

## **Globe Composite Solutions' Baggage Carousel Composite Flat Plate**



## Our Product



Globe Composite Solutions designed, produced, and manufactured for an airline in a major, international airport:

- A single piece, molded composite flat-plate with composite roller wheels for a baggage carousel.
  - Made from our patented **Brandonite® 1500-75D**, a special cost-effective abrasion-resistant material.
  - Embedded in the composite wheels were precision bearings, giving them inherent sound reduction properties.
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- The plate weighed in at only 16 lbs. (7.25 kg.) compared to the 70 lbs. (31.75 kg.) of the original coated-steel plate.
  - The composite flat-plate can be made almost any color or with any logo etching.
  - The composite roller wheels were made from Brandonite® 1300-75D, a wear resistant material, making them much more longer-lasting.

## Client's Requirements

This airline desperately needed to replace a 268-foot long (82 meters) flat baggage carousel. The 20-year old carousel, at the end of its life-expectancy, required constant maintenance (\$60,000 per year) and was terribly noisy (85dB).



The poor physical appearance of the carousel didn't reflect the image of the airline -- the steel plates had de-laminated and were peeling, and the wheels under the plates were so worn and noisy customers waiting for baggage couldn't hear normal conversation. To make matters worse, the original equipment manufacturer (OEM) was the only part's distributor. The original manufacturer dictated which parts they would replace and at what price, insisting on replacing the entire baggage carousel instead of just broken components at a cost of \$700,000. Without Globe Composite Solutions' replacement parts, the airline would have been left with no other solution than replacing the entire system at the OEM's costly price tag.



## Client's Savings

Using Globe's composite materials, this airline saved:

### Immediate Savings

- \$620,000 in upfront replacement costs
- 61% reduction in energy costs
- 10% lower noise levels
- \$60,000 in estimated annual maintenance expenses

### Over a 5-year Period

- \$231,678 approximately in maintenance and energy costs saved
- Internal rate of return (IRR) of 140%
- A net present value (NPV) of \$183,611 on the upgrade

## How We Did It

Globe likes to start any project with an onsite inspection whenever possible, an ideal way to evaluate wear and tear and any potential part failure points. We sent one of our expert design engineers to the airport to record necessary measurements and get part samples. The onsite measurements were taken during the airline's off-hours, as to not interfere with the airline's normal customer traffic.



We then worked with the airline's maintenance personnel and developed a plan, avoiding a significant amount of the OEM's replacement costs, lowered energy consumption, and reduced ongoing maintenance expenses. Globe engineers designed and manufactured lightweight, composite flat-plates and long-lasting roller wheels made from our **Brandonite**<sup>®</sup> high performance materials.

Because Globe Composite is a full-service company, we were able to design the replacement parts, machine the molds and produce new composite parts all in-house. Since the molds had to be fabricated, replacement parts were ordered in early May and delivered in late September.



## Why Use Globe Composites

There are 4 primary benefits of converting metallic parts with Globe's composites in the case of this airline:



### 1) Significant Upfront Cost Savings

- The airline completed their upgrade of the entire unit for only \$80,000 -- \$620,000 less than a new installation.



### 2) Reduced Energy Consumption

- Due to the dramatic reduction in weight, the airline reduced energy consumption from this carousel by 61%, roughly \$2,300 annually.
- Each Globe composite plate weighs 16 lbs. compared to 70 lbs. for the former steel plates, saving 8,910 lbs., or 4 ½ tons in unnecessary weight.



### 3) Lower Ongoing Maintenance Costs

- An estimated \$60,000 per year in ongoing maintenance costs is saved due to the durability of Globe's composite components.
- The light-weight flat-plates also reduce normal wear and tear on the carousel's motor so now it will only need to be replaced every 5 years rather than every 2 with the steel plates.
- Replacement parts (if necessary) cost as much as 50% less, since Globe provides these components directly to the airline.



### 4) Noise Abatement

- The carousel is 7 dB (8%) quieter with the light-weight, vibration-absorbing plates, softer durometer wheels, and new chain and motor.