

Choosing the right material handling system #1: What does the load weigh?

Moving very heavy objects in a manufacturing or other industrial environment is no trivial task.

Whether you're a manufacturer transporting multi-ton products through an assembly line – or even finding a way to move the manufacturing equipment itself – finding the right material handling solution is crucial to successfully contain costs, maintain production efficiencies, and protect workers against unnecessary safety hazards.

Many industrial operations tend to fall back on the same options repeatedly, regardless of their suitability for the particular move. Forklifts and cranes, for example, can be excellent options for moving very heavy objects under the right conditions, but they can also create unnecessary safety risks and operational expenses and delays.

Yet, the number of options available to manufacturers can be overwhelming. From rails and transfer carts to wheeled vehicles like forklifts or tuggers to conveyors to overhead cranes to air casters, how can facilities pick the best option for their need when there are so many that are so different from each other?

Answering this question is a multi-step process. This article will be the first in a series addressing each of the seven questions that need to be assessed when choosing the right material handling solution.

The first question in choosing the right material handling system is also the most fundamental: how much does the load weigh?

With this first question, we can instantly eliminate any material handling system that is plainly unsuitable for the weight class of the load to be moved. For example, no one is going to use human power alone to lift or push objects that weigh tens or hundreds of thousands of pounds. Even forklifts begin to fail as an option as the weight mounts.

But this question is more complex than it might seem at first glance. It's not just whether the material handling system can physically accommodate a particular weight. Operators must also determine if that system is *ideally suited* for a given weight or range of weights.

Rails, drag trains, and transfer carts are a good example here. These options could theoretically accommodate a huge range of weights. However, these options are best suited for a middle-of-the-road situation with loads weighing between tens of thousands to a few hundred thousand pounds. They are overkill if the load being moved is lighter than that, and their costs and disadvantages begin to outweigh their benefits. Similarly, they are less efficient or outright inadequate if the load being moved is weightier than that, and they will not be successful in conveying those extremely heavy loads.

Air casters stand out for their versatility in handling a variety of load weights.

Air casters work well for transporting smaller loads (i.e., weighing less than 5,000 pounds) that can be pushed by a single human operator, but they can work just as easily for gargantuan loads – including caissons, stadium seating stands, and more. Even better, the cost and difficulty of operating air casters do not scale with the size of the load. In other words, as the weight of the load grows heavier, the cost of the solution does not necessarily grow commensurately more expensive, as it might be with a material handling system like larger and larger cranes.

For a detailed breakdown and assessment of each material handling solution and the weight classes they are most suitable for moving, please see our white paper “[Selecting the right load handling equipment](#).” There, we assess each material handling system individually for its suitability in working with different weight classes. We also discuss all seven questions organizations need to investigate to pick the right material handling system for their needs. Download the paper [here](#).

Weight	Metric Tons	< 2.3	2.3 - 9.1	9.1 - 45.4	45.4 - 181.4	181.4 - 272.2	272.2 +
	Pounds (lbs.)	< 5k	5k - 20k	20k - 100k	100k - 400k	400k - 600k	600k +
Move System	Air Casters	Suitable					
	Conveyors	Suitable		Less Effective	Impractical		
	Cranes	Suitable				Less Effective	Impractical
	Drag Chains	Less Effective		Suitable		Impractical	
	Forklifts	Suitable		Less Effective	Impractical	Impossible	
	Human Power	Suitable	Impractical		Impossible		
	Rails	Less Effective		Suitable		Less Effective	
	Transfer Carts	Less Effective		Suitable		Impractical	
	Wheels	Suitable		Less Effective	Impractical		