Nittoku Green Products (certified in 2021)

O_2 Fresh-5G oxygen concentrator

■ What are the features of the product?

The O_2 Fresh-5G oxygen concentrator is a medical device used by patients who suffer from chronic respiratory failure. The pulmonary function decreases due to diseases, such as chronic obstructive pulmonary disease (COPD) and aftereffects of pulmonary tuberculosis, that prevent patients from taking sufficient oxygen into their body. The device is used for home oxygen therapy (HOT) based on a physician's prescription to relieve symptoms and improve QOL.

The O_2 Fresh-5G separates oxygen and nitrogen in the air and supplies only high-concentration (90% or more) oxygen to patients.

■ Why was the product certified as one of the Nittoku Green Products?

Resource saving | Energy saving | Substance of Concern

The conventional model (5F) used medium-density fiberboard (MDF), a wooden material, for the enclosure and exterior cover to reduce noise. Thus, the device main unit was heavy (total weight: 30 kg). There was demand from patients, etc. for a more compact and lightweight product.

All the parts, including the enclosure and exterior cover, have been reviewed. The weight of the device has been reduced to 20 kg.

[1] In-house development of the compressor has achieved a reduction in size and weight and reduced noise.

[2] With reduction in noise, the enclosure and exterior cover have been changed to a resin material (ABS resin), which is more lightweight compared to the wooden material.

Conventional model (5F) | O_2 Fresh-5G

[3] Consumption of the adsorbent (molecular sieve) has been reduced while maintaining oxygen concentration performance by changing the materials of the adsorbent, which separates nitrogen from the air and increases the oxygen concentration, and reviewing the oxygen concentration system.

The O_2 Fresh-5G achieves energy-saving performance, which is among the highest in the industry, and contributes to reducing CO_2 emissions during transport by reducing the size and weight of the device.

■ Comment from the developers

The top priority in offering medical devices is to ensure quality, efficacy, and safety. We had received requests from patients to make the oxygen concentrator more compact, lightweight, energy-efficient, and silent. We have reduced the volume and weight by 25% and 33%, respectively, compared to the conventional model by optimizing the oxygen concentration (generation) process, rationalizing the parts used, and developing our proprietary compressor, etc. Notably, by using an LCD panel and developing our proprietary compressor, we have successfully reduced the size and weight and improved the design while maintaining low-noise performance.