Maintenance, repair, and operations (MRO) is central to just about every type of manufacturing facility—with responsibilities that usually encompass both facilities maintenance, and machine repair and maintenance. An organized, smooth-running MRO department can keep a company operating efficiently, while an MRO department that is disorganized, inefficient, and ineffective can have negative ramifications that touch just about every aspect of a business—from overall productivity to employee safety to the bottom line.

Disorganization means employees cannot find the items they need when they need them. It is also a direct link to inaccurate inventories, unscheduled downtime, unexpected stockouts, overcrowded or inefficient use of space, and malfunctioning or nonfunctioning machinery.

If disorganization is the disease from which an MRO department is suffering, an improved storage system is a likely cure.

Storage system options

In general, a storeroom manager can consider three types of storage systems: conventional, automated, and high density.

Conventional storage. Conventional storage, with principal components that include shelving, racks, bins, or some variation of these elements, is most appropriate for large bulky items and items that are slower moving. Large quantities of products that do not require daily access or are stored and distributed in bulk are well suited for conventional storage. Pallet racks are used for items that are delivered on pallets or are very heavy and need to be moved by a forklift truck.

Automated storage and retrieval systems. This category includes horizontal and vertical carousel and lift systems, and control software. These systems store a lot of items in a relatively small footprint, particularly the vertical systems. Vertical systems also offer exceptional security access and so are well suited for the storage of valuable and limited access items. But vertical systems are expensive up front and can have a high maintenance price tag. Because they have moving parts and require a precisely balanced weight flow, they have potential to break down. Also, they can slow down stocking and retrieval, as they also only allow access to one operator at a time.

High-density storage. This is the ideal solution for storing medium- to small-sized items. This category includes modular drawer storage cabinets, mobile cabinets, and other systems that feature subdividable drawers as their centerpiece. High-density storage can cure an MRO department's disorganization because it offers benefits that conventional storage cannot—from complete use of cubic space to load capacity. High-density storage is also more affordable than automated systems. In short, it is the most efficient and cost-effective option.

Storage configuration options

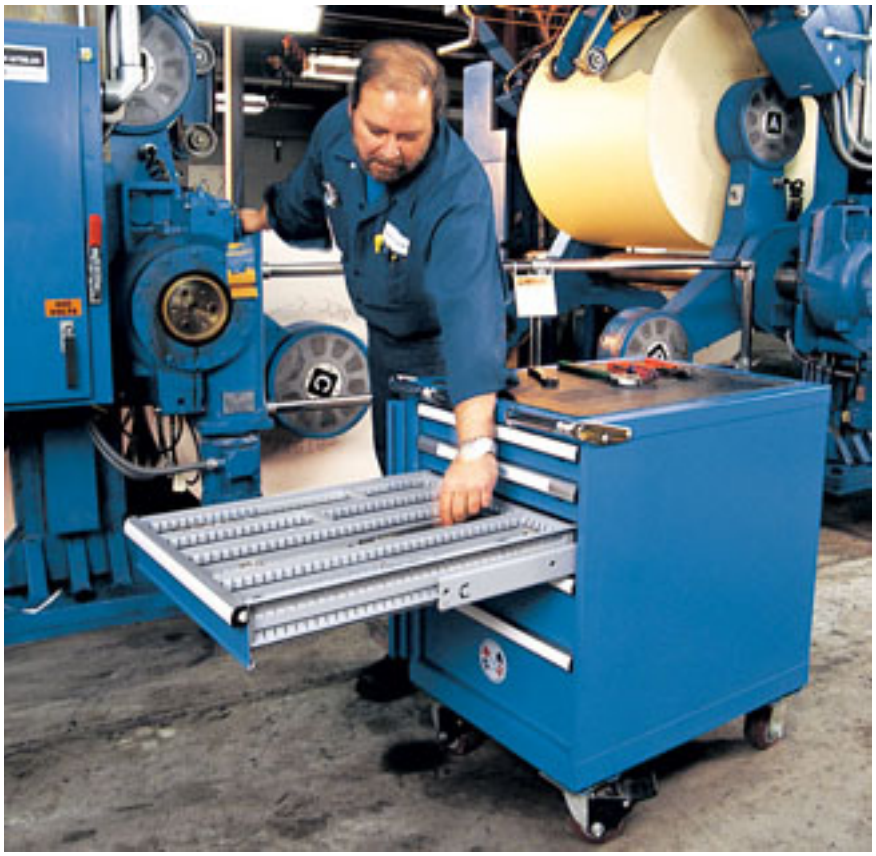
Both high-density and conventional storage can be stacked or used in mezzanines to take advantage of a room's full height while making maximum use of floor space. However, this can be a relatively expensive alternative to building an additional floor. Both can also be mounted onto a mobile aisle system, which comprises rolling rows of storage product with only one aisle accessible at any time. These space-saving systems eliminate wasted aisle space but are not the best solutions for fast-moving inventory.

