

101 Proven Ideas

For Running a Top-Flight Industrial Parts Management Operation



A Word from the President

THANK YOU for requesting this valuable collection of management knowledge, "101 Proven Ideas For Running a Top-Flight Industrial Parts Management Operation." Its purpose is to share with you valuable ideas and tips other business managers have implemented to help improve the efficiency of their parts storage & handling functions.

The ideas presented here are derived from more than 22 years of experience in solving industrial space problems...parts storage and handling efficiency concerns... and effective parts control issues in hundreds of companies, from startups to Fortune 100 corporations.

If you'd like an expert analysis of all or part of your warehouse or parts handling operation, we'd be happy to help. There's no cost or obligation on your part.

Just give us a call at 1-800-838-0473. We'll set up an appointment to come to your facility... study your current material flow, storage equipment and procedures...then, make specific recommendations concerning how you can reduce your costs and increase your warehouse productivity.

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Dozens of floor-tested tips to help you save valuable floor space and handle materials more efficiently

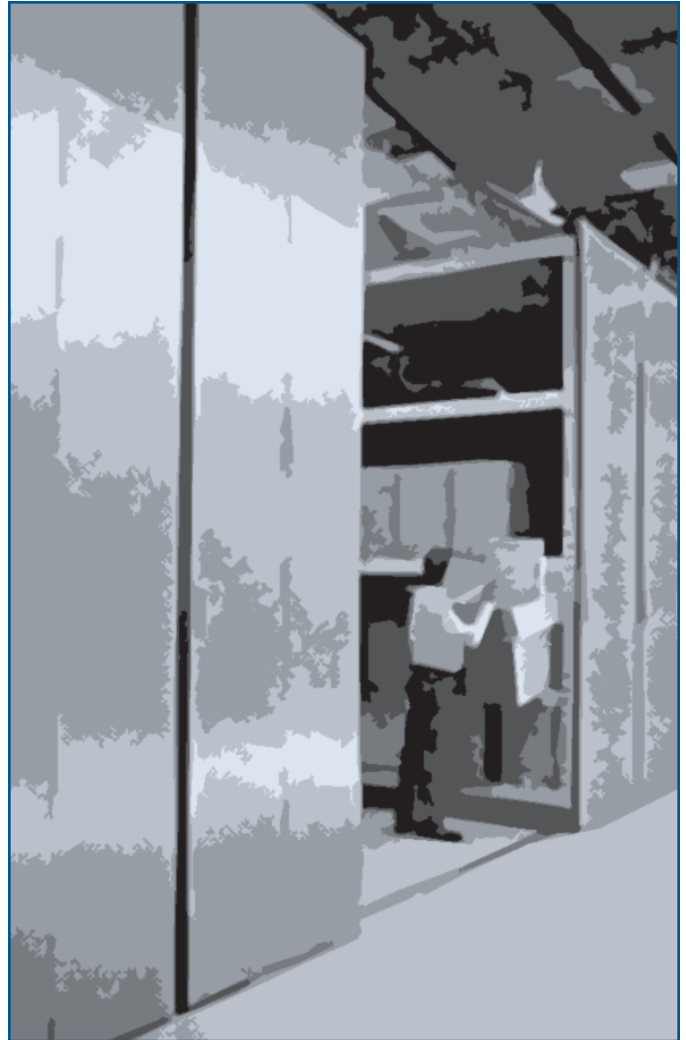
15 Space-Saving Ideas for Storing & Handling Small Parts

