A Daifuku America medical client develops and manufactures a wide range of products and therapies to diagnose, prevent, and monitor chronic conditions. In one of the client’s distribution facilities, custom kits containing items necessary for surgery are assembled and shipped daily to medical locations throughout the world.

The kits contain instruments and implantable parts used by medical professionals during surgery. Each kit is custom built to order. Our client tracks each kit loaned to hospitals throughout the world until they are returned after the surgery is complete. Materials left in the kit after surgery including instruments are sterilized, bagged, placed back into cases with other replenished items, and stored by our client until the kit is shipped to another customer.

Automating the Pre-Shipping Buffering Operation
Hospitals order and maintain a supply of custom kits with parts of all sizes. When a surgery is performed and the hospital consumes a kit, it is urgent that they immediately replenish their supply so that they are prepared for the next patient. One of our client’s biggest challenges was that each custom kit must be assembled and shipped the same day as it is ordered. The contents of each kit have to be 100% accurate.

Before automating the pre-shipping buffering process with a Daifuku Automated Storage & Retrieval System (AS/RS), our client faced an ongoing challenging of meeting shipment deadlines due to the amount of labor involved in manually picking items from conventional racking and in delivering kits to the right customer.
In the company’s new automated facility, a three-aisle mini load AS/RS holds assembled and ready-to-ship kits. The kits weigh up to 50 pounds and are in the form of hard sided plastic cases or metal trays. The kits are placed onto cardboard trays (36x23x3”) for conveyance throughout the facility. Each of the 14,490 mini load openings holds one ready-to-ship kit on a tray.

After a kit is assembled elsewhere in the facility, it travels down a main line conveyor and is diverted onto an elevated input aisle conveyor for transport to the AS/RS. The aisle conveyors are elevated to preserve floor space and accessibility. Each tray has a bar code plate affixed to it. Kits may stay in the AS/RS for a few days before an order is placed and the storage retrieval machine (SRM) receives a command via the Daifuku WarehouseRx warehouse control system (WCS) to move it out of storage and to shipping. The SRM, otherwise known as the crane, in this facility is a high-speed model capable of moving 984 feet/minute horizontally and 207 feet/minute vertically.

In this facility, the mini load shuttle is not conventional. It is equipped with dual pin extractors that move into a slot in the tray to grab the tote or push the tote into place depending upon whether it is storing or retrieving the item.

**Reliable System Has Room to Expand**

The AS/RS at the facility was installed in four months as part of a much larger project to improve operational efficiency. After installation, the company executed elaborate testing to demonstrate the accuracy and reliability of the system to regulatory authorities.

Within the footprint of the facility, there is additional floor space to expand the mini load AS/RS in the future if business requires additional volume moves through the system.

*Client has requested that Daifuku withhold brand name and brand identifiers for privacy purposes.*