



APPLICATION

ATEX / paint-booth exhaust

Spray painting puts solvent vapour and atomised paint droplets in the air. The exhaust fan moves them through the filter bank — paint stop, cardboard, activated carbon — and out, while holding the booth cross-section velocity in the 0.3–0.6 m/s band that keeps overspray on the workpiece, not on the operator.

Capability envelope

paint-booth service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	10,000–1,00,000 CMH	up to 2,25,000 CMH for large automotive multi-zone booths
Static pressure	200–800 mmWC	up to 1,200 mmWC for high-resistance filter + carbon banks
Operating temperature	ambient to 60 °C (bake-oven downstream excluded)	up to 80 °C
ATEX classification	Zone 2 (Cat 3G) self-declared for solvent service; Zone 22 (Cat 3D) for powder coat	—
Drive power	up to 150 HP	up to 250 HP for large multi-zone systems
Speed	600–1,800 RPM typical	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

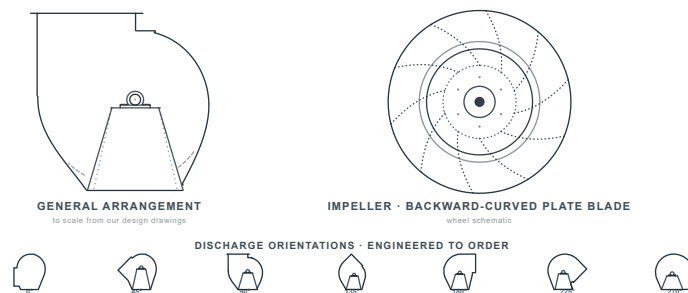


FIG. 1 Representative arrangement — a Jitmitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **ATEX configuration** — Aluminium non-sparking impeller, bronze rub rings, bonded earthing, anti-static coatings (resistivity $<10^9 \Omega \cdot \text{sq}$, tightened to $<10^8 \Omega \cdot \text{sq}$ for powder-coat dust) and a T3 class motor rated Ex e or Ex nA — aluminium wheel specified case-by-case per booth chemistry, not a default.
- **Wheel geometry** — radial-tipped self-cleaning by default; backward-curved efficient profiles only on the cleanest after-filter (post-activated-carbon) configurations where overspray is minimal.
- **Materials & anti-stick** — 304 SS casing with epoxy exterior for solvent-only service; 316L SS for water-wash-down booths where the cleaning chemistry attacks lesser grades; PTFE / anti-stick coatings on impeller and casing interior to shed paint.
- **Velocity & access** — VFD control standard to hold face velocity from clean to 100% filter loading; gasketed, bolted, operator-accessible access doors at the volute throat and wheel-cover; sound held $<80 \text{ dB(A)}$ at 1 m beside the operator station.

How a Jitmitra ATEX / paint-booth 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 ATEX motor location.
Width / inlet	SWSI (single width, single inlet) default for paint-booth exhaust; DWDI (double width, double inlet) for high flow on large multi-zone booths.
Wheel type	Radial-tipped self-cleaning (default, overspray-tolerant) / backward-curved (clean after-filter, post-carbon, high-efficiency duty only).

SPECIFICATION FIELD	OPTIONS
ATEX marking	Ex II 3G (gas — solvent vapour, Zone 2) standard; Ex II 3D (dust — powder coat, Zone 22) added for powder lines; T3 temperature class (max surface 200 °C); Module A self-declaration per 2014/34/EU.
Materials of construction	Aluminium non-sparking impeller (ATEX, per booth chemistry) / 304 SS casing with epoxy exterior (solvent-only) / 316L SS for water-wash-down booths / PTFE anti-stick coatings on impeller and casing interior.
Drive	Direct-coupled / V-belt / VFD (default for velocity control as filters load). ATEX-rated motor (Ex e or Ex nA) from a CE-marked manufacturer. Drive up to 150 HP standard; 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 booth take-off, stack run and installed footprint.
Accessories & ATEX scope	VFD velocity control; bronze rub rings and bonded earthing; anti-static coatings (resistivity <10 ⁹ ohm-sq, <10 ⁸ ohm-sq for powder dust); gasketed wash-down access doors at volute throat and wheel-cover; mounting flange + transition to the booth filter bank; acoustic enclosure for <75 dB(A) on application.

Where the ATEX / paint-booth exhaust runs

AUTOMOTIVE Assembly-plant paint booths (basecoat, clearcoat, anti-chip), touch-up booths, body-shop spray booths.	AUTOMOTIVE COMPONENTS Tier-1 / Tier-2 supplier paint lines for plastic trim, metal stampings, engine components.
ENGINEERING EQUIPMENT Fan, pump, valve and motor-enclosure paint operations.	FURNITURE (WOOD) Spray-finish booths for wood furniture, cabinetry and kitchenware — often water-based, still ATEX-classified.
APPLIANCE MANUFACTURERS Refrigerator, washing-machine, water-heater and air-conditioner paint booths.	AEROSPACE Aircraft component painting — small batch, high precision, demanding finish.
MS / ALUMINIUM FABRICATORS Powder-coat lines for aluminium extrusions, steel windows, fences and gates.	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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