■User Optimization - Point #1

You can reduce noise in your device even in high-density applications, because of the wider low-noise operating range.

Over the operating range from 50% of maximum airflow and above the "GentleTyphoon" is 5 dB quieter than our previous fans. (An increase in 30% of the low-noise range compared with our previous fans.) You can now reduce noise even in your high-density devices with high system impedance. Using our cutting edge fluid analysis technology we have achieved a significant reduction in noise.

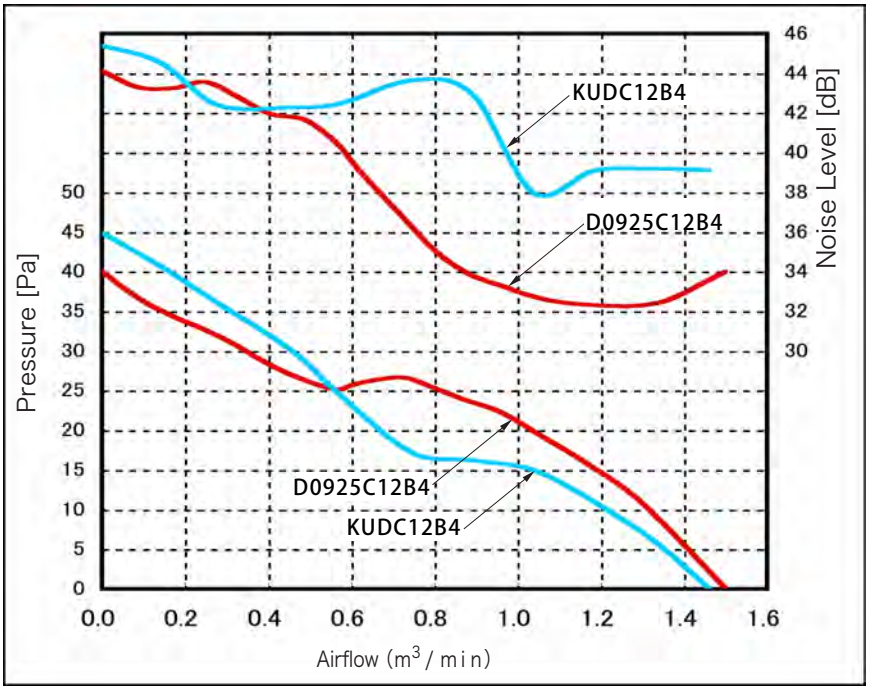

Figure-A: Comparison with our previous model.

■User Optimization - Point #2

The "GentleTyphoon" uses two methods to reduce vibration with a third of the vibration of our previous fans. Resonant noise has also been suppressed.

Typically vibration from the fan motor will transfer to the fan case, which often causes resonant vibration in the device and an increase in noise. Our newly developed low vibration motor and vibration absorbing structure work together to reduce this problem. (A vibration reduction of about 66% compared to our other fans.) Also the motor stator uses an adhesive free design increasing its recyclability.

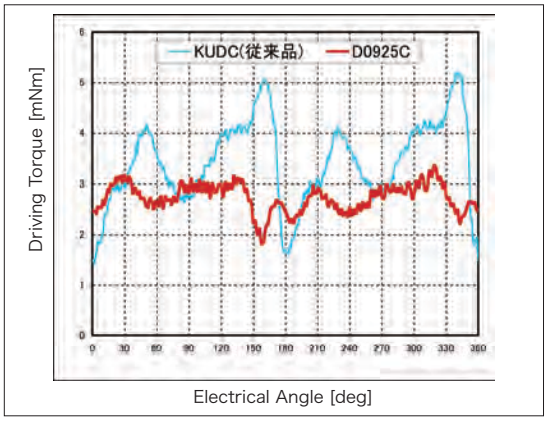

Figure-B: Comparison of driving torque variation.

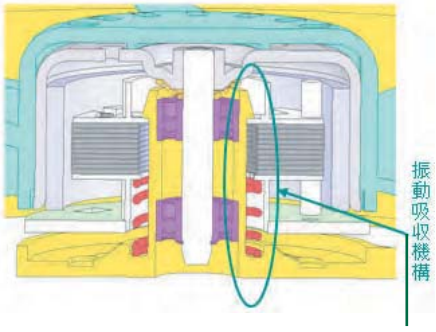

Figure-C: Inner vibration absorbing structure of the motor. (Patent pending)

*Implementing cutting edge technology: In cooperation with Hitachi and making use of our fluid, structural, and magnetic analysis techniques we have completely redesigned the fan motor greatly improving its performance.

■User Optimization - Point #3

The 25 mm thick “GentleTyphoon” has the same high air flow as a 32 mm thick fan.

(System impedance in your high-density application can be reduced.)

