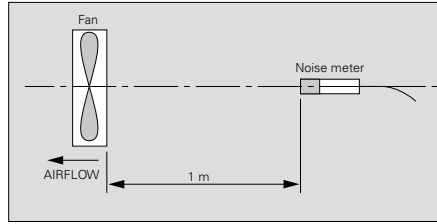## Noise characteristics

Noise is average value that measured at 1 meter away from air intake side of fan that is suspended on special frame in anechoic chamber (as per JIS B 8346).





Acoustic radio wave anechoic chamber

## Measuring airflow and static pressure

It is very difficult to measure airflow and static pressure. In fact, the performance curve may vary greatly according to the type of measuring equipment.

The commonly-used type of measuring equipment is a wind tunnel using a Pitot tube. SANYO DENKI uses a very precise method using double chamber equipped with many nozzles.
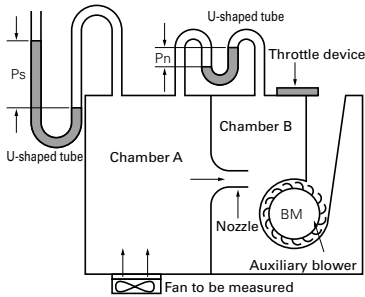


Double chamber measuring equipment

$Q = 60A\bar{v}$ (A)

where

$Q$ = airflow (m³/min)

$A$ = cross sectional area of nozzle $= \dfrac{\pi}{4}D^2$ (m²)

$D$ = nozzle diameter

$\bar{v}$ = average airflow velocity of nozzle $= \sqrt{2g\dfrac{Pn}{\gamma}}$ (m/s)

$\gamma$ = Specific weight of air $= \rho g$ (N/m³)
(Air density $\rho$ = 1.2 kg/m³ at 20°C, 1 atm)

$g$ = acceleration of gravity = 9.8 (m/s²)

$Pn$ = differential pressure (Pa)

$Ps$ = static pressure (Pa)

The measuring equipment using double chamber is method to be calculated from airflow goes through nozzle and differential pressure between pressure of inside of chamber (Ps) and atomospheric pressure by measuring differetial pressure between air intake and exhaust of nozzle (Pn).

## Conversion table

### Static pressure
1 mm $H_2O$ = 0.0394 inch $H_2O$
1 mm $H_2O$ = 9.8 Pa (Pascal)
1 inch $H_2O$ = 25.4 mm $H_2O$
1 Pa = 0.102 mm $H_2O$
1 inch $H_2O$ = 249 Pa

### Airflow
1 CFM (ft³/min) = 0.0283 m³/min
1 m³/min = 16.67 ℓ/s
1 CFM = 0.472 ℓ/s
1 ℓ/s = 0.06 m³/min

Technical Material