



FAN FAMILY · LARGE-BACKWARD

Jitamitra Large-Backward Fans

When the installation forces a large-diameter fan to turn slowly — because space, rotor inertia or noise is the constraint — most families either over-speed or won't fit. The Large-Backward family runs a single big backward-curved wheel at low speed, holding the non-overloading character of a backward fan while still reaching high static at modest flow.

Capability envelope

Large-Backward service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to ~50,600 CMH	narrowest-flow family — high flow → step to the Backward-Flat Plate family
Static pressure	up to ~1,750 mmWC	higher on enquiry within the 2,000 mmWC envelope
Continuous gas temperature	up to 600 °C with HT construction	standard HT build to 300 °C; above 150 °C a shaft cooling disc is fitted
Dust tolerance	Clean duty — light dust only	dusty / abrasive gas → the Radial-Tip family (high dust) or the Radial family (the heaviest dust in our range)
Peak static efficiency (character)	Size / low-speed optimised, below the smaller backward families by design (exact figures shared on enquiry)	efficiency-led clean air → the Aerofoil family / the Backward-Curved Plate family
Drive power	up to 335 HP (214 kW absorbed at maximum)	verified to your duty in-house, within the 400 HP envelope
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application — important on a large rotor
Bearing life (design target)	L10h ≥ 40,000 h continuous	longer L10 on application

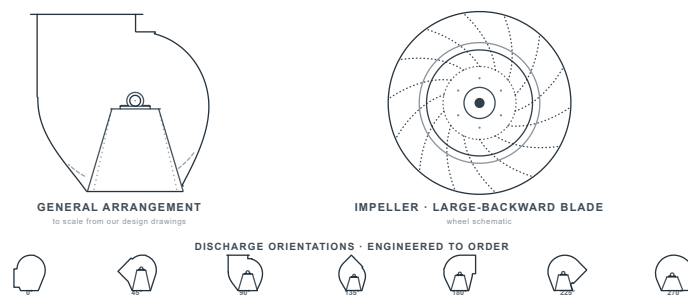


FIG. 1 General arrangement, impeller face and the discharge orientations we build — drawn to scale from our in-house design drawings. Every fan is engineered to your duty.

Construction & materials

documented on your GA

- **Wheel & construction** — Single large backward-curved impeller (400–2,000 mm dia) at 140 m/s tip; SWSI build; large rotors designed split / sectioned for transport, with a crane-handling and large-machining SOP engineered in.
- **Materials of construction** — MS standard; SS304 / SS316 full or airstream for clean corrosive duty; Corten / duplex per duty; FRP (F suffix) where the gas demands it.
- **Construction suffixes** — HT high-temperature build (refractory / high-temp metallurgy + shaft cooling disc above ~150 °C); SR spark-resistant for ATEX zones; F FRP airstream; SWSI single-inlet standard (DWDI not the Large-Backward default — step to the Backward-Flat Plate family for double-width high-flow).
- **Drive & verified power** — Belt or direct drive; VFD with shaft-earthing ring suits the low-speed / noise-constrained brief. Drive sizing is live-checked, not estimated — the absorbed power is computed at 214 kW absorbed at envelope maximum, with a 335 HP motor selected.

How a Jitamitra Large-Backward fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Arrangement (AMCA 99)	Arr. 1 (overhung, fan bearings) / Arr. 8 (overhung on common base) / Arr. 9 (overhung, motor side) / Arr. 10 (overhung, motor inside base) — selected by drive, access, large-rotor support and temperature.
Width / inlet	SWSI (single width, single inlet) — the standard build for the Large-Backward family. For high flow at moderate pressure on a double-width wheel, step to the Backward-Flat Plate family rather than forcing DWDI here.
Wheel type	Large backward-curved (low-speed) — a single large impeller optimised for diameter and speed constraint rather than peak efficiency; non-overloading power characteristic.
Class (by pressure / outlet velocity)	Class selected from the duty point on the pressure-vs-outlet-velocity limits; the wheel runs a 140 m/s structural tip speed and is sized to make its static at the constrained RPM.
Materials of construction	MS (standard) / SS304 / SS316 (full or airstream) for clean corrosive duty / Corten or duplex per duty / FRP (F suffix). Wear-plating is not a Large-Backward feature — it is a clean-duty family.
Construction suffix	HT (high-temperature: refractory / high-temp metallurgy + shaft cooling disc above ~150 °C) / SR (spark-resistant, ATEX Category 3 where the area requires) / F (FRP airstream) — appended to the family designation per duty.
Drive	Direct-coupled / V-belt / VFD with shaft-earthing ring (suits the low-speed, noise-constrained brief). Motor to 335 HP (214 kW absorbed at envelope maximum), computed to the duty rather than estimated.
Large-rotor scope & accessories	Split / sectioned casing and a rotor-handling SOP (crane + large machining) where size demands; split SNL plummer-block bearings for maintainability; inlet box and dampers; in-cone IGv; flexible connectors and AV mounts; silencers; shaft cooling disc above 150 °C; witnessed FAT and G2.5 balance on the large rotor.

Where the Large-Backward runs

CEMENT & LIME Large-format clean-side draught and conveying air on space- or speed-constrained installations.	IRON & STEEL / METALS High-static process-air and conveying duty where a large, slow rotor suits the plant footprint.
CHEMICALS & PETROCHEMICALS Clean high-pressure process air; SS / Corten airstream for corrosive clean duty.	FOOD & BEVERAGE Dilute-phase pneumatic conveying of flour and granular product on large, quiet wheels.
FURNACES, OVENS & HEAT TREATMENT Hot clean process air with HT construction and a shaft cooling disc above 150 °C.	PHARMACEUTICALS Large clean-duty AHU and process-air builds where noise and inertia constrain the wheel.
POLLUTION CONTROL / APC OEM Clean-side high-static draught packaged into APC trains on a constrained large-format fan.	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.

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