



# Cooling Systems Division

Kikuo Miyahara

Cooling fans are used for a wide variety of applications, mainly in telecommunication and computer equipments, but also in equipment such as audio-visual equipment and industrial equipment. The feature considered to be the most important

varies depending on the application, but support is generally desired for high cooling performance, low noise/low vibration, low power consumption, and environmental compatibility.

The following products introduce

the main technical developments for the Cooling Systems Division in 2007. Our company is moving forwards with development of new technologies and products based on market needs to continually provide the best products to support various applications.

## ■ “San Ace” GV type

DC fan

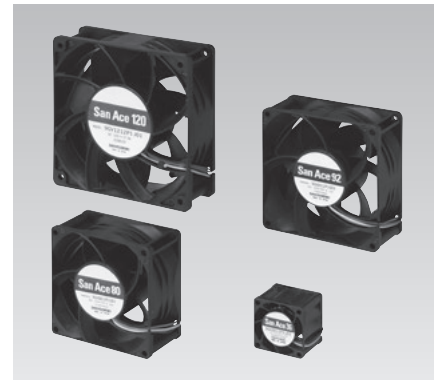
- “San Ace 36” 36 mm sq., 28 mm thick GV type
- “San Ace 80” 80 mm sq., 38 mm thick GV type
- “San Ace 92” 92 mm sq., 38 mm thick GV type
- “San Ace 120” 120 mm sq., 38 mm thick GV type

The GV Series was developed to have larger air flow, higher static pressure, and lower power consumption compared to our conventional product.

For example, the maximum air flow is 1.5

times larger and the maximum static pressure is 2.6 times higher than our conventional 120 mm sq., 38 mm thick model, furthermore, the power consumption at the same air flow is 8% less. The “PWM control function” can be added to control the rotating speed from an external source.

Application: Power supplies, servers, telecommunication equipment, industrial equipment, etc.



## ■ “San Ace” Counter Rotating Fan

DC fan

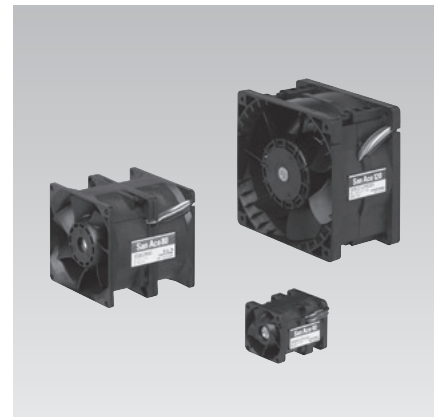
- “San Ace 40” 40 mm sq., 48 mm thick CRA type
- “San Ace 80” 80 mm sq., 80 mm thick CR type
- “San Ace 120” 120 mm sq., 76 mm thick CR type

There are an increasing number of cases where two fans are used in serial connection in order to increase the cooling performance for equipments with high heat and high mounting density. A counter rotating fan with superior aerodynamic capabilities was developed for these types of applications.

For example, the maximum air flow is 1.2 times larger and the maximum static pressure is 1.4 times higher when the 120 mm sq., 76 mm thick fan is compared to two conventional fans operating in series.

The “PWM control function” can be added to control the rotating speed from an external source.

Application: Servers, storage systems, telecommunication equipment, industrial equipment, etc.



## ■ “San Ace” Low-Vibration Fan

DC fan

“San Ace 40” 40 mm sq., 56 mm thick CRE type  
“San Ace 40” 40 mm sq., 28 mm thick GE type

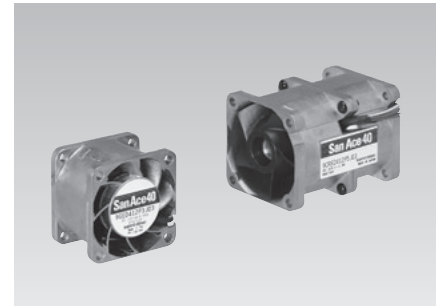
to control the rotating speed from an external source.

Application: Servers, storage systems, telecommunication equipment, industrial equipment, etc.

When compared to conventional fans, the maximum air flow and maximum static pressure are about the same, but the vibrations have been reduced 50%.

Additional details are given in the Special Feature article in this Technical Report.

The “PWM control function” can be added



## ■ Oil Proof Fan “San Ace 60WF”

DC fan

“San Ace 60WF” 60 mm sq., 15 mm thick

Application: Industrial equipment

A 60 mm sq., 15 mm thick oil proof fan was developed.

This fan has achieved maximum air flow of 0.52 m<sup>3</sup>/min, maximum static pressure of 95 Pa, and sound pressure level of 44 dB(A).



## ■ Splash Proof Fan “San Ace 92W” WP type

DC fan

“San Ace 92W” 92 mm sq., 25 mm thick WP type

Application: Solar inverters, equipment installed outdoors, manufacturing equipment, etc.

A 92 mm sq., 25 mm thick Splash Proof Fan W Series WP type has been developed with IP55 level of water protection.

By using a resin frame, the mass has been reduced 35% compared to the conventional product.



### Kikuo Miyahara

Joined Sanyo Denki in 1983.  
Cooling Systems Division, Design Dept.  
Worked on the development and design of fan motors.