

WHAT IS VOLUMETRIC WEIGHT / DIMENSIONAL WEIGHT?

Volumetric Weight, also known as Dimensional Weight, is a billing technique which takes into account the volume (size) of a package.

WHY DO TRANSPORT COMPANIES USE VOLUMETRIC WEIGHT/ DIMENSIONAL WEIGHT?

Historically, the cost of transporting goods was always directly calculated on the basis of actual (gross) weight (in kilograms or pounds), however, many times a plane, truck or container gets volumetrically full prior to achieving its maximum weight capacity. The revelation of this fundamental source of inefficiency caused a major upheaval in the way carriers charge for their transportation services. The cost of transport services is now a function of two components: ***actual weight*** and ***volume***.

HOW IS IT CALCULATED?

Most major transport companies calculate the dimensional weight (also referred to as volumetric weight or "dimensional" weight) and compare it to the actual gross weight of the shipment. The transport company uses the greater of the two weights to calculate the chargeable (billable) weight. Calculating dimensional weight is based on determining the cubic size of an object and dividing that number by a dimensional factor. The factor is based on the International Air Transport Association (IATA) standards.

Volumetric weight calculates the dimensional weight of packages. Freight carriers inclusive of EXEC DIRECT AVIATION (EDA) utilize the greater of the actual weight or volumetric weight to calculate shipping charges, however there is an exception. **(See exception below)**

The generic formula for calculating the volumetric weight of a shipment is:

$$(\text{Length} \times \text{Width} \times \text{Height}) / (\text{Volumetric Weight Factor}).$$

Below are the common formulas used to calculate Volumetric Weight/Dimensional Weight.

For International Air Shipments:

IATA Volumetric Weight Factor is 166.08 [in³/lb] **or**

6000 [cm³/kg]

- Length x Width x Height (inches) / 166 = Dimensional Weight (lbs.)
- Length x Width x Height (cm) / 6000 = Dimensional Weight (kg)

Example: 30" x 24" x 22" = 15,840 cubic inches / 166 = 96 lbs. (round up to the nearest pound)

EXCEPTION - To offer an enhanced Customer Service, EXEC DIRECT's air freight charges for packages three cubic feet (5184 cubic inches or 84951 cubic centimetres) and smaller will be based on actual weight.

NOTE 1 – For packages larger than three cubic feet, the greater of the two components will be applied.

EXAMPLES OF DETERMINING VOLUMETRIC WEIGHT / DIMENSIONAL WEIGHT VERSUS ACTUAL WEIGHT

To determine if dimensional weight applies to your package, follow these easy steps:

1. Transportation charges **may** be calculated based on dimensional weight, which is a volumetric standard. Dimensional-weight pricing is applicable on a per-package basis. Dimensional weight is calculated by multiplying length by width by height of each package, divide by 166 (if multiplied in inches) or divided by 6,000 (if multiplied in centimeters). *If the dimensional weight exceeds the actual (gross) weight, the billable charges will be based on the dimensional weight.*

2. Divide the cubic size by 166 (if measured in inches) or by 6,000 (if measured in centimetres), *rounding up to the nearest whole pound.* This is the dimensional weight of your package.

3. Compare this number with the actual weight of your package. Price your shipment based on the greater of the two values.

Examples of Calculating Dimensional Weight – inch/pound (IMPERIAL SYSTEM)

Here are some examples to help you better understand how dimensional weight is calculated to determine billable weight.

Example 1:

- Actual weight: 35 lbs.
- Length: 30 inches
- Width: 15 inches
- Height: 15 inches
- Cubic size calculation: $30'' \times 15'' \times 15'' = 6,750$ cubic inches
 - Dimensional weight calculation : $6750/166 = 40.66$ lbs. (rounded up to the nearest whole pound = 41 lbs)

Because the dimensional weight of (41 lbs.) is greater than actual weight of (35 lbs.); then 41 lbs. is the dimensional weight which transcends to the billable weight.

Example 2:

- Actual weight: 10 lbs.
- Length: 17 inches
- Width: 15 inches
- Height: 16 inches
- Cubic size calculation: $17'' \times 15'' \times 16'' = 4,080$ cubic inches.

Because the cubic dimensions in inches are less than 5184 cubic inches, then the dimensional weight does not apply. The actual weight is the billable weight.