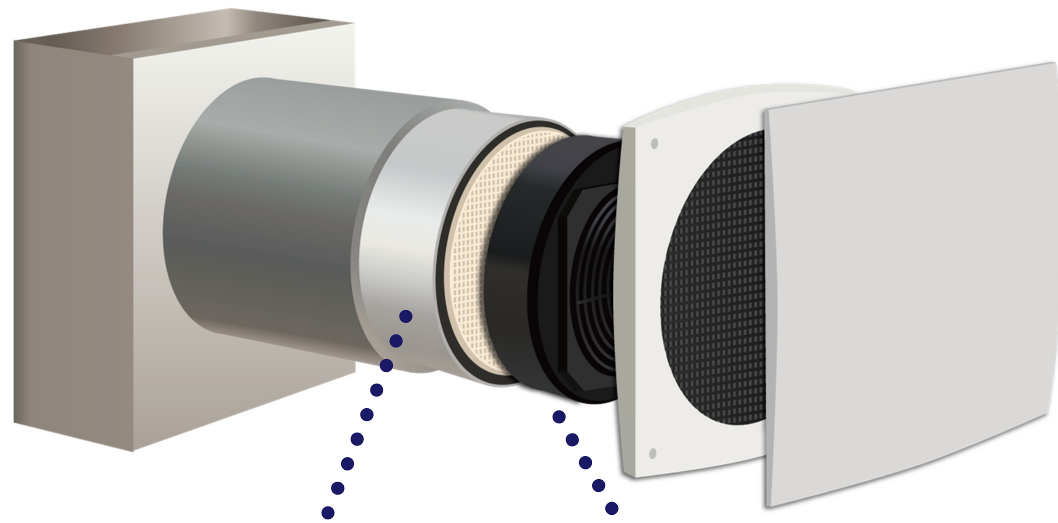
SanAce Application Case

Heat Recovery Ventilation System

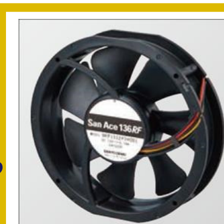
SANYO DENKI

Description

Residential heat recovery ventilation systems use reversible flow fans to ventilate while inhibiting the effects of differences between indoor and outdoor temperatures.
Heat recovery is provided by a heat storing ceramic element which is heated by stale exhaust air. The fan then changes direction, drawing in fresh air which warms as it passes through the heated ceramic element. This provides a clean, efficient method of ventilating a home while maintaining the internal temperature. This system also helps minimize the use of air conditioners, easing the burden on the environment.
The Reversible Flow Fan can blow air in both directions using the PWM control function, eliminating the need for separate inlets and outlets. This enables efficient heat recovery with supply and exhaust in just one fan.



Ceramic heat storage element



San Ace 136RF
9RF type

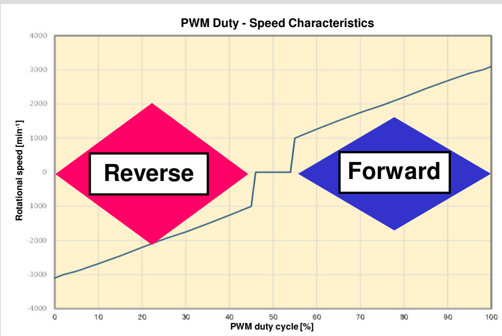
SANYO DENKI Proposal

■ **9RF1312P3H001 / ø136 x 28 / 12 V / PWM control function for speed+direction / 40,000 h @ 60ºC / 1 unit**
Purpose: A single fan can provide air supply and exhaust using the PWM control function to switch the flow direction. Air is drawn in from the outside through a filter to supply fresh air, then the fan changes direction to remove stale air.

Features

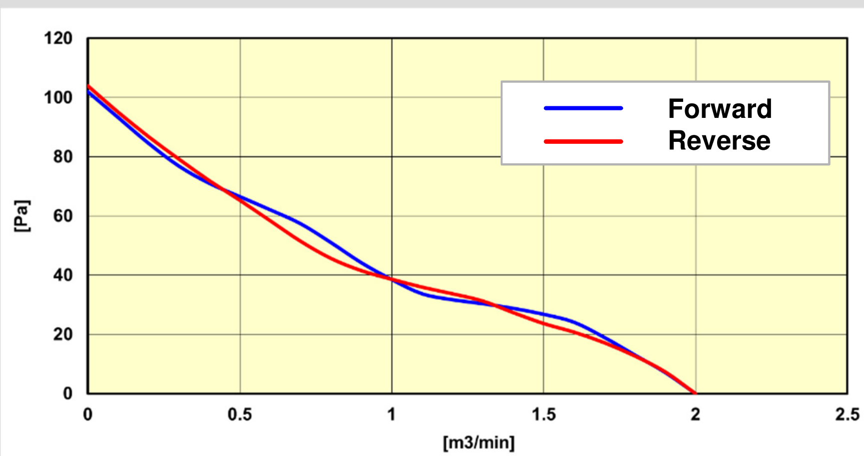
■ Bi-directional airflow

The Reversible Flow Fan can move air in both forward and reverse directions by changing the impeller rotation. Impeller rotation can be switched by controlling the duty cycle of an external PWM signal.



■ Same cooling performance in both directions

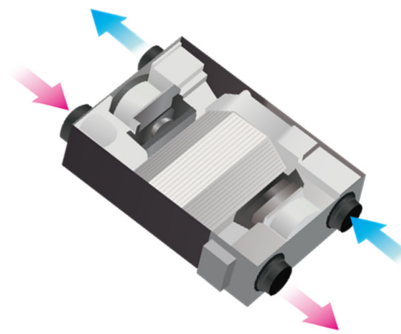
This fan delivers nearly the same airflow and static pressure whether blowing forward or reverse.



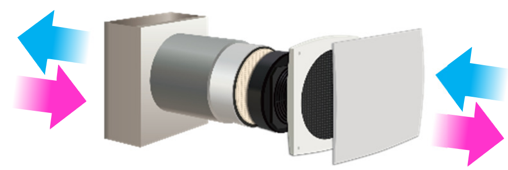
Merits

■ Contributes to the design of the customer's ventilation system

Conventional ventilation systems are designed with one or two fans for intake and exhaust, respectively, then combined with motors, controllers, and impellers set by the customer so that air can be sent to either side for supply and exhaust. Since the Reversible Flow Fan can blow air to either side of supply and exhaust with just one fan, customers can build inexpensive and space-saving ventilation systems. In addition, being able to switch direction and control speed with just the PWM control function can help make simpler ventilation systems.



Conventional ventilation system



Ventilation system using the Reversible Flow Fan

■ Easy control of speed and direction

The Reverse Flow Fan can simplify airflow calculations during the design of a ventilation system thanks to its nearly identical cooling performance in both forward and reverse directions. This also means it's possible to maintain the balance of intake and exhaust.