



APPLICATION

Car-park / basement exhaust

An enclosed car park or basement has one exhaust fan doing two jobs. For thousands of hours a year it dilutes vehicle CO and NO₂ down to a safe ambient level; then, on the day of a fire, the same fan has to move hot smoke off the deck at the temperature-time duty and hold time your smoke-control strategy specifies.

Capability envelope

car-park / basement exhaust service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH	higher on enquiry
Static pressure	up to 750 mmWC typical	up to 2,000 mmWC on long-duct / high-resistance systems
Fire-mode rating	250 °C / 300 °C for 1 h or 2 h class	higher class on application; construction tested to standard, not third-party certified
Everyday duty	clean air, ambient; 6–10 ACH code target	sensor-ramped on CO / NO ₂ demand
Static efficiency	high static efficiency	higher on high-efficiency builds
Sound level	<85 dB(A) @ 1 m	<75 dB(A) with acoustic enclosure
Drive power	up to 425 HP	our largest drive delivered to date
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application

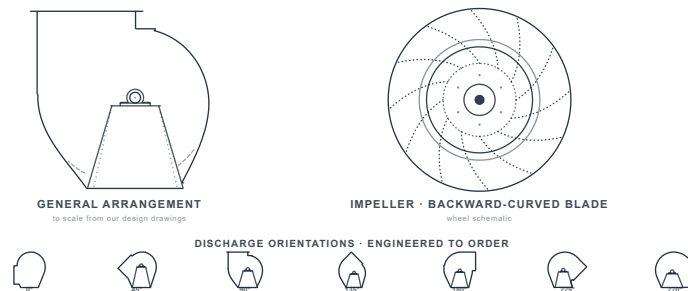


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Fire-mode heat rating** — Built and in-house tested to the smoke class your fire strategy specifies — commonly 250 °C or 300 °C for a 1 h or 2 h duration. Casing and wheel sized for thermal growth, shaft and bearings selected for sustained hot running, and the motor kept out of the airstream (or heat-rated in it) so the fan keeps moving hot smoke through the whole class period.
- **Impeller & efficiency** — Backward-curved or backward-inclined wheel for high static efficiency on the everyday clean-air duty, aerofoil-bladed where the run-hours and flow justify it for higher efficiency still. Clean air, so no wear package — the design effort goes into efficiency, curve shape and sound.
- **Control — VFD or two-speed default** — The everyday CO / NO₂ duty turns down hard when the deck is quiet, so speed control on sensor demand saves most of the annual energy versus a fixed-speed fan. Fire mode overrides to full speed on the fire signal — the control logic is defined with you and stated in the scope.
- **Configuration — ducted or impulse** — Ducted centrifugal extract on shaft-and-duct systems; supply / make-up and jet-boost fans on impulse (ductless) car parks where a jet-fan array sweeps the deck to the extract point. We engineer the centrifugal extract and make-up duty; the layout and jet-fan count follow the smoke-modelling for the deck.

How a Jitamitra Car-park / basement 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, footprint and whether the motor is kept out of the fire-mode airstream.
Width / inlet	SWSI (single width, single inlet) default for car-park extract; DWDI (double width, double inlet) for high flow at moderate pressure on large decks.

SPECIFICATION FIELD	OPTIONS
Wheel type	Backward-curved or backward-inclined (default, best efficiency on the clean everyday air) / aerofoil-bladed (highest-efficiency, large continuous-duty decks).
Fire-mode rating	Built and in-house tested to the smoke class your fire strategy specifies — commonly 250 °C / 300 °C held for a 1 h or 2 h duration; higher class on application. Construction engineered and tested in-house to the class.
Materials of construction	Mild steel + epoxy coating (standard, clean ambient air) / heat-rated casing and shaft for the fire-mode class / stainless steel for humid coastal or below-grade damp basements / aluminium impeller for ATEX Zone 2 where an adjacent process calls for it.
Drive	Direct-coupled / V-belt / VFD or two-speed (default for CO / NO ₂ turndown with fire-mode override to full speed). Drive up to 425 HP across the envelope; motor kept out of the airstream or heat-rated for the fire duty.
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 shaft take-off, plant-room opening and installed footprint.
Accessories & acoustic scope	VFD or two-speed control with fire-mode override; CO / NO ₂ sensor interface; inlet / outlet silencers and casing-wall acoustic lagging for low-frequency content; acoustic enclosure for <75 dB(A) ; isolation / shut-off damper; flexible connection / expansion joint; heat-rated cabling scope stated for the fire case; drain and inspection doors.

Where the Car-park / basement exhaust runs

COMMERCIAL BUILDINGS Basement and podium car-park extract, make-up air and fire-mode smoke clearance for offices, malls and mixed-use towers.	AIRPORTS & LARGE INFRASTRUCTURE Terminal and multi-storey car-park ventilation, basement plant and service-level exhaust on dual everyday / fire duty.
DATA CENTRES Basement generator and plant-room ventilation, enclosed-parking and service-level exhaust with fire-mode extract.	TUNNEL & METRO INFRASTRUCTURE Station-box car-park and basement service-level exhaust, back-of-house plant ventilation with smoke-mode duty.
HOSPITALITY & RETAIL Hotel, mall and multiplex basement parking — quiet everyday dilution beside occupied floors, hot-smoke fire mode.	RESIDENTIAL & MIXED-USE High-rise stilt and basement parking, podium decks, service and utility basements requiring code-compliant dilution and smoke extract.
HOSPITALS & INSTITUTIONS Institutional basement parking and plant-level exhaust where continuous availability and fire-mode reliability both matter.	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.