding of what an effective asset tracking system can, and should, do for business goals such as increasing efficiency, promoting productivity and reducing wasted resources.

Barcode asset tags are used in asset tracking systems for industries including automotive, manufacturing, technology, construction, healthcare and government. In particular, asset tags with barcodes are attached to equipment, tools and machinery to audit, track, repair and protect assets more efficiently. Using barcode asset tags reduces errors from manual entry and are generally considered the most effective asset tag for digital databases, whether using a computer system or cloud-based storage.

Common items tagged include smartphones, laptops, machinery, construction tools and diagnostic instruments. Any time an item is moved, broken, changes hands or is otherwise affected, the barcode can be scanned to efficiently record that data in a centralized database. Security, workflow, maintenance, financial depreciation and lifecycle management, as well as inventory record-keeping can all be digitally tracked for every asset.

In short, asset tags help businesses spend time, money and other resources more effectively, ensuring workers have the equipment they need to keep productivity levels high and operations running smoothly. Yet, despite the major benefits to facilities and businesses of all sizes (and across a wide selection of industries) affordable and effective options for creating industrial asset tags onsite have not been available in the past.

Industrial-Grade Asset Tag Material Innovations

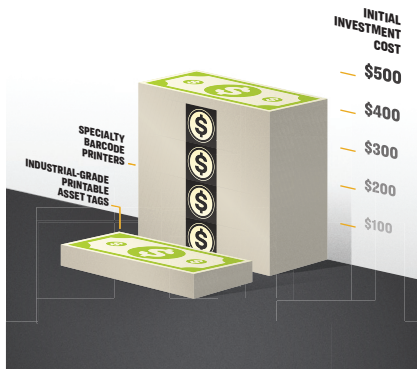
All labels generally consist of a substrate, adhesive and liner. Labels made with paper substrates work well with desktop printers but can fall apart with heavy-duty use, even if the adhesive is strong. Printable metallic labels that feature an extra-durable substrate and strong adhesive are now in the market from certain label suppliers, allowing for onsite asset tag printing.

New material innovations in polyethylene terephthalate (PET) film strengthened with aluminum have allowed for printable labels that are incredibly durable, are engineered to print without static buildup and are optimized for laser printers.

The best metallic asset tag labels are waterproof and stand up to abrasions, chemicals and tearing. In addition to a more durable substrate, printable asset tags with a protective topcoat optimized for laser printing ensure barcodes stay crisp and clean for less scanning errors.

Durable asset tag labels printed from a desktop laser printer can dramatically reduce the initial time and monetary investment required to implement an asset tracking system in four key ways.

- Print onsite without a specialty printer. Facilities with laser printers are already equipped for printing custom asset tags.
- Drastically reduce lead time. Onsite printing is flexible to the needs of the facility. Asset tags can be created, printed and applied in minutes.
- Save money on software. It is possible to find trusted label suppliers that offer online label design software offered at little or no cost.
- Create asset tags from any location. Using cloud-based software, barcodes can be generated, asset tags created and designs saved for future printing from any device.



Asset Tracking Uses and Benefits

Asset tracking is the system of identifying and tracking the movement and/or status of a company's valuable and vital physical items. There are many benefits of implementing an asset tracking system using barcode asset tags that support digital tracking and digital databases. These include creating a more efficient workflow, reducing administrative overhead and ensuring tools and equipment are kept in good working order.

1) Audit & Analyze Inventory

Items that frequently change hands between departments and/or locations have a greater chance of being lost or misplaced. Digital asset tracking systems provide a complete overview of all company assets so that missing items are easily identified and located.

Tracking assets digitally helps combat the "out of sight, out of mind" effect. Off-site equipment is less likely to be "absorbed" into other locations' inventory if there's a clear record indicating where it belongs.

Easily located assets also save time (and money) spent on employees hunting for the tools they need to do their job. Not only are misplaced and lost items damaging to productivity, but they can also lead to frustration and low morale among employees.

2) Locate Tools & Equipment

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3) Support MRO Activities

Asset tags can be effectively used to digitally record and update maintenance, repairs and operations (MRO) records for equipment, tools and machinery. Tracking MRO activities on assets can be used to audit resources and analyze replace/repair value.

