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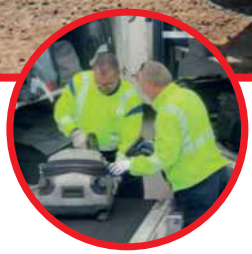
EZDOLLY

World's first autonomous cargo dolly ready for operation



BENEFITING WORKERS *and the environment*

How EASYROLL Technology's smart composite rollers in cargo handling can reduce emissions and save costs.

Sustainability, one of the most discussed topics of this decade, concerns almost all industries and their stakeholders, and the aviation industry is no exception. This approach in the aviation industry includes sustainable aviation fuels, green airport certification, and electric ground support equipment. However, the path to embracing sustainability has not yet stopped for the aviation industry, as the latest research shows more directions for it to become greener.

For example, material innovation in ground support equipment is a potential direction that Professor Jackson Ho can definitely speak on. Professor Ho is currently the Managing Director of CTAS Aviation Services Ltd that operates at Hong Kong International Airport. He is a GSE specialist with more than 40 years of relevant experience in the Asia-Pacific region and is also Adjunct Professor at several universities in Aerospace Engineering. As one of the prominent leaders in GSE and airport operations in Hong Kong and mainland China, he was appointed by the Central Government of China to draft the China National Standards (GB) for air cargo and airport GSE.

On the topic of GSE, Professor Ho has co-authored a paper with two other academics comparing two types of rollers used on air cargo loaders: traditional aluminium rollers and composite rollers. Presented at the International Forum on Shipping, Ports and Airports (IFSPA 2022) at Hong Kong Polytechnic University, the paper's conclusion part is as follows.

"The methodology is based on information from theses and Internet plus results from independent testing laboratories.

The conclusions of this study are summarised as follows:

1) The two types of rollers differ in environmentally friendliness. The composite roller weights lighter and thus a lot of energy is saved in moving it. Assuming moving the loaders 10km per day, a total of 86.3 tonnes of diesel fuel could be saved from the tractors every year. The carbon footprint differs by 4.4 times for the refining the aluminium and nylon.
2) Toxicity of aluminium to humans was a major concern. The comparison on roller composition demonstrates that aluminium alloy roller has 99% of its material being toxic in nature in different degrees, while the composite is not toxic at all. An independent test laboratory found that the toxicity of the composite was in Category IV which is practically non-toxic and not an irritant.
3) The composite roller is adhesion resistant. Thus it has the preferred characteristics of non-skidding and in particular when the roller is operating under rainy conditions.

4) The cost of aluminium has gone up very rapidly in recent months but the cost of nylon in making the composite is quite steady.
5) Composite rollers, due to its various positive characteristics, might be one of the alternate choices to replace aluminium rollers in future environmentally friendly, sustainable, and economic operations. This further addresses the social responsibility of achieving a safety and health environment for people working at the airport where air cargo loaders are in operation."

One might believe that "small changes, like changing the material of mechanical parts, do not matter much." However, the report includes detailed calculations and evidence supporting its conclusions. It also mentions that changing from aluminium rollers to composite rollers can result in "~86.3 tonnes of diesel saved per year if all aluminium rollers in loaders at Hong Kong International Airport are replaced by composite rollers." Therefore, for the aviation industry to enhance its sustainability practices, it should not overlook the impact of small changes to gain deeper insights into areas for improvement.

Innovation that helps a loader enhance its basic function

While it has been shown how a small change, like switching from aluminium rollers to composite rollers, can bring significant environmental benefits, there needs to be more incentives; otherwise, the product will struggle to compete in the market. This is why sustainability is not just promoted through rhetoric but also through the hard work of people who ensure these concepts are brought to life with commercial value.

In terms of composite rollers, Junly Hon is undoubtedly one of those people. As the founder and director of a local Hong Kong firm, EASYROLL Technology, he has dedicated years to improving the design of composite rollers to address the defects of traditional aluminium rollers he observed.

"The main function of loaders is to carry containers, yet rainy or humid days can cause containers to skid. This flaw lowers airport efficiency and increases the risk of injury to workers who must adjust the containers themselves. By adopting composite rollers, we can improve efficiency, prevent skidding, and ensure workers' safety," he explains.

With over 50 years of experience in producing mechanical parts, Hon decided to take the lead in innovation. After years of trial and error, he obtained a patent for the latest generation of composite roller designs.

However, what inspired him to invent the composite roller at this stage in his career?

"What first drew my attention was the skidding of containers. This is a long-standing problem, and while ordinary nylon rollers were specifically designed to increase grip, they have all failed to resolve the skidding issue. Additionally, the wearing of aluminium rollers produces lots of metal dust, which can always be proved if you check under sunlight, posing potential health risk to workers," he said. "I believe that there should be a product that solves the skidding problem while improving the workers' health. After lots of research and trial in factory, it has come to my attention the concept of composite rollers and how they can benefit the society by reducing the carbon footprint of the aviation industry. Since then, I have dedicated my efforts to designing the new and next-generation composite rollers, which become one of the proud and successful products invented by my company."

Regarding how his innovation surpasses existing rollers, he states: "To solve the skidding problem, the composite rollers can maintain higher friction than dry aluminium rollers, whether dry or wet. Unlike aluminum alloy rollers, composite rollers do not produce harmful metal dust or excessive noise as a result of metal to metal contact. Economically, the composite rollers are 150% more durable, saving 60% in replenishing costs, while being priced similarly to traditional ones. Environmentally, the rollers reduce carbon emissions as they are lighter and do not require costly metal reforming process. Therefore, I can confidently say this product benefits workers, buyers, the public, and the environment."

Hon's product exemplifies how modern innovation should balance the interests of stakeholders, from users to the public, while addressing societal needs, from sustainability to economic viability. Thus, innovating is an inevitable trend in societal evolution, and being open to innovation is an option to gain productivity with enhanced business opportunities. ***ghi***