

Low-pressure casting foam forming technology

Introduction

- In the past, foamed aluminum materials mostly used powder metallurgy processes and added foaming agents of molecular compounds. After multiple passes of production, it is not only difficult to control the structure of the finished product, but also the cost of raw materials is high, and the market acceptance is low.
- MIRDC uses low-pressure casting for gas injection foaming to complete in-mold filling and forming. Compared with powder metallurgy foaming technology, the cost is lower. Also, due to the full use of recycled aluminum (industrial waste aluminum materials and livelihood waste aluminum bottles and cans), the amount of aluminum slag generated is reduced, and the applications of recycled aluminum materials can be added to high value.
- Foamed aluminum can be applied to high-value anti-vibration electric vehicle components. Taking the electric vehicle power module bracket, for example, it can be filled with foamed aluminum casting pellets, which can improve the vibration reduction effect by 24%. It can also be used in the battery box securing arrangement for electric vehicles, reducing the weight of the battery box by 50% and maintaining an excellent vibration-damping effect.



Construction of the first domestic low-pressure casting foam forming manufacturing equipment for recycled aluminum

Specifications of foamed aluminum plate for MIRDC equipment :

Width: 50~100 cm 、Length:100~200 cm 、Thickness: 2 cm

Awards/Patents

- MIRDC' s inflatable lifesaving ALS-01 won the Product Design of iF 2021
- A total of 7 related patents in the metal forming manufacturing and its method for manufacturing foam metal (Patent No. I744085) issued in R.O.C and the Socialist Republic of Vietnam

Industrial Applications/ Case Studies

This technology can be used to produce large-area products. Since its porous structure, it has the functions of sound absorption, vibration reduction, heat insulation, and electromagnetic shielding. It is very suitable for use in sound insulation building materials, thermal insulation building materials, flame-retardant building materials, electromagnetic wave-proof building materials, machine tool anti-vibration plates, etc.



Design of foam aluminum inflatable lifesaving product