



APPLICATION

Secondary / Overfire Air (SA)

An SA / OFA fan injects a metered slug of combustion air above the primary burn zone — completing carbon burnout while holding the flame fuel-rich lower down to suppress thermal NOx. It is clean-air duty, but not an easy one: the air must be delivered at enough static to punch through the port and mix, and the fan must hold a steady curve while the staging split is trimmed against load and emissions.

Capability envelope

SA / OFA service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to 2,000 mmWC	sized to port + nozzle resistance
Overfire air fraction	15–30% of total combustion air	per boiler staging design
Inlet air temperature	ambient to 250 °C (warm windbox / tempered)	higher on application with special metallurgy
Static efficiency	high (backward-bladed) — figures shared on enquiry	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
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application

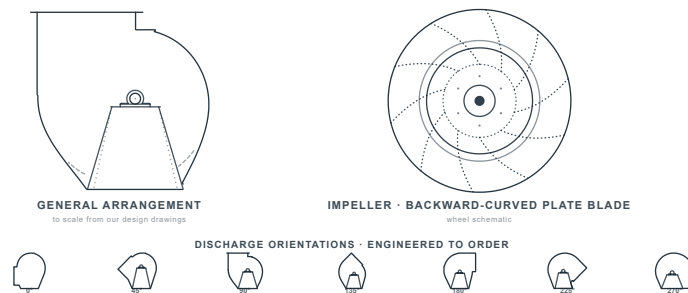


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Impeller geometry** — Backward-curved or backward-inclined for the highest static efficiency on clean-air staged duty; airfoil-bladed on the highest-efficiency builds where the boiler runs base-load and the hours justify the CAPEX.
- **Materials** — Mild steel + epoxy coating standard; stainless where the inlet air is humid (coastal) or the plant handles corrosive process air; aluminium impeller for ATEX Zone 2 service where the area classification calls for it.
- **Control** — VFD as default — The overfire split is a live variable trimmed against emissions and load. VFD sets the staged flow on speed and avoids the throttling loss of an inlet damper at part-load; inlet guide vanes (IGV) remain available where fast, fine split trim against a NOx signal is wanted.
- **Warm-air & windbox handling** — Where SA is drawn warm off a common windbox or tempered with a pre-heated bleed, the inlet air can run 150–250 °C — casing metallurgy, shaft thermal-growth allowance and bearing selection set to the stated inlet temperature, not a generic ambient rating.

How a Jitamitra Secondary / Overfire Air fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Arrangement (AMCA 99)	Arr. 1 (overhung, fan bearings) / Arr. 4 (direct, motor on base) / Arr. 8 (overhung on common base) / Arr. 9 (overhung, motor side) / Arr. 10 (overhung, motor inside base) — selected by drive, access and temperature.
Width / inlet	SWSI (single width, single inlet) default for SA / OFA duty; DWDI (double width, double inlet) for high flow at moderate pressure on large windbox supply.
Wheel type	Backward-curved or backward-inclined (default, best efficiency on clean staged air) / airfoil-bladed (highest-efficiency, large continuous base-load builds).

SPECIFICATION FIELD	OPTIONS
Class (by pressure / outlet velocity)	Class I / II / III selected from the duty point on the pressure-vs-outlet-velocity limits; higher class = heavier construction for the higher port static and tip speed.
Materials of construction	Mild steel + epoxy coating (standard) / stainless steel for humid coastal or corrosive process air / upgraded casing metallurgy for warm windbox air / aluminium impeller for ATEX Zone 2 .
Drive	Direct-coupled / V-belt / VFD (default for staging-split control). Drive up to 425 HP across the envelope; speed typically 600–1,800 RPM .
Discharge & rotation (AMCA orientation)	Rotation CW or CCW (viewed from drive side) with discharge angle per AMCA — e.g. TH/BH/UB/DB — set to match your OFA duct take-off and installed footprint.
Accessories & acoustic scope	Inlet guide vanes (IGV) or VFD control for split trim; discharge / isolation damper; inlet and outlet silencers for low-frequency content and casing-wall acoustic lagging; acoustic enclosure for <75 dB(A) ; flexible connection / expansion joint on warm-air service; drain and inspection doors.

Where the Secondary / Overfire Air runs

POWER GENERATION Utility and cogen boiler overfire-air systems, two-stage combustion on PC and travelling-grate boilers.	SUGAR & DISTILLERIES Bagasse-fired boiler secondary and overfire air for high-moisture-fuel burnout.
PULP & PAPER Recovery and power-boiler secondary air, biomass-boiler overfire air.	CHEMICALS & PETROCHEM Process-boiler and fired-heater staged combustion air for NOx compliance.
BIOMASS & WASTE-FUEL BOILERS Overfire air on grate and fluid-bed units burning agro-residue, RDF and mixed biomass.	IRON & STEEL Reheating-furnace and process-boiler staged combustion air.
FOOD PROCESSING Solid-fuel and biomass boiler secondary / overfire air for steam raising.	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.