

IAC's engineering and ergonomics specialists can recommend a ball transfer system configuration that will meet the demands of your application as well as your requirements for integration with conveyors, workstations, rolling carts, racks, and other material handling equipment.

Designing Ball Transfer Patterns

Because ball transfers are modular, they lend themselves to an infinite variety of handling patterns. The three most important things to consider in selecting a pattern that is most practical for the planned application are:

1. Size of the object being transferred

Smaller footprints (the carrying pallet or tray, or even the item itself) will require a tighter ball pattern than larger footprints. The goal is to maintain a level surface to stabilize and support the item completely.

2. Weight of the object

Even distribution of the object's weight, relative to its footprint, aids stability. Ball pattern density, i.e. how closely they are spaced, is calculated based on desired per-square-foot loading.

3. Bottom surface of the object

If the material of the object, pallet or box that comes in contact with the transfer balls is hard and smooth, it is less likely to "break down" under the weight of the object and the indentation effect of the balls. For example, a plastic bin or tote carrier with a solid, flat bottom is easier to transport at higher weights than a light duty corrugated carton.

A ball transfer system is ideally included in the original specifications for a new workstation, although field retrofit is possible. Once an appropriate ball pattern is determined, several other factors come into play:

4. Transfer path

Plan the object's path and distance in relation to the people using it. Will it be straight, perpendicular, angled or omni-directional? Will more than one person, or some sort of conveyor system, be needed to complete the object's transfer from one point to the next?

5. Environmental cleanliness

The system could be damaged if grit and particulates become lodged in the ball wells. Keep the work surface clean and free of small parts that could be swept into the wells and damage the pneumatic air transport system.

6. Sufficient worksurface between balls

If the ball transfer surface is also used as a work area, plan a pattern that allows a maximum amount of clear surface. Once the balls are retracted, there should be enough solid surface area between them