



APPLICATION

Boiler fan suite (ID/FD/PA/SA)

A boiler runs on four coordinated fans, not one. The ID fan pulls flue gas out to the stack, the FD fan pushes combustion air in, the PA fan dries and transports the fuel, and the SA / overfire-air fan stages the burn — and they must hold balanced draft together across every load.

Capability envelope

Boiler fan suite

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow (per fan)	up to 2,25,000 CMH	higher on enquiry; ID and SA typically carry the largest flow
Static pressure (per fan)	up to 2,000 mmWC	PA carries the highest static, typically 1,000–1,800 mmWC
FD / SA inlet air temperature	ambient to 350 °C (APH-preheated air)	higher on application with special metallurgy
ID gas temperature	up to 500 °C continuous	wheel and casing metallurgy chosen for the duty
PA inlet air temperature	250–350 °C (mill drying air)	per mill and fuel
Drive power (per fan)	up to 425 HP	our largest drive delivered to date
Control across the set	VFD default, matched turndown ~40–100% MCR	Inlet Guide Vanes (IGV) / inlet damper on legacy retrofit
Balance quality	ISO 21940 G6.3 every fan	G2.5 / G1.0 on application

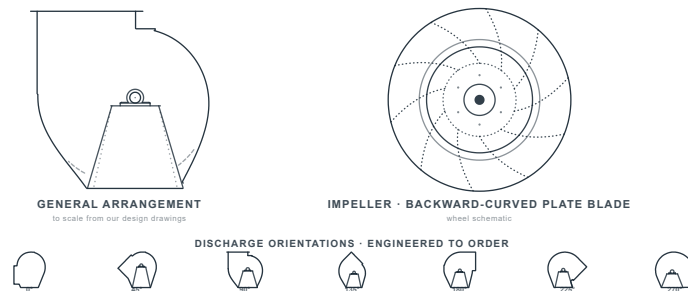


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Family selection per position** — The dirty ID fan on a rugged radial-tipped backward-curved wheel with wear protection for flue gas to 500 °C; the clean FD, SA and low-pressure air fans on efficient backward-curved-plate or airfoil wheels for high static efficiency; the high-pressure PA fan on a stiffened high-pressure casing holding 1,000–1,800 mmWC.
- **One control strategy across the set** — A common VFD-led control strategy so ID and FD track for balanced draft and all four fans turn down together from ~40% to 100% MCR — VFD is our default; Inlet Guide Vanes (IGV) or inlet dampers remain available for legacy retrofit.
- **Shared spares, bearings and interfaces** — The set is standardised on a common bearing, seal and coupling family and a shared spares kit wherever the duty allows — one L10h ≥ 40,000 h bearing standard, common Flexible Connection / Expansion Joint interfaces, and matched Isolation / Shut-off Damper scope — so one store serves four fans.
- **One documentation & QA package** — A single GA drawing language, one QA and inspection record, and one performance-test dossier for the whole island — every fan proven on the 200 HP VFD test rig and balanced to ISO 21940 G6.3 (G2.5 / G1.0 on application) before dispatch.

How a Jitamitra Boiler fan suite fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Set composition	ID (induced draft) + FD (forced draft) + PA (primary / mill air) + SA / overfire-air — supplied and coordinated as one matched set, sized off a single firing rate.
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 per position by drive, access and temperature.
Width / inlet	SWSI (single width, single inlet) default across the set; DWDI (double width, double inlet) on the ID or SA fan where high flow at moderate pressure calls for it.

SPECIFICATION FIELD	OPTIONS
Wheel type (per position)	ID — radial-tipped backward-curved (or straight-radial where fly-ash buildup dominates); FD / SA — backward-curved-plate or airfoil-bladed for efficiency; PA — backward-curved high-efficiency on a high-pressure casing.
Materials of construction	ID — IS 2062 casing with AR wear plates, hard-faced wheel, 316L / Corten for acid dew-point; FD / SA — mild steel + epoxy, stainless for humid or corrosive air; PA — IS 2062 stiffened casing, hard-faced leading edges for the fuel stream.
Drive & control	Direct-coupled / V-belt / VFD (default across the set for coordinated turndown). Drive up to 425 HP per fan; speed typically 600–1,800 RPM; ID and FD matched as a control pair for balanced draft.
Spark-resistant / ATEX scope	Spark-Resistant Construction and ATEX Zone 2/22 self-declaration (Category 3, per 2014/34/EU) on the PA fan for combustible biomass or high-volatile-coal dust — aluminium impeller, bonded earthing, controlled tip clearance — where the area classification calls for it.
Accessories & shared scope	Inlet Guide Vanes (IGV) or Discharge / Outlet Damper; Isolation / Shut-off Damper; Flexible Connection / Expansion Joint; Inlet / Discharge Silencer on the FD and SA fans; Impeller Wear Protection and Heat Slinger / cooling disc on the ID and PA fans; VFD package and a single shared spares kit across the set.

Where the Boiler fan suite runs

THERMAL POWER Utility and cogen boiler islands — full ID/FD/PA/SA set on pulverised-fuel and CFBC units.	SUGAR & DISTILLERIES Bagasse-fired boiler draught sets for co-gen and process steam.
PULP & PAPER Recovery and power-boiler ID/FD/PA/SA sets for mill steam and power.	CHEMICALS & PETROCHEM Captive process-boiler draught sets for steam and utility.
FOOD PROCESSING Process-steam boiler fan sets for drying, evaporation and sterilisation.	CEMENT Captive-power boiler draught sets on the plant's own generation island.
TEXTILE Process-steam boiler ID/FD sets for dyeing, finishing and captive power.	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.