



APPLICATION

Primary Air (PA)

A PA fan does more than an FD fan: it supplies the primary combustion air that entrains and conveys pulverised coal from the mill through the fuel pipes to the burner — so it runs at higher static, holds pressure steady as feeder rate swings across mill load, and shrugs off the light coal dust that rides through it. Cleaner than an ID fan, harder than an FD fan.

Capability envelope

PA service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to 2,000 mmWC	higher on enquiry
Primary-air temperature	up to 350 °C (hot PA, post-APH)	higher on application with special metallurgy
Inlet dust loading	cold PA clean; hot / combined PA carries light coal dust	higher with enhanced wear protection
Static efficiency	high (backward-bladed) on PA duty — figures shared on enquiry	higher on high-efficiency builds
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

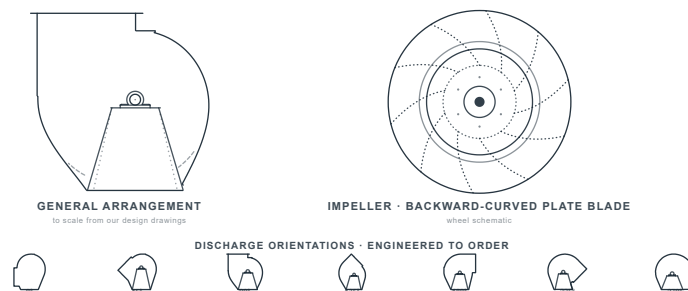


FIG. 1 Representative arrangement — a Jitmitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Impeller geometry & tip speed** — Backward-curved or backward-inclined for high static at good efficiency on PA duty; tip speed and blade-root stress engineered to the pressure rise the mill and burner demand, not a catalogue speed.
- **Wear protection — hot / combined PA** — Cold-PA (upstream of the APH and mill) is clean air, no wear scope. Hot-PA and combined-PA carry light coal dust: chrome-carbide leading edges and bolted-in **AR400** wear plates sized to the loading, replaceable through access doors.
- **Control — VFD as default** — Primary-air demand tracks mill load, so turndown is real. VFD speed control avoids the throttling loss of an inlet damper at part-load and holds the fuel-air ratio steady as firing swings — our default; inlet vane dampers remain available for legacy retrofit.
- **Hot-PA thermal handling** — Downstream of an air pre-heater the primary air may run **200–350 °C** — casing upgraded to **IS 2062** or **SA 516 Gr 70**, shaft sized for thermal growth, bearings selected for sustained **80–100 °C** housing temperature, expansion joints on the hot connections.

How a Jitmitra Primary 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 PA duty; DWDI (double width, double inlet) for high flow at moderate pressure on large mill lines.
Wheel type	Backward-curved or backward-inclined (default, high static at good efficiency on PA duty); radial-tipped backward-curved where the coal-dust wear condition is heavier.

SPECIFICATION FIELD	OPTIONS
Class (by pressure / outlet velocity)	Class II / III typical for PA (higher static than FD) selected from the duty point on the pressure-vs-outlet-velocity limits; higher class = heavier construction for higher pressure and tip speed.
Materials of construction	Mild steel + epoxy coating (standard cold PA) / chrome-carbide-faced leading edges and AR400 bolted wear plates for hot / combined PA coal dust / IS 2062 or SA 516 Gr 70 casing for hot-PA temperature / stainless for humid coastal inlet air.
Drive	Direct-coupled / V-belt / VFD (default for mill-load 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 fuel-pipe take-off and installed footprint.
Accessories & high-static scope	Inlet vane damper or VFD control; bolted-in AR400 wear plates and access doors on coal-dust duty; expansion joints and thermal scope for hot-PA service; shaft cooling disc where hot-PA temperature requires; inlet and outlet silencers with acoustic-lagged casing; drain and inspection doors.

Where the Primary Air runs

POWER GENERATION Pulverised-coal boiler primary air — cold-PA, hot-PA and combined-PA duty feeding the mills and burners.	CEMENT Coal-mill primary air for kiln main-burner and calciner firing systems.
IRON & STEEL Pulverised-coal injection (PCI) and coal-mill primary air on furnace firing lines.	SUGAR & DISTILLERIES Bagasse and biomass co-firing primary air on captive boilers.
CHEMICALS & PETROCHEM Solid-fuel process-boiler primary air for coal- and biomass-fired steam.	PULP & PAPER Recovery- and power-boiler primary air on solid-fuel firing.
WASTE-TO-ENERGY Primary air for RDF- and biomass-fired combustion lines.	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.