


## Understanding Dimensional Weight Pricing

### Effective management mitigates costs.

Dimensional Weight Pricing is somewhat complex and can have a significant impact on your costs if it is not understood, managed and accounted for. Carriers can be helpful in these areas, offering explanations in their service guides of their methodology and charges. In some cases, they provide packaging engineers to help you understand these issues and put an effective plan in place to lower your costs, if applicable. This guide will walk you through the steps of understanding your pricing options.



One of the most confusing and least understood aspects of parcel pricing is Dimensional Weight Pricing. This pricing component and its applicable surcharges can have a significant impact on your costs if you do not understand how they affect your packages – and then learn to manage your packaging to mitigate their impact. A clear understanding of this is even more important, since UPS and FedEx changed their Ground Dimensional Weight pricing to match their Express Pricing in January, 2007.

In the simplest terms, Dimensional Weight Pricing reflects package density which, by definition, is the amount of space a package takes up in relation to its actual weight in order to cover carriers' lost revenue due to a higher cube.

#### There are three components of this pricing today:

- **Dimensional Weight**
- **Large Package Surcharges**
- **Over Maximum Limits Charge/ Unauthorized Oversize Surcharges**



To understand if Dimensional Weight Charges and their applicable surcharges apply to you, the first step is to determine the method of shipment and carrier. DHL, UPS, and FedEx all use the same dimensional rating logic for express shipments. UPS and FedEx use the same dimensional rating logic for ground, but DHL remains on legacy oversize (OS) logic with a change in late 2007.

Once this has been determined, you need to calculate the cubic size of the package. To calculate your cubic size for express shipments, measure length x width x height. To determine the dimensional weight, divide the cubic size by the DIM divisor (the standard for domestic is 194). For example, if your box is 19" x 10" x 10", your cubic size is 1900 inches and the dimensional weight is 9.8 lbs. If your box is 30" x 20" x 10", your cubic size is 6,000 inches and the dimensional weight is 30.9 pounds. Once this is done, the higher of the actual weight or dimensional weight will apply.

For ground shipments with FedEx and UPS, a threshold is added to the calculation. So, you still calculate your cubic size. If it is larger than 5,184 (standard threshold), you divide it by 194, which gives you the dimensional weight. If the cubic size is less than 5,184, you should use the actual weight.

**Examples of this would be:**

**Box 1** weighs 20 pounds and has dimensions of 17" x 17" x 17". The cubic size (17" x 17" x 17") is 4,913. The dimensional weight (4,913 / 194) is 25.3 pounds. However, because the cubic size falls below the 5,184 threshold, dimensional weighting does not apply. Therefore, the package will be rated at the actual weight of 20 pounds.

	AIR	GROUND
 <p><b>Box 1</b> 17" x 17" x 17" actual weight: <b>20 lbs</b></p>	$\frac{17" \times 17" \times 17"}{194} = 25.3$ <p>dimensional weight: <b>26 lbs</b></p>	<p>17" x 17" x 17" = <b>4,913"</b> Cubic size is under 5,184" threshold. Actual weight will be used. <b>20 lbs</b></p>
 <p><b>Box 2</b> 24" x 16" x 16" actual weight: <b>25 lbs</b></p>	$\frac{24" \times 16" \times 16"}{194} = 31.7$ <p>dimensional weight: <b>32 lbs</b></p>	<p>24" x 16" x 16" = <b>6,144"</b> Cubic size is above 5,184" threshold. Higher of dimensional weight or actual weight will be used. <b>32 lbs</b></p>

**Box 2** weighs 25 pounds and has dimensions of 24" x 16" x 16". The cubic size (24" x 16" x 16") is 6,144. The dimensional weight (6,144 / 194) is 31.7 pounds. As the cubic size exceeds the 5,184 threshold, dimensional weighting will apply. Therefore, the package will be rated at the dimensional weight, adding 7 pounds to the rated weight.

**Large Package Surcharge** applies when a packages length plus girth combined exceeds 130 inches, but does not exceed the maximum size of 165 inches. The package will be rated at a minimum of 90 pounds. And a \$40 **Large Package**

**Surcharge** will apply. An **Over Maximum Limits Charge** of \$50 applies if a package exceeds 150 pounds or if its length plus girth exceeds 165 inches, combined. Note that these charges are not exclusive, and both could apply to the same package(s).

It's also important to remember that **Additional Handling Charges** can apply to some of your packages, based on size and packaging type. For instance, most carriers will charge extra for shipping containers made of metal or wood, cylindrical items such as barrels or tires, any packages with the longest side exceeding 60 inches and the second longest side exceeding 30 inches, and any packages not fully enclosed in corrugated cardboard.

### Can you mitigate Dimensional Weight Pricing and its applicable costs?

The short answer to that is "yes," in most cases. First, you need to have a clear understanding of your package characteristics. If you're an auto body supplier that ships windshields, bumpers and car doors, you are probably going to

have a Dimensional Weight Pricing issue. The key here is to understand this and make sure you do everything you can to lower these charges. And then, make sure you factor these extra charges in your shipping charges, or sales price.

XYZ company was in a similar situation as the auto body supplier mentioned above. They could not understand why their shipping costs were rising at such a rapid rate. After a review, it was discovered that they had very little understanding of Dimensional Weight Pricing and the impact it had on their costs. After some training and internal process changes, the company was able to understand and predict these charges and plan accordingly.

One best practice is to employ some type of cube-a-scan, or similar technology, and imbed the actual box dimensions in a reference field. Another option is to assign numbers to standard box sizes and imbed that into a reference field. The reason for this is that if the carriers audit your box and apply Dimensional Weight, or any applicable surcharges, you will have some information to dispute the charges, if needed.

Another very simple step is to actually audit your box sizes from your box manufacturer on a regular basis. A company that keeps getting charged additional surcharges even after implementing new packaging should look further. It is possible that the box manufacturer made the box slightly bigger than the dimensions stated and it is outside the carrier's limits and charged as such.

The last step in your **Dimensional Weight Strategy** should be to try to negotiate better **Dimensional Weight Terms**. It could be a higher DIM divisor (Dim Factor), discounts on the surcharges or higher thresholds on the surcharges themselves. As with any negotiation, many factors are involved in your ability to negotiate terms. A few that could impact this are total spend, actual percentage of packages receiving dimensional weight charges, and even competitive pressures in the marketplace.

Understanding Dimensional Weight Pricing is the first step toward lowering your shipping prices. Then you will be able to work with your carriers to put a plan in place to effectively save money.

***Baris Tasdelen is a Transportation Analyst at enVista. For more information, contact enVista at 877-684-7700 or at [inforequest@envistacorp.com](mailto:inforequest@envistacorp.com).***