



## APPLICATION

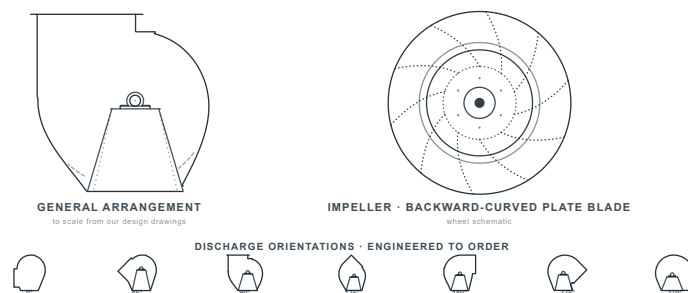
## Seal / cooling / booster air

These are the small fans that keep large machines alive: pressurised air across a shaft seal, cooling air onto a bearing or equipment enclosure, or a boost of static into a duct that has run out of pressure. Clean air, but a hard curve — high static from a compact wheel, held rock-steady, on a duty where a stall or a stopped fan trips the machine it protects.

### Capability envelope

seal / cooling / booster service

| PARAMETER             | STANDARD RANGE                                   | ON APPLICATION                                                     |
|-----------------------|--------------------------------------------------|--------------------------------------------------------------------|
| Static pressure       | up to 2,000 mmWC                                 | higher on enquiry (multi-stage / booster)                          |
| Volume flow           | up to 2,25,000 CMH                               | seal / cooling duty is typically low-flow; higher on enquiry       |
| Air / gas temperature | ambient clean air                                | up to 200 °C on warm cooling-air return with special metallurgy    |
| Static efficiency     | high static efficiency on backward-curved builds | compact radial builds trade efficiency for pressure and robustness |
| Redundancy            | single fan                                       | duty / standby (2×100%) or N+1 on protection duty                  |
| Drive power           | up to 425 HP                                     | our largest drive delivered to date                                |
| Speed                 | 1,500–3,000 RPM typical                          | higher for high-static compact wheels; 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

- **High-static impeller geometry** — Backward-curved or backward-inclined for high static at good efficiency on seal and cooling duty; radial or radial-tipped where the pressure ratio is extreme and a compact, robust high-pressure wheel matters more than peak efficiency. Tip speed and shaft sized to the pressure rise, not the flow.
- **Reliability & redundancy** — Protection duty gets an availability build: bearing life target  $L_{10h} \geq 40,000$  h, duty / standby (2×100%) or N+1 where a stop cannot be tolerated, generous motor and drive margin, and pressure / temperature instrumentation so a proven-running fan releases the protected machine.
- **Control — VFD as default** — Seal and cooling set-points shift with the load on the machine served. VFD holds the target pressure or cooling flow across the range and is our default; a discharge or inlet damper remains available where the set-point is fixed and a drive is not warranted.
- **Materials & special cases** — Mild steel + epoxy coating standard on clean air; stainless where the ambient is humid or coastal; aluminium or non-sparking impeller and ATEX Zone 2 self-declaration where the seal or booster fan sits in a classified area; special metallurgy where cooling-air return runs warm.

### How a Jitamitra Seal / cooling / booster air 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 compact footprint these fans usually need. |
| Width / inlet         | SWSI (single width, single inlet) default for high-static seal / cooling / booster duty; DWDI (double width, double inlet) only where flow is high at moderate pressure.                                                                                   |

| SPECIFICATION FIELD                     | OPTIONS                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wheel type                              | Backward-curved or backward-inclined (default, best efficiency at high static) / radial or radial-tipped (compact, robust wheel where the pressure ratio is extreme).                                                                                                                                   |
| Class (by pressure / outlet velocity)   | Class II / III selected from the high-pressure 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 coating (standard, clean air) / stainless steel for humid coastal ambient / special metallurgy where cooling-air return runs warm / aluminium or non-sparking impeller for ATEX Zone 2 service.                                                                                      |
| Redundancy configuration                | Single fan, or duty / standby (2×100%) / N+1 on protection duty — with pressure and temperature instrumentation so a proven-running fan releases the machine it protects.                                                                                                                               |
| Drive                                   | Direct-coupled / V-belt / VFD (default for set-point control). Drive up to 425 HP across the envelope; speed typically 1,500–3,000 RPM, higher on compact high-static wheels.                                                                                                                           |
| 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 seal or cooling take-off and installed footprint.                                                                                                                                      |
| Accessories & acoustic scope            | Discharge or inlet damper, or VFD control; non-return / isolation damper on duty-standby manifolds; inlet filter and silencer on seal-air duty; ATEX Zone 2 and spark-resistant construction where the area is classified; acoustic-lagged casing for high-tip-speed noise; drain and inspection doors. |

## Where the Seal / cooling / booster air runs

|                                                                                                                                                 |                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>POWER GENERATION</b><br>Seal-air for mill and pulveriser seals, bearing and equipment cooling air, in-line boost on retrofit duct branches.  | <b>IRON &amp; STEEL</b><br>Furnace and mill seal-air, bearing-cooling air on hot equipment, booster fans on long extraction runs.                                                                                 |
| <b>CEMENT &amp; LIME</b><br>Seal-air on kiln and mill seals, cooling air for drives and bearings, in-line booster on process-air branches.      | <b>OIL &amp; GAS</b><br>Seal-air and enclosure-cooling fans around rotating equipment; ATEX self-declared where the area is classified.                                                                           |
| <b>CHEMICALS &amp; PETROCHEM</b><br>Seal-air to keep process gas off the shaft, cooling air on packaged skids, booster fans on process ducting. | <b>WATER &amp; WASTEWATER</b><br>Compact booster and seal-air fans on aeration and process-air packages where a pressure top-up is needed.                                                                        |
| <b>MINING &amp; MINERALS</b><br>Bearing and equipment cooling air, seal-air on dusty rotating equipment, in-line boost on long duct runs.       | <b>YOUR DUTY POINT</b><br>Send us flow, static pressure and the air / gas condition — we size the wheel to it and quote in <b>3 to 5 working days</b> — <b>5 to 7 working days</b> for ATEX and special projects. |

## Standards & conformity

|                                                                                                                                                  |                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>PERFORMANCE</b><br>Tested to the IS 4894 / ISO 5801 / AMCA 210 method, in-house on our 200 HP VFD rig. Tested-to-method — not AMCA-certified. | <b>QUALITY SYSTEM</b><br>ISO 9001:2015 — third-party certified (our only third-party certification).                               |
| <b>CE CONFORMITY</b><br>Self-declared per 2006/42/EC + 2014/35/EU. Not a notified-body certificate.                                              | <b>ATEX CONFORMITY</b><br>Self-declared, spark-resistant (SR), Zone 2/22 Cat 3 per 2014/34/EU, where area classification requires. |
| <b>BALANCE &amp; VIBRATION</b><br>Balance ISO 21940 (G6.3 std, G2.5 on request); fan vibration acceptance ISO 14694, measurement ISO 14695.      | <b>WELDING &amp; HEAVY DUTY</b><br>ASME Sec IX welders + WPS; API 673 available as project-specific scope for oil & gas.           |

### Jitamitra Electro Engineering Private Limited

Works Units N-7 & B-20/2, MIDC Ahilyanagar (Ahmednagar) 414111 · Sales: Karvenagar, Pune 411052  
Part of the Zen Group of Industries (est. 1993) · CIN U31908PN2009PTC134884

**+91 83291 72325**

sales@jitamitrablowers.com  
jitamitrablowers.com

*Figures indicate family capability; every fan is engineered to the customer's duty point and confirmed on the approved GA drawing.*