LTL Freight Class Density Guide (18-Tier NMFC Standard)

Version: 2026.3.2 | **Resource:** ltlclasscalculator.com

1. DENSITY CALCULATION FORMULA

To calculate the density (PCF) of your shipment, use the following industry standard:

Total Weight ÷ [(Length x Width x Height) ÷ 1728] = Density (PCF)

- **Step 1:** Multiply Length × Width × Height (in inches) to find the cubic inches.
- **Step 2:** Divide that total by **1728** to convert it to cubic feet (ft^3).
- **Step 3:** Divide the **Gross Weight** (lbs) by the cubic feet result.

2. 18-TIER DENSITY-TO-CLASS MAPPING TABLE

Match your calculated PCF to the corresponding Freight Class below:

Density (Pounds Per Cubic Foot - PCF)	Corresponding Freight Class
50 or Greater	Class 50
35 but less than 50	Class 55
30 but less than 35	Class 60
22.5 but less than 30	Class 65
15 but less than 22.5	Class 70
13.5 but less than 15	Class 77.5
12 but less than 13.5	Class 85
10.5 but less than 12	Class 92.5
9 but less than 10.5	Class 100
8 but less than 9	Class 110
7 but less than 8	Class 125
6 but less than 7	Class 150
5 but less than 6	Class 175
4 but less than 5	Class 200
3 but less than 4	Class 250
2 but less than 3	Class 300
1 but less than 2	Class 400
Less than 1	Class 500

3. PROFESSIONAL SHIPPING GUIDELINES

- **Precision Measurement:** Always measure to the furthest points, including the pallet base and any overhanging cargo. Carriers use laser dimensioning—being off by 1 inch can trigger a "Re-Class" penalty ($50–$150).
- **Gross Weight:** Ensure your weight includes the pallet, shrink wrap, and all packaging materials.
- **Optimization Tip:** Increasing density (heavier weight in a smaller cubic footprint) results in lower freight classes and significantly lower shipping costs.
- **The Four Factors:** While density is the primary driver, carriers also evaluate **Stowability** (stacking), **Handling** (ease of movement), and **Liability** (fragility/value).

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4. OFFICIAL DISCLAIMER

This guide provides density-based estimates for 2026 18-Tier NMFC standards. Final freight classification, inspection, and billing are determined solely by the carrier based on full NMFC guidelines. Shippers should verify specific NMFC item numbers prior to booking a shipment.

Online Calculator: ltlclasscalculator.com

About Us

Freight Class Calculator is a simple online tool created to help shippers, small businesses, and logistics professionals quickly determine the correct freight class for their shipments.

Calculating freight class manually can be confusing because it requires knowing the shipment dimensions, weight, and density. Our calculator simplifies this process by instantly computing pallet density and showing the appropriate freight class based on standard LTL freight classification guidelines.

Our goal is to make freight calculations fast, accurate, and accessible, helping users reduce shipping mistakes and avoid unnecessary shipping costs.

Whether you are a small business shipping products or a logistics professional managing multiple shipments, our calculator helps you determine freight class within seconds.

Why Use Our Freight Class Calculator?

- ✔ Fast and simple freight class calculation
- ✔ Accurate density-based classification
- ✔ Helps estimate LTL shipping class quickly
- ✔ Saves time compared to manual calculations
- ✔ Designed for businesses, shippers, and logistics professionals

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Contact Us

If you have questions, suggestions, or need help using the calculator, feel free to contact us.

General Inquiries
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Best Regards,

Team Freight Class Calculator

https://ltlclasscalculator.com/