FAN FAMILY · BACKWARD-FLAT PLATE

Jitamitra Backward-Flat Plate Fans

The Backward-Flat Plate family is the high-flow specialist: flat steel plate blades set backward-inclined make a strong, large-diameter wheel that moves big volumes of air while still developing medium-to-high pressure. We build Backward-Flat Plate fans for large industrial ventilation, flue and process-gas handling, drying, deep-tank aeration and digester/biogas duty across chemicals, pharma, food, water & wastewater and biogas plants — single-width up to the large double-width rotor, across the full envelope below.

Capability envelope

Backward-Flat Plate service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,00,000 CMH	larger on enquiry (the double-width rotor scales further)
Static pressure	up to ~1,400 mmWC per model	higher on enquiry
Gas / air temperature	up to 600 °C with HT construction	served to 500 °C — confirmed on enquiry
Dust tolerance	Light dust only (design gate)	heavier abrasive dust → step to the Radial family
Drive power	up to 400 HP	higher with custom motor sourcing
Static efficiency	High for the flow class (exact figures shared with your enquiry)	wheel selected near best efficiency for the duty
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application (large rotors)
Bearing life (design target)	L10h ≥ 40,000 h continuous	longer L10 on application

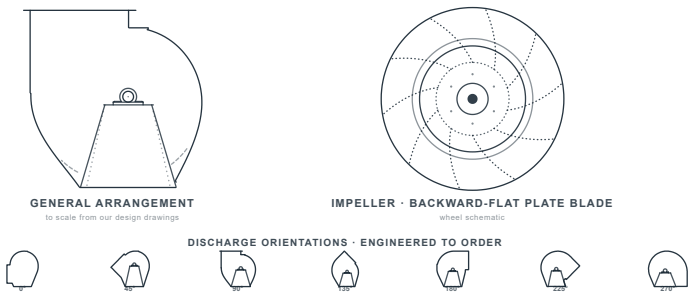

FIG. 1 General arrangement, impeller face and the discharge orientations we build — drawn to scale from our in-house design drawings. Every fan is engineered to your duty.

Construction & materials

documented on your GA

- **Blade form & wheels** — flat (laminar) backward-inclined plate blades on five wheels — four single-width plate wheels and the large double-width rotor — matched to the volume-and-pressure duty; 140 m/s tip on the single-width plate build, 120 m/s on the large double-width rotor.
- **Materials of construction** — MS standard; SS304 / SS316 full or airstream-only; F (FRP) and Corten / duplex for corrosive flue-gas and drying duty; WP wear-plated leading edges and replaceable liners where light dust creeps toward the family's design gate.
- **Construction suffixes** — HT high-temperature build (refractory/heat scope + shaft cooling disc) for hot drying and flue gas; SR spark-resistant (AMCA 99 Type A/B/C, ATEX self-declared) for solvent and combustible-dust zones; F FRP airstream; WP wear protection; SWSI on most single-width plate wheels, DWDI on the largest plate wheel and the double-width rotor for high volume.
- **Drive & large-rotor handling** — belt or direct drive; VFD with shaft-earthing ring for variable-volume duty; split SNL plummer-block bearings for maintainability; split/sectioned casing and a rotor-handling SOP where the wheel exceeds container or transport limits — designed in, not improvised on site.

How a Jitamitra Backward-Flat Plate fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Arrangement (AMCA 99)	Arr. 1 (overhung, fan bearings) / Arr. 3 (between bearings, common on large DWDI rotors) / Arr. 8 (overhung on common base) / Arr. 9 (overhung, motor side) — selected by drive, rotor size, access and temperature.

SPECIFICATION FIELD	OPTIONS
Width / inlet	SWSI (single width, single inlet) on most single-width plate wheels; DWDI (double width, double inlet) on the largest plate wheel and the large double-width rotor for high volume in a compact height.
Wheel type	Flat (laminar) backward-inclined plate — four single-width plate wheels and a large double-width flat-blade wheel for the highest flows. Backward lean = non-overloading characteristic.
Class (by pressure / outlet velocity)	Class 3-4 plate build (single-width, 140 m/s tip) / large low-stress build (double-width, 120 m/s tip), 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	MS (standard) / SS304 / SS316 full or airstream / Corten or duplex for corrosive flue-gas and drying duty / FRP (F) for corrosive light-duty air / wear-plated (WP) leading edges and replaceable liners for light-dust service.
Construction suffix	HT (high-temperature: heat scope + shaft cooling disc) / SR (spark-resistant: AMCA 99 Type A/B/C, ATEX self-declared) / F (FRP airstream) / WP (wear-plated). Combined per duty — e.g. HT for hot drying gas, SR for solvent / combustible-dust exhaust.
Drive	Direct-coupled / V-belt / VFD with shaft-earthing ring (default for variable-volume control). Drive up to 400 HP across the envelope; split SNL plummer-block bearings on large rotors for maintainability.
Accessories & large-rotor scope	Inlet box and inlet/outlet dampers; in-cone IGV; flexible connectors and AV mounts; inlet/outlet silencers; shaft cooling disc above ~150 °C; wear protection and replaceable liners; spark-resistant build where the zone requires it; split/sectioned casing and a rotor-handling SOP for fans that exceed container or transport limits.

Where the Backward-Flat Plate runs

CHEMICALS & PETROCHEM
Flue and process-gas handling, large drying systems, corrosive-airstream ventilation.

PHARMACEUTICALS
Large cleanroom / pharma AHU, spray and fluid-bed drying exhaust.

FOOD & BEVERAGE
Spray-drier and flash-drying air, large process and building ventilation.

WATER & WASTEWATER
Deep-tank aeration, sludge drying and handling exhaust.

BIOGAS / BIOMASS
Digester / biogas booster and process-gas handling.

FURNACES & HEAT TREATMENT
Hot drying and flue-gas duty — the family's highest served temperature.

THERMAL POWER (CLEAN SIDE)
High-flow process and ventilation air on power-adjacent plants.

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.