1. A standard parts storage cabinet can store the same capacity as seven shelving sections. Cabinets effectively minimize reach-in clearance and allow full utilization of shelf depth.
2. For larger parts, shelf dividers may be more effective than bins and totes. More advantages: They're economical and adjustable.
3. In the floor space of only 32 square feet, Vertical High-density Storage Systems hold the equivalent of 50 shelving sections. By using vertical space up to 40 feet, vertical systems pack more high density storage capacity per cubic foot than any other system.
4. Regularly evaluate activity levels of your slowest moving inventory. Then, consider moving obsolete or slow-moving parts to an off-site location to free up prime floor space.
5. Most shelving can be extended higher by splicing more shelves to the top. Store slower moving items on top shelves...and provide access with the use of rolling ladders.
6. Movable Shelving Systems can double the capacity of most shelving installations. Carriages move on floor tracks, converting aisle space into storage space.
7. Movable shelving is most efficient for medium- to slow-moving parts because of the need to open aisles to gain parts access.
8. Consider point-of-use storage systems to reduce the need for staging and warehousing of WIP inventory.
9. Automated Crib Attendant Systems can triple the capacity of a tool or parts crib. Each module holds the equivalent of 50 shelving sections.
10. When storing small parts, use plastic or metal totes on standard shelving to maximize shelf space utilization.
11. To maximize space and protect parts from dust, dirt and theft, consider replacing shelving with drawer cabinets.
12. Rotating bin shelving (lazy Susan style) is an effective space-saver at aisle ends, under counters or in corners. In these situations, it usually provides a 6-to-1 storage space advantage over standard shelving.
13. If you want to organize your storage of tools and parts but can't afford to replace your current shelving, consider a Shelf Converter Drawer System. This freestanding system of modular drawers (in a pre-assembled, stackable frame) greatly increases the space-saving capacity of standard shelving. Shelf Converter Systems are ideal for use in warehouses, maintenance areas and automotive parts storage.
14. Storage Wall Systems combine the advantages of shelving and storage cabinets. Combinations of drawers, roll-out shelves, beams and doors allow you to store small and large parts together, and have easy access to both.
15. Estimate the cost of bin shelving at about \$10 per cubic foot installed.



13 Space-Saving Ideas for Storing & Handling Cases/Pallets

16. Movable Rack Systems can double the capacity of most pallet rack installations...and handle up to 60,000 pounds of load per double rack section.
17. Narrow aisle storage increases the capacity of your warehouse. The keys to efficient narrow aisle systems are angle column protectors and guidance systems.
18. Consider high-density point-of-use storage systems for maximum line item storage and WIP inventory flexibility.
19. Handy cost estimating guideline: Carton Flow Rack costs about \$50 per storage lane.
20. Cantilever Racking is efficient for storing long, bulky, hard-to-store items such as pipes, bar stock or tubes. Absence of columns at the rack face provides easy entry and access.
21. When planning for storage of palletized materials, consider drive-in high-density rack. It requires fewer aisles, allowing you to store up to 75% more pallets. A forklift drives directly into the rack, allowing storage of six or more pallets deep.
22. Push Back Pallet Rack provides multiple pick-facing with extremely high throughput and allows pallet storage two, three or four deep on telescoping carriages. Pallets are fed and retrieved from one aisle, making Push Back systems ideal for applications requiring a large number of pick faces.
23. Reduce wasted aisle space and increase capacity by installing Double-Deep Pallet Rack.
24. Stack Systems allow an operator to stock and retrieve pallet loads up to 4000 lbs. at point of use without a forklift operator. To help you save floor space and get large items off the floor, these systems can rise up to 25' to take advantage of available vertical space.
25. Consider Roll-Out Shelves with capacities up to 6600 lbs. for storage of heavy bar stock, bulky items or long tubing. 100% extension of the shelf allows for efficient loading and unloading...easily accommodating hoists, lifts and floor cranes.
26. Convert pallet racks to Carton Flow Racks by adding drop-in flow tracks. Materials are better organized and automatically rotated on a first-in/first-out basis.
27. Estimating guide: Single-deep selective pallet rack costs about \$40 per pallet position.
28. Handy rule of thumb: Flow-through pallet rack costs about \$200 per pallet position.



16 Proven Ideas for Using Warehouse Space Effectively

29. Reclaim wasted space in your warehouse by utilizing free-standing mezzanines in any area where you have a minimum of 16' clear ceiling height. Mezzanines provide valuable in-plant office space for warehouse management or shipping/receiving offices.

30. Stacking Tier-Rack Storage Systems simplify the storage and handling of large or unwieldy items.

31. Shallow Depth Cabinets increase capacity for operations with limited floor space. They are especially useful in mobile trailers, remote cribs or closets.

32. Consider Rivet Shelving (consisting of steel uprights and adjustable particle board shelves) instead of standard wood shelving. It usually costs less than wood, is adjustable and can be moved.

33. Vertical Lift Systems are designed to reduce specific payload imbalances caused by heavy fluctuations in inventory levels.

34. Conduct a thorough inventory analysis before making decisions about making changes in your warehouse storage systems. Your analysis should include the following items:

- Total number of line items
- Annual quantity usage of each line item
- Annual number of picks of each line item
- Projected future use of each line item
- Sort date from the most active line items to the least active line items.

35. High-density AS/RS Systems can automate buffers and staging areas. Consider several strategically located small staging units rather than a single large one. An AS/RS can also provide very accurate inventory tracking and control.

36. Stak Systems allow heavy tooling to be stored at point of use for quick changes. These systems occupy as little as 250 square feet, can be centrally located, and eliminate the need for forklifts.



