

Cooling Systems Division

Masato Murata

The importance of preserving the planet environment is strongly felt by the global climate changes and is increasing the urgency. The consideration to low power consumption, high efficiency cooling and reliability in the electronic equipment design has become a matter of course.

Market demands of cooling fans are various as follows.

- Flexibility of cooling design on large equipment
- Higher airflow and static pressure for high-density mounted servers
- Fans with bi-directional airflow to use in air environments such as home ventilation
- Water proof as well as long life for telecom equipment

Sanyo Denki has engaged in product development in response to this situation.

We apply our accumulated technologies as well as promote new technological developments in order to respond to changing market trends. And we continue producing high performance products which are user-friendly and offer even higher reliability.

Products launched by the Cooling Systems Division in 2015 are introduced below.

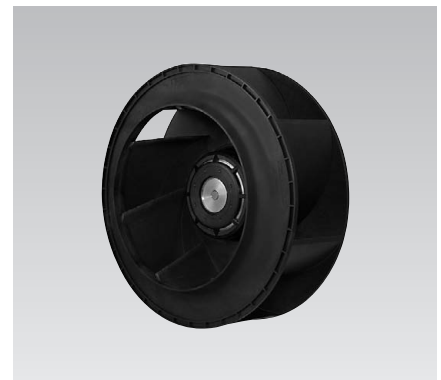
■ Centrifugal fan

DC fan

- $\phi 221$ mm x 71 mm thick "San Ace C221" 9TP type
- $\phi 225$ mm x 99 mm thick "San Ace C225" 9TS type

The cooling devices used for large equipment must be of a sophisticated design realizing high-efficiency cooling, low power consumption and a low SPL. Sanyo Denki developed the $\phi 221$ mm x 71 mm thick "San Ace C221" and $\phi 225$ mm x 99 mm thick "San Ace C225" centrifugal fans of

a large size not previously offered by our company. It makes wider range of fan's selection for our customers. These products are a response to the demands of large power storage equipment, wind power generation control equipment, large communication devices and so on.



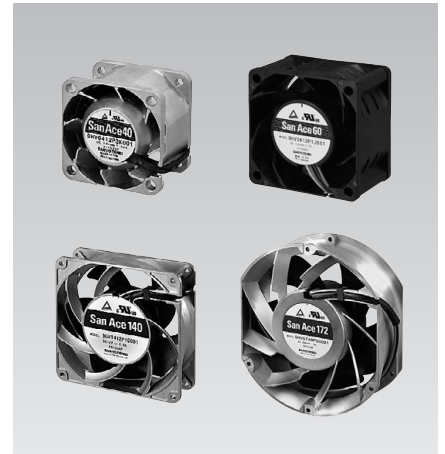
■ High airflow, high static pressure fan

DC fan

- 40 mm sq. x 28 mm thick "San Ace 40" 9HV type
- 60 mm sq. x 38 mm thick "San Ace 60" 9HV type
- 140 mm sq. x 38 mm thick "San Ace 140" 9GV type
- ø172 mm sq. x 51 mm thick "San Ace 172" 9HV type

Sanyo Denki developed four types of high airflow/high static pressure fans as a response to the demand for higher cooling which is necessary for high performance devices, such as high-density mounted servers, power conditioners, industrial inverters and storage. These fans are capable of

cooling in high airflow/high static pressure ranges not achievable with conventional products and offering low power consumption. Details of the "San Ace 60" 9HV Type are described in the New Product Introduction section in this Technical report.



■ Reversible flow fan

DC fan

- ø136 mm x 28 mm thick "San Ace 136RF" 9RF type

In the areas of home ventilation, beverage vending machines, food display cases and so on, there was a need for a fan that could switch between the intake and exhaust directions. Sanyo Denki developed a reversible flow fan with bi-directional

airflow, a product which had not existed up until now. This fan is able to obtain almost the same airflow-static pressure characteristic in both directions, while airflow direction and speed can be changed by a PWM signal.



■ ACDC fan

AC fan

- 92 mm sq. x 38 mm thick "San Ace 92AD" 9AD type

Following on from the 120 mm sq. x 38 mm thick "San Ace 120AD", Sanyo Denki has developed a fan which includes a DC motor and AC/DC conversion technology, and has achieved a reduction in power

consumption to less than half that of our conventional AC fans, an expected life 2.4 times greater, a sound pressure level (SPL) 5 dB (A) less, and the ability to be used in a wide voltage range (rated voltage: 100 to 240 V AC).



■ Counter rotating fan

DC fan

- 80 mm sq. x 80 mm thick "San Ace 80" 9CRB type

In response to demands from the 2U high-end market, etc., Sanyo Denki has developed the 80 mm sq. x 80 mm thick counter rotating fan which maintains a high static pressure equivalent to conventional models at the same time

as offering a 22% increase in maximum air volume. Additional details are described in the New Product Introduction section in this Technical Report.



■ High airflow, long life, splash proof fan

DC fan

- 40 mm sq. x 28 mm thick "San Ace 40W" 9WL type

In the past, cellular phone base stations did not require a cooling function for their equipment, however an increase in communication speed and volume has led to greater heat

generation, which in turn has created the need for a splash-proof (IP68), long-life fan. This product responds to those needs.



Masato Murata

Joined Sanyo Denki in 1984
Cooling Systems Div., Design Dept.
Worked on the development
and design of cooling fans.