Knowing when equipment, tools and machinery are unavailable is an important part of the puzzle when it comes to assigning resources. Using an asset tracking system to easily access lists of items scheduled for maintenance or unfit for use allows for a more efficient allocation of resources.

Analyzing MRO data makes it possible to identify usage trends and schedule maintenance during periods when an asset is used less frequently. Maintenance scheduled before the busy season ramps up can help avoid costly delays and ensure workers have the equipment they need to keep up with a demanding schedule.

Asset tracking can also help identify where repeated repairs are wasting resources. Equipment that continually breaks slows down productivity and drains funds that would be better spent replacing the item instead. Digitally tracking MRO actions is an efficient, reliable method for collecting repair and maintenance data that can help identify when it's time to invest in new items.

4) Discourage Theft & Protect Valuable Items

While it's true that an asset tag can't physically stop an employee from walking away with company property, a diligent asset tracking system and the right asset tags can be an effective theft deterrence. Asset tracking demonstrates that the company is regularly accounting for property and holds employees responsible, as well as making it difficult to resell stolen items.











If tools, equipment and other valuable items are regularly misplaced and unaccounted for, it's extremely easy for stolen equipment to go unnoticed and/or unreported. Using asset tracking tags makes it easy to identify missing items faster and trace them back to the last person responsible for the item.

One way thieves attempt to get around asset tracking is by removing asset tags from company equipment and reapplying them to cheaper versions. As long as the asset tag is still present, it's hard to identify the equipment as missing. Asset tracking tags that self-destruct or break apart upon removal make it impossible to use this switching tactic.



Quick Fact: In the U.S., it's illegal to buy or sell stolen goods—especially if the sellers and/or buyers know the items are stolen. Asset tracking tags that cannot be removed without leaving behind distinct markings that easily identify the property as stolen, make it much too risky to buy and thus harder to sell.

Examples of Printable Industrial Asset Tag Substrates

Substrate	Performance Standard	Benefits
Metallic Pet Film	Heavy Duty	  
Polyester Film	Light Duty	 
Tamper-Evident Security Film	Security – durable until removal is attempted	<ul style="list-style-type: none"> • Detects tampering, discourages theft and switching labels • Removal leaves pattern behind and tag cannot be reapplied   
Destructible Security Film	Security – durable until removal is attempted	<ul style="list-style-type: none"> • Discourages theft and switching labels • Breaks into fragments on removal and tag cannot be reapplied  

Printable Asset Tag Features for Industrial Applications

Print Quality Degraded barcode images can result in incorrect or incomplete scans. Print quality depends on several factors but it starts with the material, quality and printer compatibility of the blank labels themselves. Laser printable film labels with a protective topcoat offer greater print stability than desktop inkjet printers and traditional paper labels.

Durability Performance Similarly, materials resistant to scratching and tearing preserve print better than paper labels, ensuring barcodes stay crisp, clear and intact. Abrasion resistance also extends the life of asset tags by protecting against rubbing from repeated use.

Water and Chemical Resistance Standard office-use labels can be easily damaged by water and chemicals. Paper substrates are known to disintegrate in liquids and moisture can cause the ink to bleed. Water-resistance is critical to prevent ink bleeding and affecting the scan integrity of barcode asset tags.

Grit and debris may also affect a scanner's ability to read a barcode. Chemical-resistant asset tags not only guard against chemical splashes and drips, but also allow for grit and debris to be wiped away with common cleaners as needed.

Adhesive Performance Asset tags must adhere to a variety of materials used for electronic devices, machinery, construction equipment and diagnostic tools in order to be effective. Peeling edges can lead to torn barcodes that won't work correctly. Strong adhesives that stick permanently to plastics (ABS, PP, PET, HIPS), metals (unpainted, painted, powder-coated), glass, and other smooth hard surfaces are necessary for general asset tracking applications.

Security Components Security asset tags are materially constructed specifically to discourage theft by making it difficult for would be thieves to remove, switch or replace asset tags. Asset tag security film must be durable enough to stay intact until removal is attempted and adhesives must also stick securely to electronic devices, machinery, construction equipment and diagnostic tools.

Film that falls apart upon removal, or destructible security film, is one type of substrate used for creating security asset tags. When removal is attempted, the film breaks apart making it impossible to reapply the asset tag on cheaper substitute goods. Other security films are combined with special adhesives that leave behind distinct marks if the asset tag is removed making stolen goods easier to identify and harder to re-sell.

