



FAN FAMILY · BACKWARD-CURVED

Jitmitra Backward-Curved Fans

The Backward-Curved (BC) wheel is the everyday workhorse for moderate-pressure air handling: solid blades that curve away from rotation, giving high efficiency and a power curve that cannot overload the motor. It tolerates light dust — one step more rugged than a hollow aerofoil, one step more efficient than a plate or radial wheel.

Capability envelope

BC service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to ~800 mmWC	to 2,000 mmWC envelope with the higher-pressure Backward-Curved Plate family
Continuous gas / air temperature	10–350 °C typical	to 500 °C with high-temperature construction + shaft cooling
Inlet dust loading	clean to light dust	above the gate, step to the Radial-Tip or Radial family
Peak static efficiency	high — second only to the Aerofoil family (exact figures shared with your enquiry)	selected near best-efficiency point per duty
Drive power	up to 425 HP	our largest drive delivered to date
Balance quality	ISO 21940 G6.3	G2.5 on application
Bearing life (design target)	L10h ≥ 40,000 h continuous	longer L10 on application

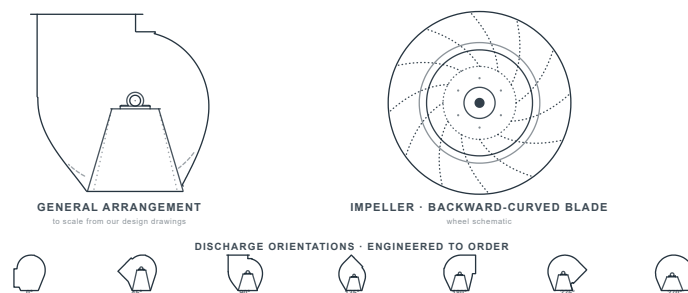


FIG. 1 General arrangement, impeller face and the discharge orientations we build — drawn to scale from our in-house design drawings. Every fan is engineered to your duty.

Construction & materials

documented on your GA

- **Wheel & blade form** — Solid backward-curved plate blades on a graded range of wheel sizes (small / mid / large) at a 110 m/s welded tip speed — sized to sit near best efficiency rather than over-spiced to chase a point.
- **Materials of construction** — MS standard; SS304 / SS316 full or airstream-only; FRP-lined carbon steel and Corten / duplex for corrosive air; wear-plating if dust creeps toward the gate.
- **Construction options** — high-temperature (heat-resistant build + shaft cooling disc above ~150 °C); spark-resistant (AMCA 99 Type A/B/C, ATEX-ready); FRP-lined carbon steel; wear-plated — added only where the duty calls for them.
- **Width & drive** — SWSI single-inlet for pressure, DWDI double-inlet for high volume in a compact height; belt or direct drive, or plug/plenum (unhoused) for AHU and fan-array builds; VFD with shaft-earthing ring.

How a Jitmitra Backward-Curved 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) — plus plug/plenum (unhoused) for AHU and fan-array builds; selected by drive, access and temperature.
Width / inlet	SWSI (single width, single inlet) for higher pressure; DWDI (double width, double inlet) for high volume in a compact height.
Wheel type	Solid backward-curved plate blade — the efficient, non-overloading general-purpose wheel for clean to light-dust air. (The Aerofoil family for maximum efficiency on clean air; the Backward-Curved Plate family for higher pressure.)

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 higher pressure and tip speed (welded build to ~110 m/s tip).
Materials of construction	MS (standard) / SS304 or SS316 (full or airstream-only) / FRP-lined carbon steel / Corten or duplex for corrosive air / wear-plated where light dust creeps toward the family's dust gate.
Construction options	High-temperature build (shaft cooling disc above ~150 °C, to 500 °C) / spark-resistant (AMCA 99 Type A/B/C, ATEX-ready) / FRP-lined carbon-steel airstream / wear-plated — added only as the duty requires.
Drive	Direct-coupled / V-belt / VFD with shaft-earthing ring. Drive up to 425 HP across the envelope; SWSI or DWDI to suit pressure-vs-volume.
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 runs

BOILER & COMBUSTION PLANTS Forced-draft, primary, secondary / overfire air; seal and cooling-air duty on package and cogen boilers.	POLLUTION CONTROL / APC Bag-filter and pulse-jet draught, clean-side filter fans for OEM dust-collection skids.
CEMENT & MINERALS (CLEAN SIDE) Coal-mill primary air, process and combustion air on the lightly-dusty side of the plant.	FOOD & BEVERAGE Spray, fluid-bed and flash drying; dilute pneumatic conveying of flour and powders.
CHEMICALS & PROCESS Combustion / process-air blowers, drying and quench / tempering-air duty (stainless or FRP-lined carbon steel for corrosive air).	PHARMACEUTICALS Process drying, dilute conveying and clean-side draught — spark-resistant construction where the area is ATEX-classified.
GENERAL MANUFACTURING Plant ventilation, combustion-air supply and light-dust process draught across mixed industrial duty.	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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Part of the Zen Group of Industries (est. 1993) · CIN U31908PN2009PTC134884

Figures indicate family capability; every fan is engineered to the customer's duty point and confirmed on the approved GA drawing.

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