FAN FAMILY · BACKWARD-CURVED PLATE

Jitamitra Backward-Curved Plate Fans

The Backward-Curved Plate family is the one we build most. Flat steel-plate blades set on a backward-curved pitch give you medium-to-high pressure and good efficiency, with the robustness to take light dust an aerofoil wheel would never survive.

Capability envelope

BCP service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,00,000 CMH	higher on enquiry
Static pressure	family to ~1,562 mmWC	served to 2,000 mmWC (small-wheel high-pressure build)
Continuous gas/air temperature	up to 600 °C with HT construction	shaft cooling disc above ~150 °C; metallurgy to duty
Inlet dust loading	light dust — bag-filter draught, process air, light-dust ID	wear-plating + liners near the gate; heavier dust → radial-tip / radial family
Peak static efficiency (family)	high for the range (exact figure shared with your enquiry)	duty-dependent; wheel selected near BEP
Drive power	up to 400 HP	higher with custom motor sourcing
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application
Bearing life (design target)	L10h ≥ 40,000 h continuous	longer L10 on application

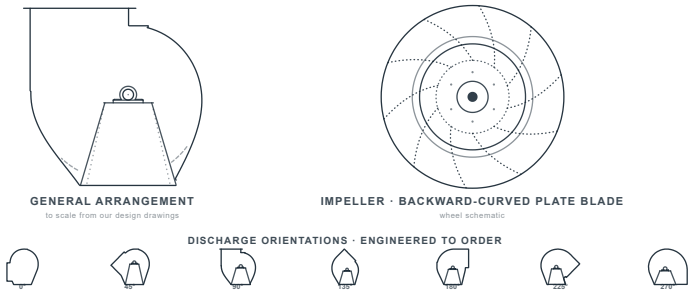

FIG. 1 General arrangement, impeller face and the discharge orientations we build — drawn to scale from our in-house design drawings. Every fan is engineered to your duty.

Construction & materials

documented on your GA

- **Blade form & wheel range** — Backward-curved plate — flat steel plate on a backward-curved pitch, 140 m/s Class 3–4 tip. Seven wheel sizes, so the wheel is matched to your duty, not over-sized to the nearest box.
- **Materials of construction** — MS standard; SS304 / SS316 full or airstream for corrosive process air; FRP variant (F suffix) for wet corrosive gas; Corten / duplex per duty; wear-plated (WP) leading edges and replaceable liners when dust approaches the family's gate.
- **Construction suffixes** — HT (high-temp construction + shaft cooling disc for hot process air); SR (spark-resistant, AMCA 99 Type A/B/C + ATEX self-declared) for solvent and combustible-dust zones; F (FRP airstream); WP (wear-plated) for light-dust duty.
- **Width & drive** — SWSI standard across most wheels; DWDI on the high-flow wheel for higher flow. Direct-coupled, V-belt or VFD — VFD with shaft-earthing ring for variable process-air duty; shaft cooler fitted above ~150 °C.

How a Jitamitra Backward-Curved Plate 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) standard across most wheels for pressure; DWDI (double width, double inlet) on the high-flow wheel for high flow at moderate pressure.
Wheel type	Backward-curved plate (flat steel plate on a backward-curved pitch) — the medium-to-high-pressure, light-dust workhorse; one step up in pressure and dust headroom from a curved/aerofoil wheel, one step down in dust tolerance from a radial.

SPECIFICATION FIELD	OPTIONS
Class (by pressure / outlet velocity)	Class I / II / III selected from the duty point on the pressure-vs-outlet-velocity limits; the plate blade runs a Class 3–4 (140 m/s) tip, so higher class = heavier construction for higher pressure and tip speed.
Materials of construction	MS (standard) / SS304 or SS316 full or airstream for corrosive process air / FRP (F suffix) for wet corrosive gas / Corten or duplex per duty / wear-plated (WP) leading edges and replaceable scroll liners for light-dust service.
Construction suffix	HT (high-temperature construction + shaft cooling disc for hot process air) / SR (spark-resistant, AMCA 99 Type A/B/C + self-declared ATEX, for solvent and combustible-dust zones) / F (FRP airstream) / WP (wear-plated for light dust).
Drive	Direct-coupled / V-belt / VFD (default for variable process-air duty, with shaft-earthing ring). Drive up to 400 HP across the envelope; shaft cooler fitted above ~150 °C.
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 duct take-off and installed footprint.

Where the Backward-Curved Plate runs

THERMAL POWER
Forced-draft (FD), primary air (PA) and secondary / overfire air (SA) on the boiler fan suite.

CEMENT & LIME
Coal-mill primary air and clean-side process-air duty.

IRON & STEEL / METALS
Blast-furnace combustion air and high-pressure process-air blowers.

CHEMICALS & PETROCHEM
Process and combustion air; API 673 process fans for oil & gas service.

PHARMACEUTICALS
Solvent and paint-booth exhaust on spark-resistant (SR) construction; process air.

FOOD & BEVERAGE
Spray / fluid-bed / flash drying and process ventilation.

PULP & PAPER
Recovery-boiler and general process-air fans.

YOUR DUTY POINT
Send us flow, static pressure and the air / gas condition — we size the wheel to it and quote in `3 working days`.

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` (Module A). 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.