

# EOVE gives users of their ventilators greater mobility by integrating ASCO™ Solenoid Valves.

## RESULTS

- Light-weight solution that ensures that the ventilator remains portable
- Low power consumption which prevents overheating of the valve and surrounding equipment as well as extending battery life
- Precise control and high repeatability contribute to superior ventilator performance
- Easy implementation

## APPLICATION

Medical ventilators used in the home

## CUSTOMER

EOVE designs, manufactures, and markets medical and surgical devices used during home care. Launched in 2015, the EO-150 ventilator has a big advantage over its competitors. Weighing just 1.8 kg, it is the lightest ventilator on the market and enables patients to have greater mobility. The EO-150 is designed mainly for patients with serious medical conditions, many of whom use a ventilator 24 hours a day.

## CHALLENGE

Mobility is not just a convenience for the user of a ventilator it is also a reason for living. Patients who are active and mobile live longer and undeniably have greater quality social interactions. For this reason, portable ventilators need to be lightweight, perform well and be reliable.

The solenoid valve is an essential component of a ventilator system; the EO-150 is no exception. The solenoid valve must perform well in order to accurately control the flow of air, it should be light enough to ensure that the ventilator remains portable and it should have a low power consumption. This last requirement is to ensure that the battery life is optimised and that there is no significant temperature rise caused by the coil.



### SOLUTION

#### High-Precision Control and Repeatability

Expiration is achieved by a pneumatic valve on the patient circuit. This valve is controlled by ASCO's Preciflow IPC solenoid valve. The unit operates in a closed loop via various sensors. Accurate control of the air is maintained by varying the current to the solenoid valve.

ASCO's Preciflow IPC solenoid valves were the ideal solution due to their proportional control. The core of these solenoid valves is held between two precision profiled flat springs to completely eliminate friction and offer excellent control performance. Hysteresis is less than 5% and repeatability and sensitivity are less than 1%

#### Light and Portable

Unlike tests conducted with competitor valves, the Preciflow IPC does not overheat. This is due to their low power consumption. This means that additional cooling systems were not required, making further savings in weight and cost. The Series 202 Preciflow IPC solenoid valve proportionally controls the flow of air. This innovation enables high pressures and flow rates with a low-energy coil (2.5W max.). The Preciflow IPC is available in 2/2 NC function with a 3 mm orifice and can be used over a pressure range of 0 to 7 bar with a maximum inlet pressure of 10 bar.

#### Increased Battery Life

Although compact, the Preciflow IPC offers a high variable flow rate (190 l/min at 2.6 bar) without a minimum operating pressure. Additionally, because the power consumption is extremely low it enables the EO-150 to achieve a high battery life.

The EO-150 consists of a portable module with six hours of battery life and a docking station. The module can safely be removed from the docking station for easier portability. It is also networked, making it possible to obtain data remotely.

#### High Reliability

Since being launched in 2015, more than a thousand EO-150s are in use. There have been zero reports of failure, which is crucial considering their function. These devices meet stringent safety standards and bear the CE marking for medical devices.

#### Easy Implementation

The Series 202 Preciflow IPC solenoid valve is a standard product which is specifically designed for medical device applications, and in particular ventilators. The adapted valve with the specific connector and lead length allows Eove to use the valve like a plug and play device. There is no need of modification before installing the valve. In addition, this valve uses a customised flow rate which is adapted by adjusting the stroke of the valve.