Cooling Systems Division

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Remote work has been introduced at many companies as a measure to prevent the spread of COVID-19. As a result, the Internet and other types of ICT systems are playing a very important role in new lifestyles, business activities, and social activities.

Elements of ICT equipment such as servers, storage devices, and routers have been constantly improving in terms of speed, capacity, and performance, and they have been mounted in equipment with higher density. At the same time, the high density mounting of these types of equipment has increased heat buildup, which, in turn, has increased demand for fans with higher airflow and static pressure.

Also, equipment used outdoors such as base stations, PV inverters, and digital signage has increased performance, there has also been increased demand for water-resistant fans with higher cooling performance to accommodate the advanced features and performance of outdoor base stations, PV inverters, and digital signage.

To meet such market demands, we developed and launched fans with industry-leading performance and reliability.

Below is an overview of the products we developed in 2020.

■ High Static Pressure Fan

DC Fan

• 40 × 40 × 28 mm *San Ace 40* 9HVA type

40 × 40 × 28 mm fans are used in 1U servers and other ICT equipment. This equipment these days has higher performance than before, requiring more effective cooling. In addition, today's devices are required to be eco-efficient. This means that fans also need to operate with low power. To meet such demands, we developed and launched the *San Ace 40* 9HVA type fan. It offers the industry's highest(1) static pressure.

(1) Based on our own research as of May 28, 2020, conducted among equally-sized axial DC fans on the market.

• 80 × 80 × 38 mm *San Ace 80* 9HVB type

80 × 80 × 38 mm fans are used in high-density equipment such as 2U servers, storage devices, and routers. This equipment these days has higher performance than before, requiring more effective cooling.

In response to such market demands, we developed and launched the *San Ace 80* 9HVB type fan that features the industry's highest(2) airflow and static pressure.

(2) Based on our own research as of September 29, 2020, conducted among equally-sized axial DC fans on the market.

• 92 × 92 × 25 mm *San Ace 92* 9HV type

92 × 92 × 25 mm fans are being used widely in ICT and industrial equipment. Advancements in equipment performance and miniaturization have increased the heat generation inside equipment, requiring fans with higher cooling performance. In response to such market demands, we developed and launched the *San Ace 92* 9HV type fan that has the industry's highest(3) airflow and static pressure.

(3) Based on our own research as of March 10, 2020, conducted among equally-sized axial DC fans on the market.

■ Counter Rotating Fan

DC Fan

• 40 × 40 × 56 mm *San Ace 40* 9CRJ type

40 × 40 × 56 mm fans are being used in 1U servers and switching power supplies. This equipment these days has higher performance, calling for fans with higher cooling performance and lower operating power consumption.

To meet such market demands, we developed and launched the *San Ace 40* 9CRJ type fan that has the industry's highest(4) static pressure with low power consumption.

(4) Based on our own research as of August 18, 2020, conducted among equally-sized axial DC fans on the market.

■ Splash Proof Fan

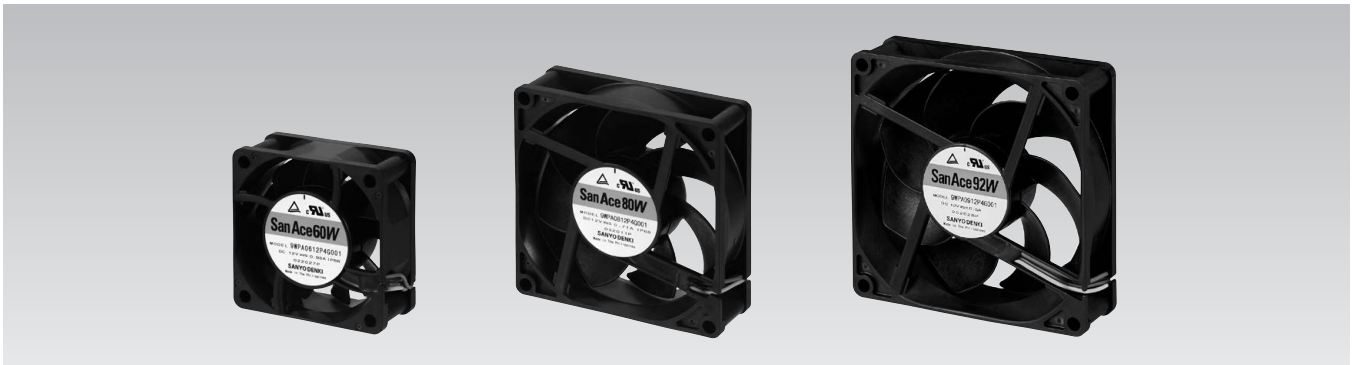
DC Fan

- 60 × 60 × 25 mm *San Ace 60W* 9WPA type
- 80 × 80 × 25 mm *San Ace 80W* 9WPA type
- 92 × 92 × 25 mm *San Ace 92W* 9WPA type

Our Splash Proof Fans have been used in outdoor equipment such as base stations, PV inverters, and digital signage. However, this equipment these days has higher performance and smaller sizes, and generates more heat, requiring more effective cooling than before.

In response to this demand, we developed and released the following high-performance Splash Proof Fans: *San Ace 60W*, *San Ace 80W*, and *San Ace 92W* 9WPA types. These fans offer the industry's highest[5] cooling performance (high airflow and static pressure) and IP68[6] protection.

(5) Based on our own research as of April 14, 2020, conducted among equally-sized waterproof axial DC fans on the market.
(6) IP68 ingress protection
The degree of protection (IP code) is defined by IEC (International Electrotechnical Commission) 60529 "Degrees of Protection Provided by Enclosures (IP Code)." (IEC 60529:2001)



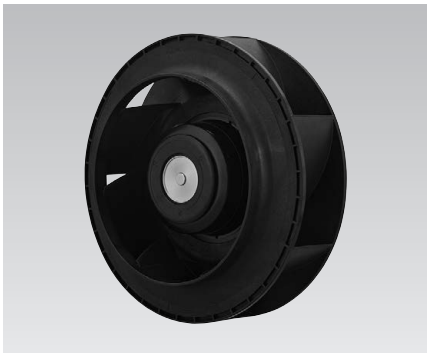
■ Centrifugal ACDC Fan and Splash Proof Centrifugal ACDC Fan

AC Fan

- ø190 × 88 mm *San Ace 190AD* 9ADTU type Centrifugal ACDC Fan
- ø190 × 88 mm *San Ace 190AD* 9ADW1TU type Splash Proof Centrifugal ACDC Fan

ø175 to ø250 mm AC centrifugal fans are being widely used in air conditioning systems, large inverters, and outdoor ICT equipment.

Advancement of this equipment has required cooling fans with higher cooling performance, lower power consumption, and higher water resistance. In response to such market demands, we developed and launched the *San Ace 190AD* 9ADTU type Centrifugal ACDC Fans and 9ADW1TU type Splash Proof Centrifugal ACDC Fans. These fans offer the industry's highest[7] static pressure.



(7) Based on our own research as of December 8, 2020, conducted among equally-sized waterproof or non-waterproof industrial centrifugal fans on the market.

Author

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