Mobile modular drawer storage cabinets deliver all the flexibility and organized storage of high-density cabinets, while adding the benefit of convenience. With these mobile units, tools and parts can be rolled out directly to the job where they can be readily accessible to maintenance and repair personnel. These mobile workstations-on-wheels can be customized with the particular tool sets used by each craft. Repairs are performed more quickly and downtime is greatly reduced.

All of these systems, from conventional shelving to the most advanced high-density system, are most effective when combined with an integrated software system. Today's software does an exceptional job of managing inventory levels and determining key performance indicators, helping to prevent future breakdowns and aid in predicting future needs.

Get it right from the start

It is important to set up a storage system correctly at the outset. Even the most sophisticated software and inventory systems are based on the principle of knowing where an item can be found and returned. Space planning is an essential first step, whether coordinated by your own staff or with the assistance of storage consultants or the manufacturers. Taking advantage of free design planning surveys by the manufacturer or its representatives can be a real cost-saver.



The importance of the drawer

As mentioned earlier, the best high-density storage solutions are modular, allowing the selection of components that suit exact needs. These can include cabinets of varied heights and widths that offer many drawer height combinations. The modularity of these systems not only allows for custom-fitted storage, their interchangeable parts provide flexibility for future change and growth.

Modular high-density storage systems come in a wide range of sizes and shapes. There are also large wall units that combine drawers, shelves, and even rollout trays for storage of and easy access to heavyweight items. These units provide for storage of large, medium, and small items together; they can be stored according to need and craft vs stored by size. Such systems allow items in daily use (product broken down from bulk quantities to smaller, manageable quantities) to be mixed with bulk and slow-moving product for convenient access to both.

Another option is drawer storage units, which can be added to conventional shelving, providing a cost-effective way to improve existing storage without entirely replacing it.

The most important feature of high-density storage is the drawer. The best high-density drawers make the most use of full cubic capacity while providing easy, direct access to all tools, parts, and other stored items. These drawers should be able to handle a lot of weight. At full load, they should be 100 percent full extension, allowing every inch of space to be used and easily accessed. Look for drawers that have full-height sidewalls and backs, so that height as well as width and depth are available for storage.

Giving each part a home is essential for enabling MRO departments to function efficiently. Drawers that are easily subdividable into compartments allow such separation of individual parts. Preferable drawer dividers allow easy identification of compartment contents, including barcode labeling.

Most MRO stockrooms are broken down into multiple crafts. Technicians who specialize in different crafts need storage that can be organized according to their typical tasks. Compartmentalized storage is important when dealing with such a great variety of items and is essential to fast access and efficient service.

Organization is key

The primary mission of MRO personnel is to maintain and repair equipment in order to keep that equipment and the company operational. MRO fills an essential role, and the organization of tools and parts is essential to the department's success. To minimize downtime and maximize productivity, consider the high-density storage options that promote the highest degree of organization. **MT**

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Benefits of an Advanced Storage System

The benefits of implementing an advanced hardware and software storage system can include:

- Greatly reduced downtime (with predictive and preventive maintenance)
- A more efficient and productive workforce
- Improved operator safety (with machines and equipment functioning properly)
- Fewer product defects
- Lower inventory costs (greater visibility eliminates repetitive and blanket work orders; increased organization allows for the stocking of min/max quantities with reorder points)
- Faster and easier inventory process
- Faster parts picking and improved ergonomic access to more items with less operator movement and strain
- Improved use of valuable floor space
- A more aesthetically pleasing environment and more professional image

High-Density vs Conventional Shelving

To clearly understand the advantages of high-density storage, compare it to conventional shelving:

- High-density drawer storage uses all available cubic space and frees up floor space.
- Full-extension drawers, an important component of a high-density storage system, provide complete easy access. Upper levels and the rear of conventional shelves are hard to see and reach and often are not used. Items on shelves are often stacked, difficult to retrieve, and easy to lose.
- Inventory control is easy in compartmentalized storage because there is clear visibility. Shelving provides no efficient parts location system.