



APPLICATION

Sludge drying / handling

A sludge-drying fan moves the process and exhaust air around a sludge dryer and its handling train: warm, humid, product-laden air that condenses, cakes onto the wheel, carries H₂S and organic acids, and must never leak its odour into the plant. The particulate is not hard and abrasive like fly ash — it is wet and sticky, so the failure modes are fouling, corrosion and containment, not erosion.

Capability envelope

sludge-drying / handling 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
Gas temperature	80–200 °C (convective / belt dryer exhaust)	up to 500 °C on direct thermal-dryer gas
Air condition	humid, near dew point, sticky product-laden	H ₂ S / organic-acid / chloride-bearing on application
Materials of construction	304 / 316L stainless on wetted surfaces	FRP-coated / FRP-rubber-lined on aggressive wet exhaust
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

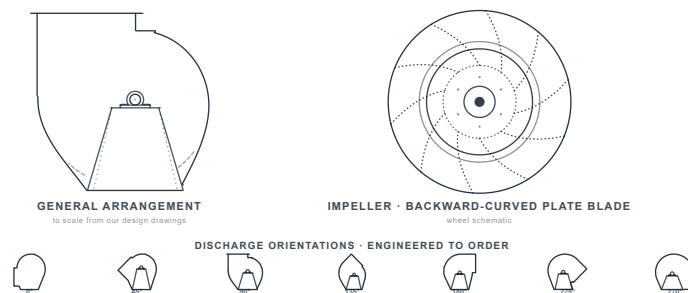


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Cleanable flow path** — Backward-curved / backward-inclined self-shedding wheel as default; smooth-welded, ground and optionally anti-stick-coated blade and volute surfaces; wash-in spray ports and casing drains with a fall so the wheel and scroll can be washed down in place between planned cleans.
- **Corrosion-resistant construction** — Mild steel + epoxy only where the exhaust stays well above dew point; 304 / 316L stainless on condensing, H₂S / organic-acid duty; an FRP coating or FRP-rubber-ebonite lining on wet, aggressively-scrubbed exhaust — sized to your gas analysis, not a default.
- **Containment & sealing** — Gas-tight welded casing tested to a stated leak class; shaft seal selected to the gas — lip, gland/stuffing-box or purged labyrinth; fan placed on the negative-pressure side of the train so residual leakage is inward. Odour stays in the duct and goes to the biofilter or scrubber.
- **Temperature & thermal scope** — Convective and belt-dryer air runs 80–200 °C; direct thermal-dryer gas can reach 500 °C at the envelope ceiling, where the casing is upgraded to IS 2062 or SA 516 Gr 70, the shaft sized for thermal growth, a heat slinger / cooling disc fitted, and bearings selected for sustained 80–100 °C housing temperature.

How a Jitamitra Sludge drying / handling 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, temperature and wash-down access.
Width / inlet	SWSI (single width, single inlet) default for sludge-drying duty; DWDI (double width, double inlet) for high flow at moderate pressure on large recirculation loops.

SPECIFICATION FIELD	OPTIONS
Wheel type	Backward-curved or backward-inclined self-shedding (default, resists sticky build-up) / radial or radial-tip only where heavier, drier handling fines are present and grit is a factor.
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.
Materials of construction	Mild steel + epoxy (only where well above dew point) / 304 or 316L stainless for condensing H ₂ S and organic-acid exhaust / FRP-coated or FRP-rubber-ebonite-lined for aggressive wet-scrubbed air / IS 2062 or SA 516 Gr 70 casing on direct thermal-dryer gas.
Drive	Direct-coupled / V-belt / VFD (default for turndown and moisture-load control). Drive up to 425 HP across the envelope; speed typically 600–1,800 RPM.
Discharge & rotation (AMCA orientation)	Rotation CW or CCW (viewed from drive side) with discharge angle per AMCA — e.g. TH/BH/UB/DB — set to match your duct take-off and installed footprint.
Accessories & containment scope	Wash-in spray ports and casing drains with a fall for in-place wash-down; anti-stick / special coating on the flow path; shaft seal (lip, gland/stuffing-box or purged labyrinth) and gas-tight welded casing to a stated leak class; heat slinger / cooling disc and expansion joints on hot direct-dryer gas; inlet and outlet silencers with acoustic-lagged casing; flexible connections, drain and inspection doors.

Where the Sludge drying / handling runs

WATER & WASTEWATER Municipal and industrial sewage-sludge dryer process and exhaust air, biosolids handling, silo and conveyor odour extraction.	CHEMICALS & PETROCHEM Chemical-sludge and filter-cake dryer air, effluent-treatment-plant sludge handling, condensing corrosive exhaust.
FOOD & BEVERAGE Process-sludge and by-product dryers, spent-grain and pomace handling, humid odorous exhaust to treatment.	POLLUTION CONTROL / APC OEM Sludge-dryer fans supplied as a sub-package to dryer, biofilter and scrubber builders — containment and interface documented up front.
PULP & PAPER Mill-sludge and de-inking-residue dryer air, humid corrosive handling exhaust.	PHARMACEUTICALS Effluent- and process-sludge dryer exhaust, containment-critical odour and vapour extraction.
TANNERY & TEXTILE Effluent-sludge dryer and handling air — high-chloride, aggressive wet exhaust needing an FRP lining or a higher alloy.	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.