



APPLICATION

Hot-gas (>300 °C) process

Hot-gas fans for kilns, furnaces, RTOs, heat-treatment lines, secondary steel-making and glass-melting — engineered for the thermal growth that makes ordinary fans bind and crack, to a 500 °C continuous ceiling across the envelope below.

Capability envelope

hot-gas service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to 2,000 mmWC	higher on enquiry
Continuous operating temperature	up to 500 °C	wheel and casing metallurgy chosen for the duty
Drive power	up to 425 HP	our largest drive delivered to date
Speed	600–1,800 RPM typical, derated above ~482 °C	per duty + sound limits
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

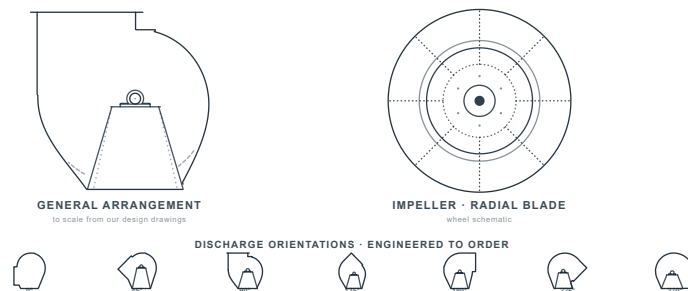


FIG. 1 Representative arrangement — a Jitmitra Radial fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Two material ladders, not one** — The rotating wheel is creep-limited and tops out below the static, oxidation-limited casing. We publish and quote them separately — impeller metallurgy on one line (MS → Cr-Mo → 304H / 321 / 347 → 310S), casing on another (carbon steel → Cr-Mo / austenitic), each grade chosen for the duty up to the 500 °C ceiling.
- **Shaft cooling & bearing isolation** — Bearings sit outside the airstream above ~120 °C; air-cooled shaft + heat slinger from ~482 °C; shaft cooling disc standard above 350 °C; carbon-ring seal with nitrogen purge on the shaft penetration.
- **Thermal growth & expansion joints** — Fabric or metal expansion joints at fan inlet and outlet, sized for the growth between cold and hot states — ~7 mm per metre of shaft at 500 °C. Anchor bolts arranged so the casing grows axially without cracking the grout; foundation drawings ship with the GA package.
- **Insulation, refractory & re-rate** — Ceramic-fibre insulation, double-jacketed housing and refractory lining on application, with a ~50 °C/hour heat-up schedule for a lined casing. Performance re-rated for hot density — air at 300 °C is roughly half the density of 20 °C air.

How a Jitmitra Hot-gas process fan is specified

AMCA conventions

SPECIFICATION FIELD	OPTIONS
Arrangement (AMCA 99)	Arr. 1 / 8 (overhung, fan bearings outside the airstream) and Arr. 9 default for hot-gas duty; Arr. 4 (wheel on motor shaft) only up to ~120 °C, or ~230 °C with a special motor — selected by drive, access and temperature.
Width / inlet	SWSI (single width, single inlet) default for hot-gas duty; DWDI (double width, double inlet) with an inlet box for high flow at moderate pressure.
Wheel type	Backward-curved / airfoil up to ~482 °C (high efficiency); radial / forward-curved above ~482 °C where thin blades would creep — rugged radial blades hold shape, with the max speed derated.
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.

SPECIFICATION FIELD	OPTIONS
Materials — impeller (creep-limited)	MS / IS 2062 to ~250 °C; low-alloy Cr-Mo, or austenitic 304H / 321 / 347 or 309 / 310 / 310S, to the 500 °C ceiling — material chosen for the duty.
Materials — casing (oxidation-limited)	Carbon steel to ~482 °C; Cr-Mo or austenitic 304 / 321 / 310S above that, to the 500 °C ceiling — material chosen for the duty and called out separately from the wheel.
Drive	Direct-coupled / V-belt / VFD. Drive up to 425 HP across the envelope; speed typically 600–1,800 RPM, derated above ~482 °C.
Accessories & high-temp scope	Fabric or metal expansion joints at inlet and outlet (growth ~7 mm/m of shaft at 500 °C); air- or water-cooled shaft + heat slinger; shaft cooling disc (standard above 350 °C); water-cooled bearing housing above 200 °C; carbon-ring seal with nitrogen purge; ceramic-fibre insulation / double-jacketed housing; refractory lining and heat-up schedule; foundation drawings with the GA.

Where the Hot-gas process runs

IRON & STEEL Reheating-furnace flue gas, electric-arc furnace dedusting (post-cooling), sinter-plant ID, ladle-metallurgy fume extraction.	CEMENT Kiln main-burner exhaust (pre-ESP), pre-heater fans, calciner ID, kiln-hood ventilation.
FOUNDRY, CASTING & FORGING Cupola flue gas, induction-furnace fume, heat-treatment-furnace ID, forge-shop ventilation.	GLASS Float-glass furnace flue gas, oxygen-fuel-fired furnace exhaust, regenerator gas handling.
CHEMICALS & PETROCHEMICALS RTO hot-side fans, RCO recirculation, high-temperature process-boiler ID.	PHARMACEUTICALS High-temperature solvent recovery and RTO fans for VOC abatement.
MINING & MINERALS Kiln duty for non-ferrous metal processing and fly-ash handling post-boiler.	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.

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