MAXIMIZING CONTAINER WEIGHT FOR OPTIMAL RETURN

Import Shipments of Heavy Products with Better Cube and Weight Utilization of Ocean Shipping Containers

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For many years, shipping heavy products from northern China meant weighing out an expensive 20' container. A 20' container's cost is 80 percent that of a 40' container, due to the specialized size and excessive handling in and out of the continental United States. Some ocean carriers will only move the smaller containers to the U.S. ports and then they must be transloaded onto a domestic truck for final delivery. The cost and management of 20' containers is only going to increase in the future.

This paper examines a practical solution for maximizing heavy weight containers and ensuring the best flow for products of this profile. We will also discuss how picking the correct chassis equipment with the appropriate proven logistics service provider can deliver significant results in a challenging market. Replenishment logic to take advantage of increased turns will be highlighted as a benefit of this program. Collaborating with the key stakeholders of the company to include the distribution center, inventory planning, and logistics groups can be enhanced with the insights of results-oriented logistics service providers that have an end-to-end vision in the complex retail market.

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China – Inset: Northern Iron Belt

THE CHALLENGE:
SHIPPING PRODUCTS FROM THE IRON BELT IN NORTHERN CHINA

Considerations:

- Heavy weight products weigh out before they cube out
- Use of 20' containers is extremely expensive – 80% cost of a 40' container
- Standard container order with a standard dual axle chassis has a 34,000 lb. load planning limit
- U.S. over the road weight limitations vary by state and require approval

Planning for the right size movement at the lowest possible cost for heavy weight product is always a challenge. Typical container planning weight for a 20' container is 33,000 lbs. with a dual axle chassis. These chassis are standard available equipment with no special order request.

A standard chassis (Fig. 1) has a maximum allowable cargo weight of 34,900 pounds (15,830 Kilos).



Figure 1: Standard Chassis

Use of the slider chassis can improve weight capacity planning to 37,000 lbs. This chassis needs to be requested at the time of booking through the freight forwarder. There should be no additional charge for this equipment. The freight forwarder will need to coordinate the availability and usage of the slider chassis from product pick-up to final delivery.

The slider chassis (Fig. 2) has a maximum allowable cargo weight of 39,200 pounds (17,780 Kilos).

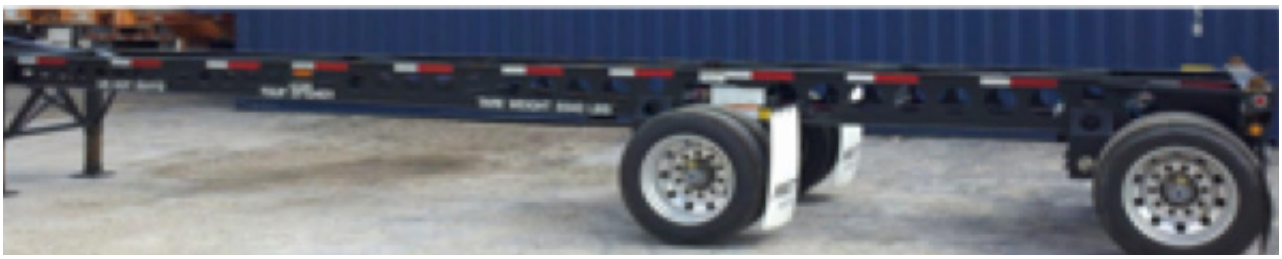
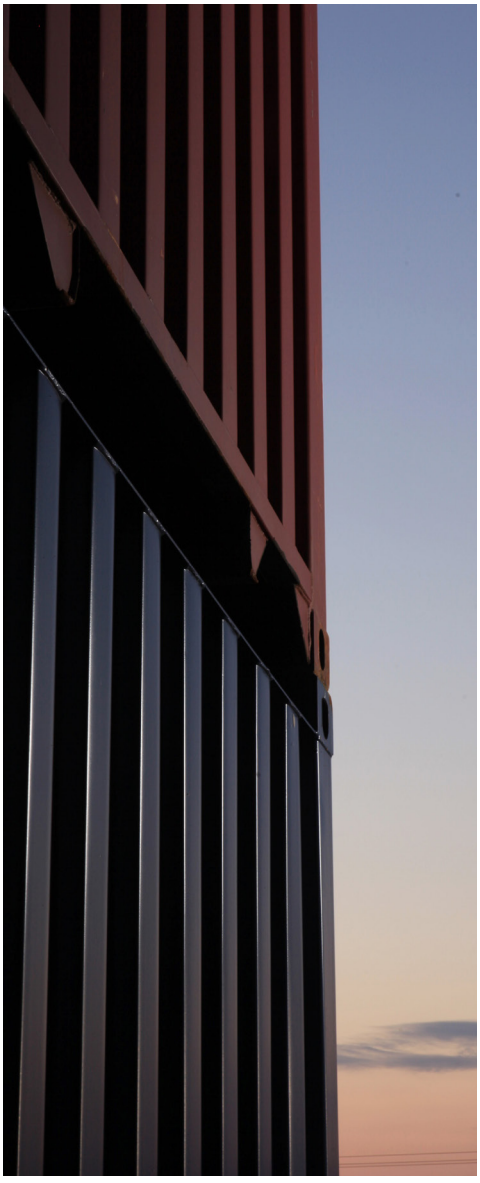


Figure 2: Slider Chassis

Load planning for the desired weight of the container can be as simple as an Excel spreadsheet or as sophisticated as a load planning optimization program. If your product weight is predictable and you consider each of the floor pallet locations (10 floor pallet locations per 20' container), the target weight should be balanced across the container evenly to avoid any axle weight issues. For example, if the target is 37,000 lbs. for the slider, use approximately 3,700 lbs. per floor pallet spot, which can be up to 7'10" high. This allows for the adding of tiers or smaller pallets to the base pallet location to achieve the desired weight configuration that produces the most efficient load.

