



APPLICATION

Digester / biogas booster

A biogas booster lifts the near-zero pressure gas leaving an anaerobic digester to the pressure a CHP engine, flare or upgrading skid actually needs. The gas is flammable, saturated with water, and carries hydrogen sulphide that turns to acid on any cold surface — so the three things that matter are ignition control, gas-tightness and corrosion resistance, not flow or heat.

Capability envelope

biogas-booster service

PARAMETER	STANDARD RANGE	ON APPLICATION
Volume flow	up to 2,25,000 CMH (typical biogas duty is low-flow)	sized to your gas production
Pressure rise	typical process-side duty 80–300 mbar (~800–3,000 mmWC)	up to 2,000 mmWC as a single-stage fan; higher on enquiry
Gas temperature	near-ambient 35–70 °C (digester gas)	higher for pre-heated / upgrading duty on application
H ₂ S content	500–3,000 ppm typical, water-saturated	higher with 316L or upgraded metallurgy
Construction (ignition)	AMCA 99 spark-resistant + ATEX Zone 2/22 (Cat 3) self-declared	—
Gas-tightness	welded casing, leak-tested to stated rate	purged mechanical seal for highest integrity
Drive power	up to 425 HP	our largest drive delivered to date
Balance quality	ISO 21940 G6.3	G2.5 / G1.0 on application

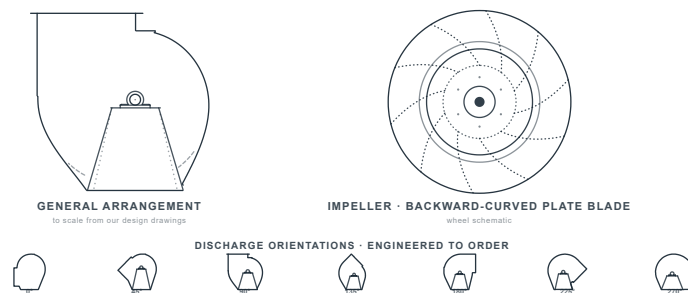


FIG. 1 Representative arrangement — a Jitamitra Backward-Curved Plate fan, the family most often applied to this duty. The exact family and wheel are engineered to your operating point.

Construction & materials

documented on your GA

- **Gas-tight construction** — Fully welded casing, leak-tested to a stated rate rather than a clearance-sealed fabrication. Shaft sealing by mechanical or double-lip seal to suit the duty, with an inert or gas purge on the highest-integrity builds. Casing pressure-rated for the boost and the digester back-pressure case.
- **ATEX & spark-resistant scope** — ATEX Zone 2/22 self-declared per 2014/34/EU (Category 3) as standard. Spark-resistant construction per AMCA 99 — non-sparking impeller, non-ferrous rub ring, bonded earthing and anti-static coatings throughout.
- **Metallurgy for H₂S** — 304L or 316L stainless on the wetted surfaces for sour, water-saturated gas; coated mild steel where the sulphur is light. Casing sloped to a drain at the low point so condensate cannot pool, and the shaft seal isolates it from the bearings.
- **Impeller, control & efficiency** — Backward-curved or backward-inclined wheel for good static efficiency on this clean-of-dust gas; radial where robustness or self-cleaning matters. VFD is the default so the booster tracks gas production across the day and holds header pressure to the CHP or flare instead of throttling and wasting the boost.

How a Jitamitra Digester / biogas booster 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) — selected by drive, access, and keeping the motor outside the gas path.

SPECIFICATION FIELD	OPTIONS
Width / inlet	SWSI (single width, single inlet) is the default for biogas-booster duty; the flow is modest and single-inlet keeps the gas-tight casing simple.
Wheel type	Backward-curved or backward-inclined (default, best efficiency on this dust-free gas) / radial where robustness or self-cleaning against foam or fibre carry-over matters.
Spark-resistant construction (AMCA 99)	Type A (all non-ferrous parts in the gas stream) / Type B (non-ferrous rub ring and non-ferrous parts across the shaft opening) / Type C (aligned construction preventing ferrous contact) — selected to the zone; Type B is the biogas default.
ATEX scope	Zone 2/22 self-declared (Cat 3) per 2014/34/EU as standard — non-sparking impeller, non-ferrous rub ring, bonded earthing, anti-static coatings, T-class bearing control.
Gas-tightness & sealing	Fully welded casing, leak-tested to a stated rate. Shaft seal by mechanical or double-lip to suit the duty, with inert / gas purge on highest-integrity builds; casing sloped to a low-point drain.
Materials of construction	304L / 316L stainless on the wetted path for sour, water-saturated gas / coated mild steel on light-sulphur gas / non-sparking impeller and rub-ring materials per the ATEX scope.
Drive	Direct-coupled / V-belt / VFD (default, to track gas production and hold header pressure). Drive up to 425 HP across the envelope; motor kept outside the classified gas path.
Accessories & scope	Flexible connection / expansion joint at inlet and outlet; isolation / shut-off damper; casing drain and inspection door; flame-arrestor interface where the layout calls for it; inlet / outlet silencer and acoustic-lagged casing where the booster sits near occupied space.

Where the Digester / biogas booster runs

WATER & WASTEWATER Sewage-sludge digester gas to CHP, flare and boiler on municipal and industrial treatment plants.	BIOGAS & BIOMASS Agricultural and food-waste anaerobic digesters — boosting raw gas to CHP or to a biomethane upgrading skid.
FOOD & BEVERAGE Effluent-digester gas from distilleries, breweries, dairies and processing plants recovered for on-site energy.	RENEWABLE / HYDROGEN Biomethane and blended-gas process-air and booster duty on renewable-gas and power-to-gas sites.
CHEMICALS & PROCESS Anaerobic-treatment digester gas and low-pressure flammable process-gas boosting to flare or fuel header.	LANDFILL & WASTE Landfill-gas extraction and booster duty to flare or engine, on wetter, more variable gas.
POLLUTION-CONTROL OEMS Booster and flare-feed fans supplied as a sub-package to digester, biogas-upgrading and flare-system builders — interface documented up front.	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.