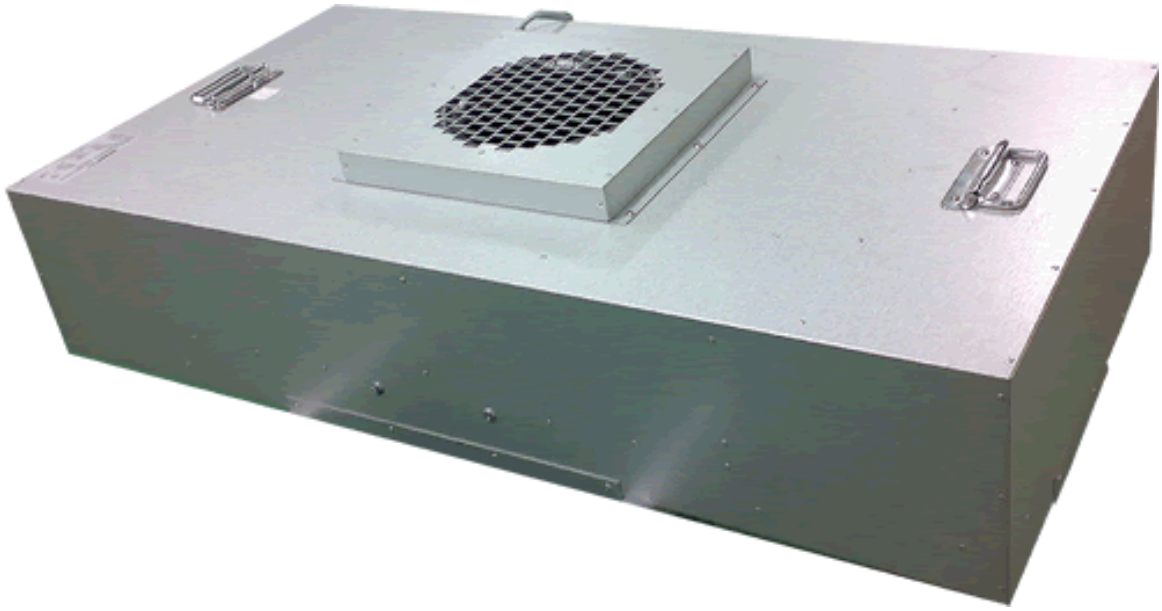

Introduction

- High performance and excellent quality
- Low energy consumption reduces operating cost
- Easy installation in clean room grids

The Kyodo Fan Filter Unit (FFU) is a self-contained ceiling unit for use in turbulent mixing and laminar flow clean room applications. The unit is designed with total flexibility for use with the ceiling grids (such as the liquid-sealed ceiling grid). It can be easily upgraded and integrated into any ceiling configuration in accordance with design specification to achieve clean room Class 100, Class 10 and Class 1.

Size	600x1200; 900x1200	-
Casing	Galvalume	Standard
	Aluminum, SUS 430	Optional
Power Supply	3Φ 200V 60Hz / 3Φ 220V 60Hz	-
Mounting	Horizontal	Standard
	Vertical (Wall Mounting)	Optional
Filter Access	Top Access	Standard
	Room Access	Optional

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The Kyodo FFU is one of the quietest and cost effective units on the market, that delivers high quality air filtration and air movement performance in clean room. It is suitable for semiconductor, electronics, TFT LCD, disk drives manufacturing, optical, biological industries and other applications where airborne contaminants must be carefully controlled.

Technical Information	2x4 AC
Dimension	1200 x 600 mm
Height	275 mm
Power Supply	3Φ / 200V / 60Hz
Air Velocity	0.43 m/s @ TSP=200 Pa
Power Consumption	150 W
Noise Level (Measured @ 1.5m below filter surface)	< 55 dB(A)
Weight	26 kg
Unit Price	**SGD $268.00** [1]

Technical Information	2x4 AC
Dimension	1200 x 600 mm
Height	275 mm
Power Supply	3Φ / 220V / 60Hz
Air Velocity	0.50 m/s @ TSP=200 Pa
Power Consumption	165 W
Noise Level (Measured @ 1.5m below filter surface)	57.6 dB(A)
Weight	26 kg
Unit Price	**SGD $268.00** [1]

Option: 1. 3-step speed control available for FFU group (Max. 50 FFU/group).
2. MCB to individual FFU available on request.
Note : [1] Galvalume casing, FOB Singapore / Malaysia (Base on full container load).