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For example, if a 20’ container currently only allows 16 - 17 pallets double-stacked, a slider chassis would allow the load of 20 pallets on the container. By improving the floor position weight planning before loading, this chassis is able to load to 37,000 lbs.



OCEAN CONTAINER DIMENSIONS

STANDARD 20’

INSIDE LENGTH	19’4”	5.89 m
INSIDE WIDTH	7’8”	2.33 m
INSIDE HEIGHT	7’10”	2.38 m
DOOR WIDTH	7’8”	2.33 m
DOOR HEIGHT	7’6”	2.28 m
CAPACITY	1,172 ft^3	33.18 m^3
TARE WEIGHT	4,916 lb.	2,229 kg
MAX. CARGO	47,999 lb.	21,727 kg

STANDARD 40’

INSIDE LENGTH	39’5”	12.01 m
INSIDE WIDTH	7’8”	2.33 m
INSIDE HEIGHT	7’10”	2.38 m
DOOR WIDTH	7’8”	2.33 m
DOOR HEIGHT	7’6”	2.28 m
CAPACITY	2,390 ft^3	67.67 m^3
TARE WEIGHT	8,160 lb.	3,701 kg
MAX. CARGO	59,040 lb.	26,780 kg

When looking at the 43,000 lbs. planning weight, it may be necessary to use a 40' container due to cube optimization. The triple axle chassis will need to be utilized at an additional cost of $150 for either the 20' or 40' container selections. The triple axle must be requested and tracked by the freight forwarder.
This asset can currently be secured as needed and the freight forwarder will need to have several chassis providers available to ensure no disruptions in service due to chassis pool coverage. Freight forwarders with triple axle chassis pools will have an edge in this market.

Triple Axle Chassis (Fig. 3) have a maximum allowable cargo weight of 44,000 pounds



Figure 3: Triple Axle Chassis

INVENTORY REPLENISHMENT MODEL IMPROVEMENTS

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Inventory planning and order frequency can greatly improve with the added weight capacity per load. The product replenishment planning tool can be used to add the appropriate weight per pallet. The tool will redefine the order profile in order to maximize weights in a container. Fast A movers can be optimized by adding pallet tiers. A traditional 5-high pallet configuration can be adjusted to accommodate orders with 6-high pallet configurations and therefore increase the weight per container. The slower-moving B & C movers can be positioned closer to a true demand cycle instead of being limited by lower container weight restrictions which produce early ordering or the rolling until the next order cycle. With the output of the product replenishment planning tool there will be improved inventory turns and the reduction of unproductive inventory, which in turn reduces the overall inventory carrying cost.

SELECT THE CORRECT PARTNER FOR SEAMLESS ROLLOUT

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When working for alignment and a true win/win outcome across multiple business units, it is important to partner with a service provider who can build consensus. The complexity of shipping with multiple touch points spread worldwide can make this relationship more difficult but also more beneficial. From vendors in Asia to your U.S.-based distribution centers, each party needs to see the overall collaborative goals, their part, and their benefit. At each point of the plan, the service provider should share examples of suggested load planning with new, clearly defined process improvement. During these reviews, established Key Performance Indicators and realistic financial savings must be refined based on stakeholder feedback.

The service provider should build consensus and develop a plan for all key stakeholders to approve. In a controlled test environment, each model should be rolled out progressively, from use of the slider to the more complex triple axle. Each phase should be tested, adjusted, and proven. All parties must keep in mind there is at least a six week inventory of shipping orders in the supply chain. The overwhelmingly positive benefits of this program can be realized within 90 days from initiation.

The service provider that is acutely qualified for this type of heavy weight program will be very process-oriented and focused on best business practices. Input from all stake-holders is required to deliver a holistic approach. Key focus areas include proper documentation and a desire to facilitate process improvement. The business process should include both procedures and photos at every step of the way, from the hand-off all the way to weight scales at destination.

Proactive management of the triple axle program is paramount to realizing the full savings opportunity. Freight forwarders with their own port assets and drivers will be a key differentiator in program performance. In addition, having terminal locations in proximity to port operations will allow them to coordinate the transportation movement and administrative support for overweight permits, drivers, and chassis. These capabilities are critical in preventing delays and flawlessly delivering this type of logistics solution.

THE PAYOFF FOR THE OPTIMAL WEIGHT PROGRAM

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This solution can dramatically improve container shipping capacities, thus reducing shipping costs. Inventories can be ordered on an on-demand basis rather than on container constraints criteria. Optimizing container weights turns better A movers on each load and more frequent B-C movers. With only an additional $150 expense, triple axle chassis deliver a 20-25% payback.

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