37. When storing parts that need to be heated or refrigerated, investigate automated systems with built-in environmental control features. These are much more cost effective than building an environmentally controlled room in your warehouse.

38. To meet fire code and insurance restrictions, most storage systems must be kept at least 18" below any sprinkler system. Always consult your insurance provider, and review your local building codes before installing new storage systems.

39. Combine the best features of Cantilever Rack with Selective Rack by

adding beams and wire mesh decks to Cantilever Rack. Cantilever Rack with decking provides efficient storage of both small and large items.

40. Vertical Lift Storage Systems, which accommodate parts up to 100" w x 32" d, and weights up to 1200 lbs., provide high density storage at point of use.

41. Remember: When working in materials handling, space is 3-dimensional and must be calculated in cubic space.

42. Vertical Lift Storage Systems allow storage of materials at one level, and retrieval of materials from another level. This is an important benefit when working with mezzanine storage.

43. Consider poly-coated wire shelving where cleanliness or sanitation is critical, such as in food service, medical and electronics applications.

44. Add casters to shelving to add mobility and maximum space flexibility.

15 More Ideas for Warehousing & Handling Small Parts

45. Consider the Pareto Rule (80% of your handling is of 20% of your inventory) when you plan your warehouse layout. Keeping your most active parts where they can be quickly, conveniently picked increases efficiency dramatically.
46. When analyzing parts activity rates, determine "Frequency of Pick" by dividing activity levels by the number of orders for each line item. Frequency of pick data helps determine which parts are most active, and which are best stored in bulk locations.
47. In Kitting applications and high-volume order picking, consider a Vertical Carousel System. These can pick up to 120 line items per hour.
48. If parts security is critical, consider an Automated Crib Attendant System. These systems provide the benefits of an open crib, but the tight control of limited access. Parts access requires a password and user ID. All parts usage is recorded automatically and inventory levels adjusted.
49. Increase efficiency by storing commonly used parts, tools and preventative maintenance kits in mobile cabinets that can easily be moved to point of use.
50. Pick rates for manual picking from bin shelving average 25 to 40 line items per hour. Productivity can be increased substantially by printing pick tickets in location sequence, thus eliminating wasteful picker backtracking.
51. Average pick rates for modular automated storage systems (Vertical Lift, Vertical Carousel, Horizontal Carousel) are 90 to 120 line items per hour. These systems bring the part to the picker, greatly increasing efficiency and minimizing errors.
52. Average pick rates for automated storage systems using batch picking can be as high as 300 line items per hour.
53. Twin Bin Horizontal Carousels allow you to double the number of line items available to the picker at each stop of the carousel.
54. Use the Pareto Rule (80% of your activity is done in 20% of your inventory) to estimate on-hand stock levels when specific inventory data is not available.
55. For maximum picking speed and efficiency, store the most active parts in the "Golden Zone" — the area between the picker's shoulders and waist.
56. To improve picking accuracy by as much as 90%, consider a Pick Cart paperless picking system. Paperless picking eliminates unproductive tasks such as reading, writing, and searching for stock locations. A Pick Cart has a terminal screen and bar code scanner attached.

The terminal screen directs the operator to the first SKU in a planned sequence. The operator scans the barcode at the SKU location and receives picking instructions on the screen.

57. As a general rule, when storing parts in any system, always sort them by activity level first...and part size second.
58. Add simple dividers to pick carts to help minimize downstream sorting problems. A pick cart with multiple bins lets pickers batch pick, filling multiple orders on a single trip through the warehouse.
59. Consider using automated item pickers (with rates as fast as 1500 picks per hour) only for smaller, non-fragile items.