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Technical Information	2x4 AC	3x4 AC
Dimension	1200 x 600 mm	1200 x 900 mm
Height	275 mm	300 mm
Power Supply	3Φ / 380V / 60Hz	
Air Velocity	0.45 m/s @ TSP=200 Pa	0.35 m/s @ TSP=200 Pa
Power Consumption	152 W	160 W
Noise Level (Measured @ 1.5m below filter surface)	< 55 dB(A)	< 55 dB(A)
Weight	26 kg	36 kg
Unit Price	**SGD $268.00** [1]	**SGD $350.00** [1]

Technical Information	2x4 AC	3x4 AC
Dimension	1200 x 600 mm	1200 x 900 mm
Height	275 mm	300 mm
Power Supply	3Φ / 480V / 60Hz	
Air Velocity	0.50 m/s @ TSP=200 Pa	0.40 m/s @ TSP=200 Pa
Power Consumption	178 W	184 W
Noise Level (Measured @ 1.5m below filter surface)	< 55 dB(A)	< 55 dB(A)
Weight	26 kg	36 kg
Unit Price	**SGD $268.00** [1]	**SGD $350.00** [1]

Option: 1. 3-step speed control available for FFU group (Max. 50 FFU/group).
2. MCB to individual FFU available on request.
Note : [1] Galvalume casing, FOB Singapore / Malaysia (Base on full container load).

Blower / Motor	ebm Germany
Type	External Rotator, Backward Curve
Impeller	3D Aluminium
Fan Balance Grade	G 2.5
Bearing Maker	SKF or Equal
Motor & Fan balancing	Dynamically balanced. Quality ISO International Standard DIN 1940-E
Bearing Life Time	75,000 hours
Motor Approval	ISO 9001
Motor Insulation / IP	Class F / IP44
RMS Accelebration, G*	< 0.025

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ebm Blower

Air performance

Air performance characteristics are determined in a test chamber built to DIN 24163, with the fan measured on its sucking side. They refer to an air density of $\rho = 1.2$ kg/m³ at 20 °C.
With air density ρ changing, pressure build-up also changes, though the air flow remains the same.
Pressure at deviating air density can be calculated roughly by the following equation:

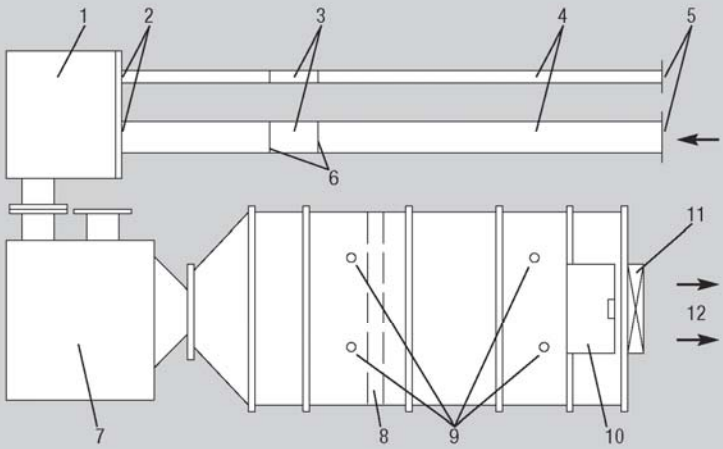
$$\Delta p_2 = \Delta p_1 \frac{\rho_2}{\rho_1}$$

Noise level

The noise level as indicated is measured in an echo-free chamber with non-reflective floor, following DIN 45635-1, respectively ISO 3745. The fan under test is anti-vibration mounted and runs at free air at nominal voltage, in AC also at nominal frequency. The microphone is placed in front of the air inlet, at a distance of one meter. Since the actual operating and mounting conditions usually differ from test conditions, the data given can only be used for comparison.

Safety approvals

Depending on the product, ebm-papst fans and blowers comply with EN 60335-1, EN 50178, EN 60950, and EN 60034-1.
Special requests as to flammability rating have to be specified by the customer.
The major part of the fans and blowers can also be supplied in CE, VDE, UL, GOST, CCC and/or CSA approved design.



Test chamber set-up
Test rig according to DIN 24163
1) Collector
2) Hydraulic shutter
3) Venturi tube or nozzle
4) 9 ducts with different diameter each for different air volumes
5) Air intake (inlet nozzles)
6) Measuring points for diff. pressure, air flow
7) Auxiliary fan with shutter
8) Air flow rectifier
9) Measuring points for static pressure, connected by ring pipe
10) Door
11) Fan under test
12) Direction of air delivery, free air

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