Research and Material Testing Methods

When ordering printable asset tags it's important to choose labels that are truly engineered for high performance in industrial environments. However, not all labels are created equally, and unfortunately it's not uncommon for substandard labels to be positioned as industrial asset tags.

The best way to find reliable, high-performance asset tags is to look for manufacturers and suppliers with rigorous testing standards. There are a number of label tests to determine industrial-use compatibility including the following:

Tensile Strength: Tensile test machines measure the pounds of force required to cause breaking due to structural strain. Durable film asset tags have much higher tensile strength than standard paper labels making them resistant to tearing.

90-Degree Peel Adhesion: Asset tags designed for industrial use must securely stick to a variety of surfaces and stay in position. Tensile testing machines are used to pull labels from surfaces at exactly 90 degrees to measure the pounds of force required for removal.

Taber® Abrasion: Taber Abrasion machines are the industry standard for testing resistance to damage from abrasion (e.g. scratching, scraping and rubbing). Industrial asset tags must be abrasion-resistant to preserve print integrity, remain intact and remain readable for both human eyes and barcode scanners.

Chemical Resistance: Heptane, HCL 37%, and pH3 buffer performance are examples of tests performed on industrial asset tags to determine chemical resistance. For example, applying 20 cycles from a Taber Abrasion machine with 500 grams of force and 32-second soaking in chemicals such as isopropyl alcohol, followed by 10 abrasive rubs. This ensures that accumulated grease, dust and other debris can easily be cleaned to produce better barcode scans.

Asset Tag Applications by Industry

Cross-Industry Security Asset Tag Applications

While valuable items at risk for theft certainly vary between industries, some vulnerable items are common sense and generally high-risk across all industries. For example, electronic devices such as smartphones, laptops and tablets. Security film asset tags are useful across all industries for use as theft deterrence for such items.

Cross-Industry Safety Applications for Asset Tags

OSHA standard 1910.132 covers personal protection equipment (PPE) requirements for protecting workers from hazards on the job, as well as defining the role of employers when it comes to providing personal protection for employees. Asset tags can be effectively used to manage OSHA-mandated long-term PPE equipment such as metatarsal foot protection, respirators, earmuffs, welding helmets and face shields.

Using barcode asset tags to track PPE facilitates a centralized digital database for managing PPE OSHA regulations, in-house and employee union requirements and employee PPE needs based on scheduled activity. Safety managers have a complete overview of all company PPE, to whom it's assigned and what activities require its use making it easier to meet operational needs as well as review, update and evaluate PPE programs.

PPE is designed to guard against potentially hazardous situations. Naturally, such equipment is exposed to heavy-duty use. A heavy-duty metallic film is recommended to ensure PPE asset tags last the entire life span of protective equipment and perform under demanding circumstances.

Construction and Agricultural Applications

In construction and agricultural industries, heavy equipment is particularly susceptible to theft, accounting for up to \$400 million in annual losses from material costs alone. This excludes additional indirect losses from business interruption. These industries in particular, are also most likely to suffer costly delays due to equipment lost or misplaced traveling between locations.

Metallic film asset tags fortified with aluminum can stand up to heavy-duty and/or rough use for superior tracking of construction and agricultural equipment and tools. From trenchers, graders and harvesters to circular saws and wheel barrows, barcode asset tags can be scanned on site to instantly update databases. In this way, assets can be thoroughly tracked across multiple locations no matter where work crews are deployed.

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Automotive and Manufacturing Applications

Tracking items that frequently change hands or departments in automotive and manufacturing facilities requires durable materials that can easily be cleaned to prevent grease and general grime build up from disrupting barcode scans. Aluminum-fortified metallic asset tags are ideal for application on hand-held and/or mobile tools, machinery and equipment that are exposed to rough handling, common chemical cleaners and demanding environments.

Tracking employee assignment or movement between locations is not as important in the case of stationary automotive and manufacturing assets. For example, pneumatic lifts, head surfacing machines, roller mills and hydraulic presses. Instead, barcode asset tags are used for tracking maintenance, repair and operations (MRO) records. Machinery and equipment that has a finite life span, maintenance schedules and warranty expiration dates can all be recorded and accessed in an asset tracking database.