10 More Ideas for Warehousing & Handling Cases/Pallets



60. An important idea often overlooked: Be sure present equipment is fully utilized before purchasing additional equipment for the same purpose.
61. Where applicable, Gravity Flow Racking boosts case load picking efficiency by as much 200%...and increases the number of pick faces available per rack bay.
62. Average pick rates for Man Aboard Pick Trucks is 10 to 15 line items per hour. Man Aboard Pick Trucks are the most inefficient and expensive systems available and should be used only as a last resort.
63. Light Directed Picking Systems improve productivity and reduce errors dramatically. LDP pickers read data from the illuminated LDP device, go to warehouse locations indicated, and pick items with both hands free of paper or tools.
64. Use Carton Flow Rack to increase the number of pick lanes over a relatively small area. This increases the pick rate substantially, and is ideal in areas where case picking is done from full pallets loads.
65. For maximum pallet rack strength, consider Closed Tubular style uprights. These are manufactured with tubular columns that have 200 times more resistance to turning or twisting than standard racking.
66. More than 90% of truck collisions with pallet rack occur within 4 inches of the pallet bottom. So, when purchasing pallet rack, check to see that bottom horizontal braces are mounted at least 4" above the floor.
67. Reduce rack damage by using Cant-Leg pallet rack uprights in areas where fork truck traffic is heavy. The additional fork lift turning clearance cuts rack damage up to 50%.
68. Speed Carts eliminate the concern of poor pallet condition when considering Push Back Pallet Rack. Pallets are simply set on top of steel framed carts that push back into the pallet storage system. Push Back Rack provides a density of storage similar to "Drive-In" but with the selectivity of "Selective" racking.
69. Use racking made from structural steel in areas where fork truck abuse is heavy, or where structural integrity and capacity are an important concern. Hot-rolled, high-strength steel provides far superior strength, rigidity and durability.

20 Proven Ideas for Optimizing Warehouse Efficiency

70. Productivity gains in material handling can have a significant positive impact on your company's financial performance. Material handling in a typical plant/warehouse accounts for 25% of all company employees, 55% of all floor space, 87% of total production time and between 15%–70% of total product manufacturing costs.
71. Storage efficiency is measured as a percentage of your storage slots that are full at any specific time. The fewer empty storage slots, the more efficient the warehouse operation.
72. Proper selection of lift equipment is critical to efficient warehouse operation. Carefully analyze product velocity and racking options before making lift equipment purchase decisions.
73. Instead of performing annual inventory counts, consider instituting a cycle counting system. This method provides much greater accuracy than traditional annual inventory counts. Cycle counting on a daily or weekly basis also reveals inventory errors quickly so you can correct them before they become major problems.
74. Stacking Tier-Rack Storage Systems simplify storage and handling of large, unwieldy items, allowing you to efficiently store many items that do not fit conventional pallet rack.
75. Use an automated tool dispensing system to secure tools and manage inventory at remote points of use. Another benefit: Programmed ID numbers and passwords provide accurate job costing.
76. Print pick tickets in inventory location sequence so that pickers make only one pass through the warehouse, eliminating costly backtracking.



77. Store the top 1-2% of your most active parts adjacent to packing stations to speed picking and maximize fulfillment efficiency.
78. When weigh scale counting, use a Vertical Lift or Carousel. This brings the parts to the picker and eliminates wasted time transporting parts to the scale and returning unused parts to inventory.
79. In general, parts that are frequently picked together should also be stored together.
80. When laying out a warehouse or placing a piece of equipment, take the time to anticipate production bottlenecks that might be created. It's always easier to correct these problems on paper than when equipment or racks are in place.
81. Design your floor so materials flow in only one direction from receiving to shipping.
82. Provide lanes for foot traffic that do not interfere with fork lift traffic.
83. Before making major purchases of racking and handling equipment, consider newly developed automated systems that may substantially cut your per-part handling costs, decrease errors and eliminate repetitive or unsafe manual procedures.
84. If you're not already using it, consider a batch picking system for your operation. This method is highly efficient because pickers fulfill multiple orders simultaneously in just one trip through the warehouse.
85. With shelving and carton flow rack, shorter pick aisles usually improve picking efficiency.
86. Store slowest-moving items high on your racks, on a mezzanine, or even off-site. This strategy lets you locate popular items closer together for faster, easier fulfillment.
87. Mistakes in order picking (mispicks) are extremely costly. Here's why: You spend time and money to pick the item twice, restock it once and ship it three times.
88. To avoid potential mispicks, store highly similar-looking items in widely separated picking locations.
89. Whenever you see a cluttered warehouse, aisles crowded with products and packaging materials, you can bet storage systems are inadequate or improperly employed.

