



APPLICATION

Corrosive gas exhaust

A corrosive-gas exhaust fan handles the airstream that eats standard carbon steel: acid fumes (HCl, H₂SO₄, HNO₃), chlorine, ammonia, solvent vapour and wet-scrubber off-gas. The whole design is decided by the gas chemistry — the metallurgy or lining is sized to the exact acid, temperature and condensation point, many of these exhausts are also solvent-laden so the build is spark-resistant, and because a corrosive or toxic leak is a safety and environmental event, the shaft sealing is part of the design, not an afterthought.

Capability envelope

corrosive-gas exhaust 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
Materials of construction	SS304 / 316L / duplex 2205 / FRP coating or FRP-rubber-ebonite lining	Higher alloy to your specification, or special linings, on gas analysis
Gas temperature	ambient to 200 °C (wet acid / FRP-lined)	up to 500 °C with special metallurgy on dry hot-gas duty
Shaft sealing (containment)	lip seal, gas-tight flanged casing	mechanical seal / labyrinth / stuffing box + gas purge
Construction (ignition)	standard where the gas is non-flammable	AMCA 99 spark-resistant + ATEX Zone 2 (Cat 3G) self-declared for solvent-laden exhaust
Drive power	up to 425 HP	our largest drive delivered to date
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application

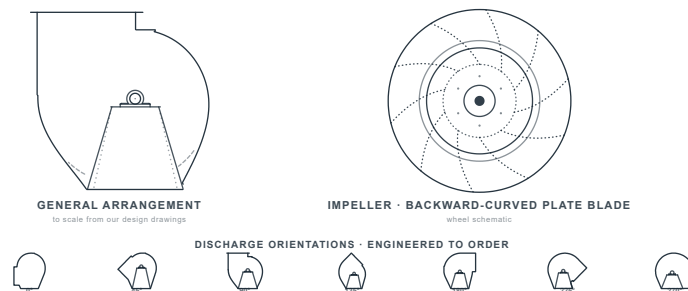


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Material-selection ladder** — Driven by the gas, not a default. SS304 for mild acid fume; 316L where chlorides are present; duplex 2205 for chloride stress-corrosion resistance; a higher alloy against your specification for aggressive or hot acid. FRP coating or FRP / rubber / ebonite lining for wet-acid scrubber off-gas where a metal cannot survive the condensate.
- **Special linings & coatings** — Where a specific acid or a metal-substrate build demands it — special linings (Halar / ECTFE, glass-flake, Saekaphen) and special coatings / paint on the wetted surfaces, matched to the exact acid, concentration and temperature so the barrier survives the condensation, not a generic corrosion coat.
- **Shaft sealing & containment** — Shaft-seal selected to the gas and negative pressure — lip seal for general acid fume, mechanical seal for toxic or higher-pressure duty, labyrinth or stuffing box with a gas purge where a leak is unacceptable — with a gas-tight, flanged casing so the toxic or corrosive gas stays inside the boundary.
- **Spark-resistant & ATEX where solvent-laden** — Where the exhaust is also solvent-laden, spark-resistant construction per AMCA 99 combined with the corrosion build, and ATEX Zone 2 (Cat 3G) self-declared per 2014/34/EU — non-sparking impeller, bronze rub rings, bonded earthing and anti-static coatings, so the flammable and corrosive cases are one fan.

How a Jitamitra Corrosive gas exhaust 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 the sealing / containment scope.

SPECIFICATION FIELD	OPTIONS
Width / inlet	SWSI (single width, single inlet) default for corrosive-gas exhaust; DWDI (double width, double inlet) for high flow at moderate pressure on large scrubber off-gas duty.
Wheel type	Backward-curved or backward-inclined (default, clean corrosive gas, best efficiency) / radial-tipped (where the off-gas also carries mist or solids) — material and lining set separately by the gas.
Materials of construction	SS304 (mild acid fume) / 316L (chloride-bearing) / duplex 2205 (chloride stress-corrosion) / higher alloy to your specification (aggressive or hot acid) / FRP coating or FRP-rubber-ebonite lining (wet-acid scrubber off-gas) — special material of construction selected to the gas analysis.
Special linings & coatings	Special linings (Halar / ECTFE, glass-flake, Saekaphen) and special coating / paint on the wetted surfaces, matched to the acid, concentration and temperature where a base metal or an FRP lining needs a barrier layer.
Shaft seal (containment)	Lip seal (general acid fume) / mechanical seal (toxic or higher-pressure duty) / labyrinth or stuffing box +/- gas purge (where a leak is unacceptable) — with a gas-tight flanged casing, casing drain plug / connection for condensate, and a bird / vermin screen on open stacks.
Spark-resistant construction & ATEX (AMCA 99 / 2014/34/EU)	Spark-resistant Type A / B / C per AMCA 99 where the exhaust is solvent-laden, with ATEX Zone 2 (Cat 3G) self-declared per 2014/34/EU — non-sparking impeller, bronze rub rings, bonded earthing, anti-static coatings.
Drive	Direct-coupled / V-belt / VFD (default for variable-extraction control). Drive up to 425 HP across the envelope; speed typically 600-1,800 RPM.
Accessories & scope	Special material of construction; FRP coating / FRP-rubber-ebonite lining; special linings and coating / paint; shaft seal and stuffing box +/- gas purge; spark-resistant construction; flexible connection / expansion joint on the duct; casing drain plug / connection; bird / vermin screen; inspection doors.

Where the Corrosive gas exhaust runs

CHEMICALS & PETROCHEMICALS Acid-fume scrubber off-gas (HCl, H ₂ SO ₄ , HNO ₃), chlorine and ammonia vents, reaction and absorber exhaust.	PHARMACEUTICALS Reactor and solvent vents — corrosive and solvent-laden together, spark-resistant with the corrosion build.
SURFACE COATING & PLATING Acid-pickling and plating-line lip extraction, chromic and nitric fume, degreasing and coating exhaust.	FERTILIZER Ammonia, acid and phosphate off-gas, granulation and scrubber exhaust on aggressive wet duty.
EDIBLE OIL & SOLVENT EXTRACTION Hexane and solvent-vapour vents — flammable and corrosive overlap, ATEX self-declared.	PULP & PAPER Chlorine-dioxide and bleaching-plant off-gas, chloride-bearing vent extraction to the scrubber.
YOUR PROCESS 45 application/duty types engineered. Tell us yours.	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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