Healthcare and Medical Facility Applications

Equipment used in medical facilities saves lives. Time spent looking for medical equipment like patient monitors, defibrillators and diagnostic instruments could mean life or death. Metallic asset tags are used to identify, track and monitor vital medical equipment very closely to ensure equipment is accessible as quickly as possible.

Other equipment such as wheel chairs, hospital stretchers, IV poles and clinical furnishings also require the use of heavy-duty metallic asset tags. Any asset tag applied to equipment used in patient rooms and operating rooms, as well as medical carts and examination areas, needs to be able to withstand frequent and thorough cleaning with common cleaners multiple times each day.

Asset tags used in doctors' offices and facility admission and reception areas do not require such durability, but must be more durable than traditional paper labels to withstand frequent handling. Light duty industrial asset tags made from polyester film are used for applications in these types of areas in hospitals and other medical facilities.

Research and Technology Applications

Laboratories and other research facilities require heavy-duty metallic asset tags for use equipment that may be exposed to harsh conditions or substances such as microscopes, incubators, spectrophotometers and other scientific instruments. Barcode asset tags are used to more efficiently manage and track equipment and instruments that may be assigned to individuals, teams or departments for long periods of time.

In the technology industry, tamper-evident and destructible security asset tags are used for valuable and/or sensitive assets— not just assets with high resale value. For example, they should be used to safeguard prototypes, innovations and other product developments that could potentially divulge critical trade secrets.

Asset Tag Evaluation Summary

The benefits of asset tracking include improving inventory audits and analysis, making it easier to locate tools and equipment, supporting MRO activities and protecting valuable items by discouraging theft. Bypassing costly specialty printers and ineffective paper labels, new material innovations are providing affordable onsite asset tag solutions that are engineered for high-performance in industrial environments.

Advances in printable label substrates include materials such as aluminum-fortified PET, polyester, tamper-evident and destructible film. These printable asset tag innovations have reduced start-up costs for implementation in four key ways: Onsite printing with desktop laser printers, on demand printing in minutes, less money spent on software and cloud-based software that allows users to create asset tags from any location.

Industrial asset tag applications require several specific technical features for effectiveness. The print quality must be high, materials that resist scratching and tearing extend the life of asset tags, water and chemical resistance add to durability and also protect the integrity of barcode for less scanning errors. Adhesives must be strong and stick permanently for asset tracking. Security film asset tags have additional features to discourage removal and reapplication such as clearing showing evidence of tampering and falling apart upon removal.

Industrial asset tag applications require several specific technical features for effectiveness including high print quality, durability (abrasion and tear resistance), water resistance, chemical resistance and strong permanent adhesives. Security film asset tags have additional features to discourage removal and reapplication such as clearing showing evidence of tampering and falling apart upon removal.

The technical features of asset tags must be thoroughly tested by scientifically recognized research and testing methods to ensure performance. Tensile strength, 90-degree peel adhesion, Taber Abrasion and chemical resistance testing are the gold standard for responsible research conducted by reputable asset tag manufacturers and suppliers.

Printable asset tags are now a viable solution for a wide range of heavy-duty industries. Some of these include construction, agriculture, automotive, manufacturing and healthcare, as well as in laboratories for research and technological development. Using the evaluation methods provided in this paper, affordable onsite asset tags are a viable solution for just about any industrial facility.

3 Additional Resources

3 Ways PPE Asset Tags Help You Keep an Eye on Protective Gear

Did you know you know PPE asset tags can help you meet safety and compliance goals? Learn how to increase efficiency and effectiveness using barcode asset tags.

Barcode FAQs: 14 Most Common Questions Answered

Is your facility's asset tracking system going digital? Get answers to some of the most common questions about how barcodes work and creating barcode labels.

4 Quick Wins for Your Asset Management System

Start saving time & money, increase asset tracking efficiency & protect valuable items from being lost/stolen. Reduce time lost searching for equipment & tools.

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About Avery Industrial

Avery Industrial, a division of Avery Products Corporation, applies decades of experience in adhesives and materials to provide solutions for industrial and safety professionals. As leaders in the label manufacturing industry, we are committed to creating innovative products that are engineered to work for you.

Our award-winning Avery Industrial labels go beyond the premium paper labels our office customers know and love. They extend to durable products rigorously tested to perform in demanding industrial environments.

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