If airflow and noise are the same, the 7 mm difference between a 32 mm fan and a 25 mm fan is a major benefit. The extra 7 mm allows you to reduce the system impedance of the entire system which will increase airflow and improve the level of cooling By keeping the same level of cooling, and reducing the rotational speed of the fan will also allow for much quieter operation. The graph to the right compares the same level of cooling at the same time in two different fans.

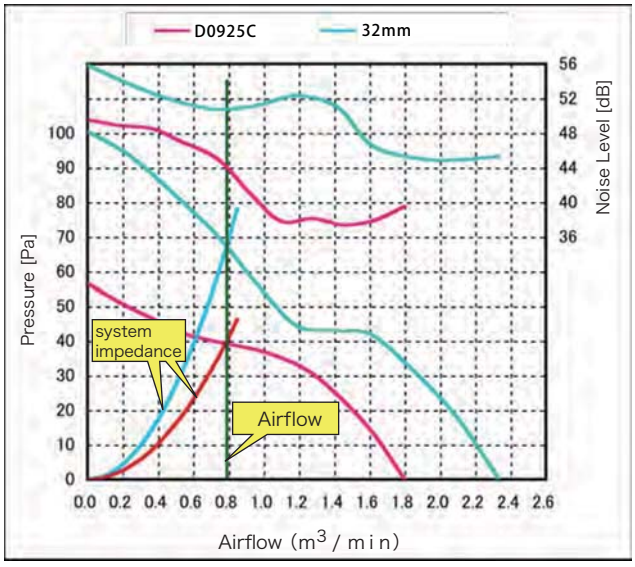

Figure-D: Comparison of installed 25 mm and 32 mm fan performance and system impedance.

■User Optimization - Point #4

Our newly developed high efficiency motor and custom IC control result in energy savings.

(This savings is a 30% reduction in energy use compared with our previous 12 V fans)

Using the latest magnetic field analysis technology, we have made a smaller high efficiency motor core which requires less input than previous designs. An energy savings of 30% is achieved by using a specially designed bipolar 12V IC.

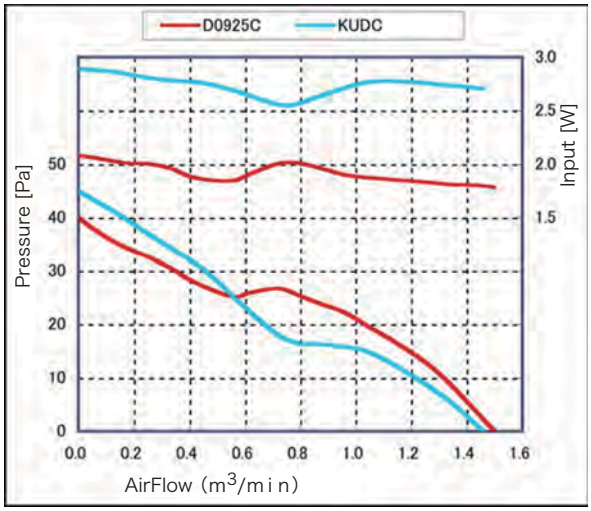

Figure-E: Input power comparison with previous model.

■User Optimization - Point #5

Significant improvement in sound quality by focusing on an understanding of timbre.

Up until now it has been difficult to satisfy users concerned with sound quality through the measured values of fan noise alone. This difficulty stems from the fact that a fan motor’s sound quality can be more disturbing than the actual noise level itself. We have studied the causes and mechanisms of bad sound quality (such as the peaks near 1000 Hz) and developed the know-how needed to produce fan motors avoiding these problems.

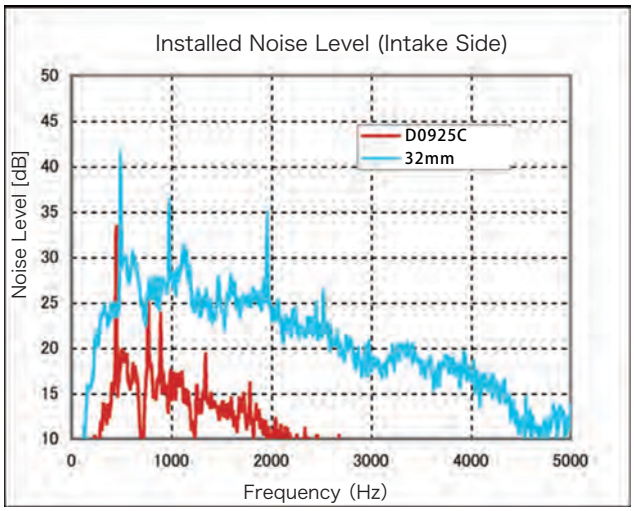

Figure-F: Comparison of installed 25 mm and 32 mm fan noise spectrum.