



APPLICATION

AHU supply / return

AHU supply and return fans are the air-movers inside built-up and packaged air-handling units — pushing conditioned air to the space and drawing it back through the return. The air is clean, so nothing here erodes or corrodes.

Capability envelope

AHU service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to 1,500 mmWC (external + AHU-internal)	up to 2,000 mmWC on high-resistance builds
Air temperature	ambient conditioned air, -10 to 60 °C	higher on process-air / recirculation service
Static efficiency	high static efficiency	higher on airfoil high-efficiency builds
Sound level	<85 dB(A) @ 1 m	<75 dB(A) with acoustic enclosure
Drive power	up to 425 HP	our largest drive delivered to date
Speed	600–1,800 RPM typical	per duty + sound limits
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application

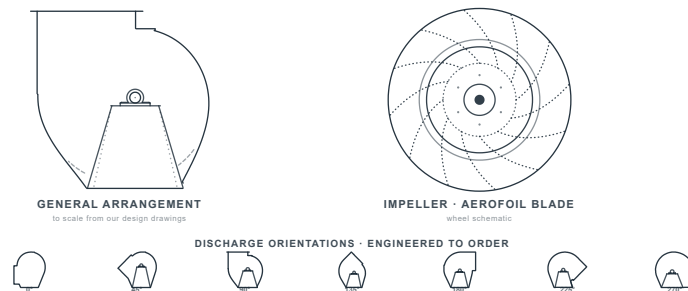


FIG. 1 Representative arrangement — a Jitamitra Aerofoil fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Impeller & configuration** — Plug/plenum (unhoused) airfoil wheel for the compact AHU section and clean discharge into the plenum; housed backward-curved / airfoil where a ducted volute discharge is specified. Static efficiency shared on enquiry, depending on configuration and duty size.
- **Acoustics** — Sound power predicted per octave band, low-tip-speed wheel selection, and attenuator scope sized to the room criterion — <85 dB(A) @ 1 m standard, <80 dB(A) with inlet/discharge silencers and acoustic-lagged casing, <75 dB(A) with an acoustic enclosure.
- **Control** — **VFD as default** — AHU flow tracks occupancy and load across a wide range; VFD speed control is more efficient than a discharge damper at part-load because it avoids the throttling loss, and holds space pressure across VAV turndown. VFD is our default; supply and return drives are matched to track together.
- **Materials & hygiene** — Mild steel + epoxy coating standard; stainless steel wheel and cleanable, crevice-minimised construction where the AHU serves pharma, food or a wash-down environment; aluminium impeller for **ATEX Zone 2** where an AHU handles a classified return air path.

How a Jitamitra AHU supply / return fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Arrangement (AMCA 99)	Arr. 4 (direct, impeller on the motor shaft — the plug/plenum default) / Arr. 1 (overhung, fan bearings) / Arr. 8 (overhung on common base) / Arr. 9 (overhung, motor side) / Arr. 10 (overhung, motor inside base) — selected by drive, access and AHU section.
Configuration	Plug / plenum (unhoused, discharging into the AHU plenum — default for built-up and packaged AHUs) / housed SWSI or DWDI where a ducted volute discharge is specified.
Width / inlet	SWSI (single width, single inlet) default; DWDI (double width, double inlet) for high flow at moderate static in a large built-up AHU.
Wheel type	Airfoil-bladed (default for best efficiency and lowest sound on clean air) / backward-curved or backward-inclined (where cost, space or a wash-down clean-out rules).

SPECIFICATION FIELD	OPTIONS
Class (by pressure / outlet velocity)	Class I / II selected from the duty point on the pressure-vs-outlet-velocity limits; most AHU duty sits in Class I / II, higher class = heavier construction for higher pressure and tip speed.
Materials of construction	Mild steel + epoxy coating (standard) / stainless steel wheel and cleanable, crevice-minimised construction for pharma, food and wash-down AHUs / aluminium impeller for ATEX Zone 2 on a classified return path.
Drive	Direct-coupled (plug/plenum default) / V-belt / VFD (default for VAV turndown control). Drive up to 425 HP across the envelope; speed typically 600–1,800 RPM, with supply and return drives matched to track together.
Discharge & rotation (AMCA orientation)	Plug/plenum discharges into the AHU plenum (no scroll); on housed builds rotation CW or CCW (viewed from drive side) with discharge angle per AMCA — e.g. TH/BH/UB/DB — set to match the duct take-off and AHU footprint.
Accessories & acoustic scope	VFD control (matched supply/return); inlet and discharge silencers, acoustic-lagged casing and inlet cone / bell-mouth for efficiency and low sound; flexible connection / expansion joint at the AHU interface; anti-vibration mounts; drain and inspection doors; acoustic enclosure for <75 dB(A).

Where the AHU supply / return runs

COMMERCIAL HVAC & BUILDINGS Built-up and packaged AHU supply/return for offices, malls, hospitals and airports — efficiency-led, low-noise, VAV-controlled.	DATA CENTERS CRAH and AHU supply/return for containment cooling — high efficiency, supplied as duplex / N+1 where your reliability architecture calls for it (sized so the remaining units carry the load if one is lost), VFD tracking IT load.
PHARMACEUTICALS AHU supply/return on utility and non-classified HVAC — stainless, cleanable construction (the cleanroom AHU duty is a separate page).	FOOD & BEVERAGE Process-area AHU supply/return with wash-down-ready, crevice-minimised build for hygiene.
SEMICONDUCTOR & ELECTRONICS Fab-support and utility AHU air movement where efficiency and vibration limits are tight.	INSTITUTIONAL & HEALTHCARE Hospital, lab and campus AHU supply/return where sound criterion and 24×7 uptime govern.
TEXTILE & LIGHT INDUSTRY Humidification-plant and general process AHU supply/return at high run hours.	YOUR DUTY POINT Send us flow, static pressure and the air / gas condition — we size the wheel to it and quote in 3 to 5 working days — 5 to 7 working days for ATEX and special projects.

Standards & conformity

PERFORMANCE Tested to the IS 4894 / ISO 5801 / AMCA 210 method, in-house on our 200 HP VFD rig. Tested-to-method — not AMCA-certified.	QUALITY SYSTEM ISO 9001:2015 — third-party certified (our only third-party certification).
CE CONFORMITY Self-declared per 2006/42/EC + 2014/35/EU. Not a notified-body certificate.	ATEX CONFORMITY Self-declared, spark-resistant (SR), Zone 2/22 Cat 3 per 2014/34/EU, where area classification requires.
BALANCE & VIBRATION Balance ISO 21940 (G6.3 std, G2.5 on request); fan vibration acceptance ISO 14694, measurement ISO 14695.	WELDING & HEAVY DUTY ASME Sec IX welders + WPS; API 673 available as project-specific scope for oil & gas.

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Figures indicate family capability; every fan is engineered to the customer's duty point and confirmed on the approved GA drawing.