12 Proven Ideas for Optimizing Small Parts Storage & Handling

90. Implement stand-alone Material Control Software to exert tighter control over inventories in remote cribs or storage locations.
91. Employ bar coding and parts tracking to improve inventory accuracy and eliminate out-of-stock conditions.
92. Consider Automated Crib Attendant Systems for secure parts storage, and to automatically generate and transmit purchase orders and faxes directly to the suppliers.
93. Increase inventory accuracy in the maintenance parts crib by 30% with an Automated Crib Attendant System. While open cribs foster inventory shrinkage and inaccuracy, ACA requires confidential user ID and password to access parts.
94. Cut average inventories, while providing visual inventory control, with double-bin Kan-Ban storage systems.
95. At each stage on the supply chain, ensure that unit loads are appropriately sized and configured to achieve smooth material flow and inventory objectives.
96. If a First-In/First-Out system is best for you, you'll probably find Flow Rack or Drive-Thru types your most effective rack setup.
97. In a recent survey, 96% of buyer respondents said that a vendor's efficiently designed and organized parts handling procedure increased their confidence in that vendor's ability to provide needed parts on schedule.
98. Interface your plant MRP System with automated storage systems to achieve improved accuracy and efficiency. Eliminate the need for third party software by interfacing directly with your existing software. Most of these interfaces have already been written for the most popular storage systems on the market.
99. Inventory errors of more than 1% often indicate the presence of improper storage systems or procedures.
100. Protect tools and parts in remote locations by installing Automated Tool Dispensing systems. With ATD, items are accessible only by authorized personal via confidential User ID and password.
101. Paperless picking systems, based on bar code technology, are very effective in speeding pick rates and maintaining accurate inventories.



Industrial Parts Storage & Handling Glossary

Automated Crib Attendant High-density system accessed by user ID and password. Software tracks parts usage, reordering is accomplished automatically.

Bin Shelving Steel shelving with adjustable dividers to separate individual parts on a shelf.

Cantilever Rack Racks with arms that extend on one or both sides of main support column to hold unwieldy, odd-shaped stock such as piping and tubing.

Drawer Cabinets Storage cabinets using full extension drawers or roll-out shelves to provide high-density storage capacity. Drawers are usually subdivided with partitions and dividers.

Double-Deep Pallet Rack Used to store pallet loads two deep at each pick face. The front pallet is removed in order to access the rear pallet.

Drive-In/Drive-Thru Rack High-density rack that holds six or more pallets deep, and allows forklift to drive directly into the rack. Drive-In uses a common entry and exit; Drive-Thru has separate entry and exit paths.

Flow Rack Pallets or cartons stocked at the rear of a section move toward the front on inclined rack with specially designed roller tracks. When a pallet or carton is removed from the front, the next unit rolls forward in its place. Requires fewer aisles, so more product can be stored in existing floor space

Horizontal Carousel An automated storage system consisting of shelves that rotate horizontally in a continuous loop. Shelves rotate to an operator for picking and replenishment activities. Units come in varying lengths and heights.

In-Plant Office Modular (and usually portable) office that can be installed pre-assembled and easily moved. An easy, inexpensive way to provide office space in a manufacturing or warehouse environment.

Mezzanine One or more additional floors placed over an existing area in a plant or warehouse. Can be freestanding platforms or attached to existing storage equipment such as racks or shelving.

Movable Shelving/Rack High-density storage systems which reduce the need for non-productive aisle space by placing racks on top of wheeled carriages operating on a rail system embedded in the floor. Electric motors and controls provide organized, safe movement.

Narrow Aisle Storage Aisle spacing is approximately 8' wide (instead of conventional 12' width). Requires narrow aisle forklift equipment. Increases storage density by up to 33%.

Push Back Rack High-density pallet flow rack that stores up to four pallets deep on telescoping carriages. Pallets are fed and retrieved from one aisle.

Rotating Bin Circular revolving shelves concentrate small parts into less space than traditional rectangular shelves. With its lazy-Susan design, it allows one person to pick many parts while standing in one spot.

Select Pallet Rack Standard pallet rack that stores pallets single depth, providing the most efficient selectivity. Usually two or three pallets are stored on each level, providing multiple pick faces.

Stacking Tier Rack Employs unitized rack sections picked up with the load. Racks consist of welded base with four corner posts, and are stacked by positioning feet locators into post locators.

Stack Storage System Pallet load storage system with removable and adjustable pallets. Instead of requiring a forklift, has its own captive lifting and handling device.

Shelf Converter Drawers Freestanding system of modular drawers set in a pre-assembled frame that easily inserts into standard open shelving, converting shelves into drawer cabinets.

Storage Wall Combination of shelving and cabinetry allows storage of small and large parts together to provide easy access to both.

Structural Pallet Rack Pallet rack constructed of structural steel instead of roll formed steel. Provides providing greater load capacity and rigidity.

Vertical Lift High-density storage systems composed of two opposed racks of shelving with an automated extractor between them. Chain-driven extractors retrieve individual shelves and deliver them to an operator at an access window. Heights up to 40' provide extremely high-density storage with capacities up to 1,200 lbs. per shelf.

Vertical Carousel High-density storage system consisting of vertically rotating shelves in a continuous loop. Shelves rotate to an access window for picking and replenishment activities. Units come in a wide variety of widths and heights.



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