



Chargeable Weights

As an exporter or an importer you have to know the **gross weight** and **total volume** of the cargo in order to calculate the transportation cost.

Each means of conveyance, such as container vessel, truck or aircraft, has a limited space (**volume constraint**). Additionally there are weight limitations for all types of modes of transport (**weight constraint**).

In order to sell their free spaces more efficiently, the international logistics sector developed a concept, which is known as chargeable weight.

According to this concept, transport companies are calculating a hypothetical volumetric weight of the cargo to compare it with the actual gross weight of the goods. Then, they choose the bigger amount, either actual gross weight or hypothetical volumetric weight. The result is known as the chargeable weight.

Chargeable weight is only used by international logistics companies, when calculating their freight offers.

How to calculate chargeable weight in air shipments?

In order to determine the chargeable weight in air shipments, first of all you have to calculate the volumetric weight.

Let me explain the below step by step calculation process of both volumetric weight and chargeable weight in air shipments based on the following example:

Let us assume that we want to ship a cargo consists of 10 packages with the measurements below:

- Dimensions of each package: 100cmx90cmx80cm
- Weight of each package: 100kgs/gross weight

Step1 : Calculating the gross weight of the cargo:

In order to make a comparison with the calculated volumetric weight you should know the gross weight of the cargo.

The gross weight of our cargo is 1000kgs.

Step2 : Calculating the volume of the cargo:

In order to reach the volumetric weight, you should calculate the volume of the cargo in cubic meters.

- Dimensions of one package in centimeter => 100cm x 90cm x 80cm
- Dimensions of one package in meter => 1m x 0.9m x 0.8m
- Volume of one package = 1m x 0.9m x 0.8m = 0.72cbm (cubic meter)
- Total volume of the cargo = 10 x 0.72cbm = 7.2cbm

Step3 : Calculating the volumetric weight of the cargo:

You should multiply the volume of the cargo with air shipment volumetric weight constant, in order to reach the volumetric weight.

Air shipment volumetric weight constant = 167 kgs/cbm



Volumetric Weight = Total volume of the cargo x air shipment volumetric weight constant

Volumetric Weight = $7.2\text{cbm} \times 167\text{kgs/cbm} = 1202.40\text{kgs}$

Step4 : Calculating the chargeable weight of the cargo:

You should compare the gross weight of the cargo with the volumetric weight of the cargo and select the biggest amount. This will be your chargeable weight for the given air shipment.

- Gross weight of our cargo is 1000kgs.
- Volumetric Weight of our cargo is 1202.40kgs
- Volumetric weight is higher than the actual gross weight so we have to use volumetric weight as our chargeable weight, which is 1202.40kgs.

How to calculate chargeable weight in sea shipments?

We have to follow the same steps when calculating the chargeable weight in sea shipments with only one exception: Sea shipment volumetric weight constant is different than air shipment volumetric weight constant.

You should take sea shipment volumetric weight constant as 1000 kgs/cbm, when calculating the chargeable weight in sea shipments.

Let me explain you below step by step calculation process of both volumetric weight and chargeable weight in sea shipments based on the following example:

Let us assume that we want to ship a cargo consists of 10 packages with the measurements below:

- Dimensions of each package: 120cmx100cmx150cm
- Weight of each package: 800kgs/gross weight

Step1 : Calculating the gross weight of the cargo:

The gross weight of our cargo is 8000kgs.

Step2 : Calculating the volume of the cargo:

- Dimensions of one package in centimeter => 120cmx100cmx150cm
- Dimensions of one package in meter => 1.2m x 1m x 1.5m
- Volume of one package = $1.2\text{m} \times 1\text{m} \times 1.5\text{m} = 1.8\text{cbm}$ (cubic meter)
- Total volume of the cargo = $10 \times 1.8\text{cbm} = \underline{18\text{cbm}}$

Step3 : Calculating the volumetric weight of the cargo:

You should multiply the volume of the cargo with sea shipment volumetric weight constant, in order to reach the volumetric weight.

Sea shipment volumetric weight constant = 1000 kgs/cbm

Volumetric Weight = Total volume of the cargo x sea shipment volumetric weight constant

Volumetric Weight = $18\text{cbm} \times 1000\text{kgs/cbm} = 18000\text{kgs}$

Step4 : Calculating the chargeable weight of the cargo:

You should compare the gross weight of the cargo with the volumetric weight of the cargo and select the biggest amount. This will be your chargeable weight for the given sea shipment.



- Gross weight of our cargo is 8000kgs.
- Volumetric weight of our cargo is 18000kgs.
- Volumetric weight is higher than the actual gross weight so we have to use volumetric weight as our chargeable weight, which is 18000kgs.

How to calculate chargeable weight in road shipments?

Road shipment volumetric weight constant is different than both air and sea shipment volumetric weight constants. The Road shipment weight constant can also depend on what provider you are using but the steps are the same for calculating the chargeable weight.

In this instance we will take the road shipment volumetric weight constant as 300 kgs/cbm, when calculating the chargeable weight in road shipments.

Let me explain you below step by step calculation process of both volumetric weight and chargeable weight in road shipments based on the following example:

Let us assume that we want to ship a cargo consists of 10 packages with the measurements below:

- Dimensions of each package: 120cmx100cmx180cm
- Weight of each package: 960kgs/gross weight

Step1 : Calculating the gross weight of the cargo:

The gross weight of our cargo is 9600kgs.

Step2 : Calculating the volume of the cargo:

- Dimensions of one package in centimeter => 120cmx100cmx180cm
- Dimensions of one package in meter => 1.2m x 1m x 1.8m
- Volume of one package = 1.2m x 1m x 1.8m = 2.16cbm (cubic meter)
- Total volume of the cargo = 10 x 2.16cbm = 21.60cbm

Step3 : Calculating the volumetric weight of the cargo:

You should multiply the volume of the cargo with road shipment volumetric weight constant, in order to reach the volumetric weight.

Road shipment volumetric weight constant = 333 kgs/cbm

Volumetric Weight = Total volume of the cargo x road shipment volumetric weight constant

Volumetric Weight = 21.6cbm x 333 kgs/cbm = 7192.80kgs

Step4 : Calculating the chargeable weight of the cargo:

You should compare the gross weight of the cargo with the volumetric weight of the cargo and select the biggest amount. This will be your chargeable weight for the given road shipment.

- Gross weight of our cargo is 9600kgs.
- Volumetric weight of our cargo is 7192.80kgs
- Gross weight is higher than the volumetric weight so we have to use actual gross weight as our chargeable weight, which is 7192.80kgs.