



APPLICATION

ESP / baghouse main fan

The main fan sits at the tail of the gas-cleaning train: pulling process gas through the electrostatic precipitator or baghouse, holding the collector and ducting under negative pressure, and discharging clean gas to the stack. It runs clean-side, so dust is low — but it is usually the largest single motor in the plant, and the collector's pressure drop moves under it every hour.

Capability envelope

ESP / baghouse main-fan 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
Gas temperature	120–200 °C typical clean-side	up to 500 °C on hot-ESP service with special metallurgy
Inlet dust loading	light on clean-side normal service	upset-case wear protection on application
Static efficiency	high on standard duty	higher on high-efficiency airfoil 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

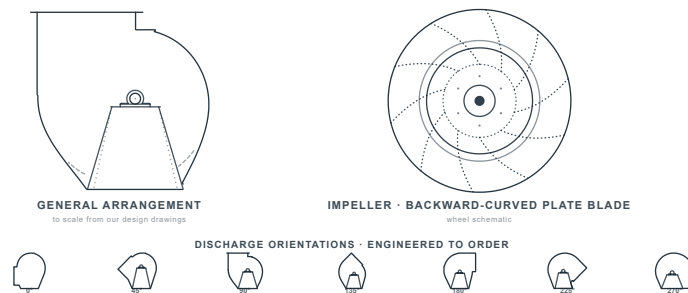


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Impeller geometry** — Backward-curved or backward-inclined for the highest static efficiency on clean-gas duty; airfoil-bladed on the largest continuous-duty builds where the hours justify the CAPEX. Geometry chosen with the collector's upset case in mind, not just the nominal loading.
- **Materials & upset protection** — Mild steel + epoxy coating standard for clean-gas service; optional hard-faced (chrome-carbide) leading edges and bolted-in AR400 wear plates where a bag burst or ESP trip can carry abrasive dust; 316L / Corten where the gas carries acid dew-point risk.
- **Control — VFD as default** — The collector dP swings and the process turns down, so the duty is inherently variable. VFD speed control holds draft across the moving resistance and is more efficient than an inlet damper across the range because it avoids the throttling loss at part-load; inlet vane dampers remain available for legacy retrofit.
- **Thermal & dew-point handling** — Clean-side gas commonly runs 120–200 °C, higher on hot-ESP service to 350 °C and beyond; casing upgraded to IS 2062 or SA 516 Gr 70, expansion joints for thermal growth, and casing insulation + tracing where the wall risks falling below acid dew point.

How a Jitamitra ESP / baghouse main fan 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 main-fan duty; DWDI (double width, double inlet) for the high flow at moderate pressure typical of large collector trains.

SPECIFICATION FIELD	OPTIONS
Wheel type	Backward-curved or backward-inclined (default, best efficiency on clean gas) / airfoil-bladed (highest-efficiency, large continuous-duty builds) / radial-tipped where upset carryover warrants a self-cleaning wheel.
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 higher pressure and tip speed.
Materials of construction	Mild steel + epoxy coating (standard clean-gas) / optional chrome-carbide-faced wheel and AR400 bolted wear plates for upset carryover / IS 2062 or SA 516 Gr 70 casing for hot-ESP heat / 316L or Corten for acid dew-point service.
Drive	Direct-coupled / V-belt / VFD (default for the moving-dP and turndown 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 stack take-off and installed footprint.
Accessories & thermal scope	Inlet vane damper or VFD control; isolation / shut-off damper for collector maintenance; flexible connection / expansion joints for thermal growth; optional bolted-in AR400 wear plates and access doors for upset carryover; casing insulation and heat tracing for acid dew-point service; inlet / discharge silencers and acoustic-lagged casing where the fan sits near occupied space; drain and inspection doors.

Where the ESP / baghouse main fan runs

CEMENT & LIME Kiln / raw-mill ESP main fan, bag-house main fan, cooler and clinker de-dusting draught.	POWER GENERATION Boiler ESP main fan, clean-side draught downstream of the precipitator on utility and cogen units.
IRON & STEEL Sinter-plant and pellet-plant ESP main fan, de-dusting baghouse draught to stack.	POLLUTION-CONTROL OEMS Main fans supplied as a sub-package to ESP and baghouse builders — interface documented up front.
CHEMICALS & PETROCHEM Process-collector main draught, dryer and calciner de-dusting to stack.	FOUNDRY & CASTING Melt-shop and shake-out baghouse main fans pulling the de-dusting train.
GLASS & CERAMICS Furnace and dryer ESP / baghouse main fan on the clean side of the collector.	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.