



APPLICATION

Vacuum / exhauster duty

An exhauster or vacuum-conveying blower pulls hard against the system: it develops high negative pressure at the inlet, so the air it draws is rarefied and less dense than the ambient rating the fan is often bought against. Size it on standard density and it falls short; size it on the actual suction density and it holds.

Capability envelope

vacuum / exhauster service

PARAMETER	STANDARD RANGE	ON APPLICATION
Static pressure (suction)	up to 2,000 mmWC	higher on enquiry with multi-stage or heavier build
Volume flow	up to 2,25,000 CMH	higher on enquiry
Inlet density basis	corrected to actual suction (typ. -300 to -1,500 mmWC)	full density correction to -2,000 mmWC
Material carryover	clean to light on standard exhauster duty	heavy carryover with enhanced wear protection
Shaft sealing	labyrinth / lip seal against false-air leak-in	gland packing or gas-tight seal on application
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

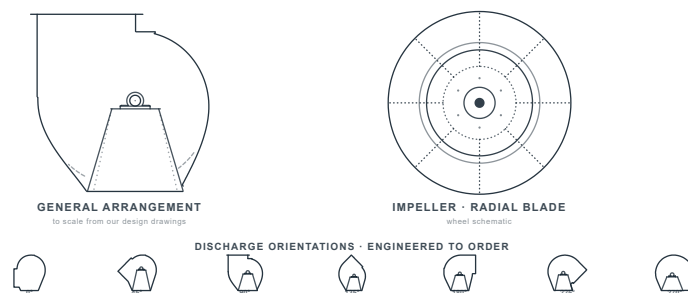


FIG. 1 Representative arrangement — a Jitmitra Radial fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Density-corrected sizing** — The duty is sized on the inlet density at your operating suction, not the standard 1.2 kg/m³. At -1,000 mmWC the correction is roughly 9–10%; we carry it through pressure rise, shaft power and motor selection so the fan holds vacuum in service.
- **Wheel geometry** — Robust straight-radial for the highest suction and heaviest material carryover (self-cleaning, mechanically strong); radial-tipped for high suction with lighter carryover; backward-inclined only on clean high-vacuum exhauster air where efficiency leads.
- **Wear protection & sealing** — On material-laden duty: chrome-carbide leading edges, AR400 bolted-in wear plates and liners with access doors. On every vacuum duty: a shaft seal matched to the service — labyrinth, lip or gland packing — with a gas-tight casing to stop false-air leak-in.
- **Control** — **VFD as default** — Exhauster and vacuum-conveying demand varies with process load and line-up. VFD speed control holds the target vacuum across the range and avoids the throttling loss of a suction damper at part-load; it is our default, with an inlet or suction damper available for legacy retrofit.

How a Jitmitra Vacuum / exhauster duty 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 material handling.
Width / inlet	SWSI (single width, single inlet) default for exhauster and vacuum-conveying duty; DWDI (double width, double inlet) for high flow at moderate suction on clean exhauster air.

SPECIFICATION FIELD	OPTIONS
Wheel type	Straight-radial (default for the highest suction and material carryover, self-cleaning and mechanically strong) / radial-tipped (high suction, lighter carryover) / backward-inclined (clean high-vacuum exhauster air, efficiency-led).
Class (by pressure / outlet velocity)	Class II / III selected from the duty point on the pressure-vs-outlet-velocity limits; high-suction exhauster duty usually sits at the heavier classes for the pressure and tip speed.
Materials of construction	Mild steel + epoxy coating (standard) / IS 2062 casing with AR400 bolted wear plates and liners for material carryover / chrome-carbide-faced wheel for severe abrasion / 304 or 316L stainless for corrosive or wet exhauster air.
Shaft seal	Labyrinth or lip seal as standard against false-air leak-in under vacuum; gland packing or gas-tight seal on application where the suction is deep or the process must not breathe.
Drive	Direct-coupled / V-belt / VFD (default for vacuum control). Drive up to 425 HP across the envelope; speed typically 600–1,800 RPM.
Accessories & scope	Suction or inlet damper vs VFD control; bolted-in AR400 wear plates and liners with access doors on material-laden duty; shaft seal to service; labyrinth + lip bearing seals against ingress; drain and inspection doors; inlet and outlet silencers with acoustic-lagged casing (down to <75 dB(A)).

Where the Vacuum / exhauster duty runs

CHEMICALS & PETROCHEM Process exhausters, reactor and vessel vacuum, vapour and vacuum-conveying duty.	CEMENT & LIME Vacuum-conveying exhausters for dust and fines, nuisance-vacuum extraction.
FOOD & BEVERAGE Vacuum-conveying of grain, flour and granules; process exhauster duty.	PLASTICS & POLYMERS Vacuum conveying of pellets and regrind; degassing and process exhauster air.
PHARMACEUTICALS Vacuum transfer of powders and process exhauster duty on contained lines.	POLLUTION CONTROL / APC OEM High-suction exhausters supplied as a sub-package to collector and scrubber builders.
PULP & PAPER Vacuum and exhauster duty on forming and handling lines.	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.