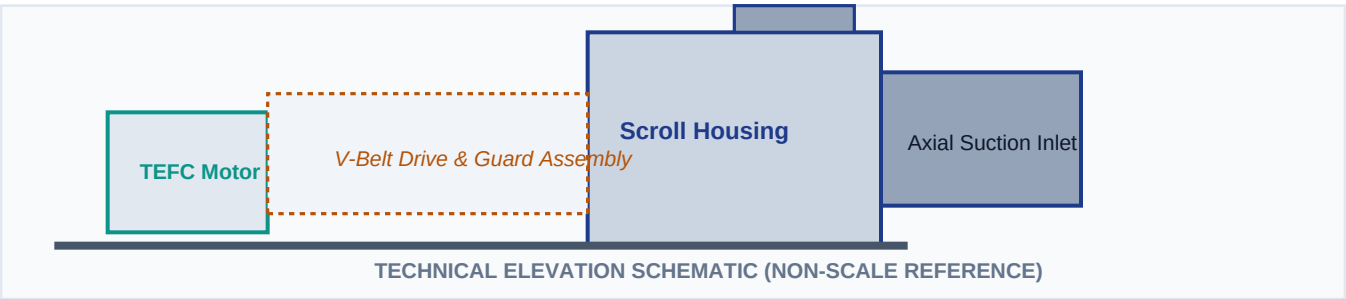
HEAVY-DUTY AIR HANDLING CENTRIFUGAL BLOWER

Model Series: AT-AHB-415V-HD | Industrial Exhaust & Recirculation Infrastructure

1. System Design & Media-Identified Layout

This engineering datasheet describes a high-capacity, heavy-duty industrial Air Handling Centrifugal Blower, configured explicitly to process significant volumetric airflow against high systemic static resistances. Based on the provided physical profile, the setup features a robust **contoured scroll housing** engineered from heavy-gauge structural carbon steel. It integrates an extended **tubular axial suction inlet flange** on the front face, a clean **rectangular upward-facing discharge outlet** with pre-drilled connecting bolt flanges, a rigid baseline mounting frame, and an offset **skid-mounted three-phase electric induction motor** utilizing a side-coupled **V-belt drive assembly protected by an open-mesh metal protective belt guard**.



TECHNICAL ELEVATION SCHEMATIC (NON-SCALE REFERENCE)

2. Structural & Mechanical Architecture

- **Aerodynamic Volute Casing:** Continuous welding creates a highly rigid, leak-proof spiral scroll geometry that effectively transforms kinetic velocity into usable static pressure.
- **Extended Axial Suction Port:** Heavy-walled inlet structure stabilizes incoming airflow profiles, reducing vortex-induced cavitation at the impeller eye.
- **Dynamically Balanced Impeller Assembly:** Implements backward-curved or radial-tipped blades constructed out of wear-resistant alloy plate steel, dynamically balanced to ISO 1940 G2.5 parameters.
- **Side-Mounted Drivetrain configuration:** Isolated frame layout positions the prime mover away from hot or contaminated air streams, using adjustable slide rails for precise belt-tension management.

3. Engineering Performance Specifications Matrix

Parameter Description	Metric Unit Bound	Industrial Baseline Range
Volumetric Airflow Flowrate	m^3/hr (Cubic Meters/Hour)	2,500 to 85,000 m^3/hr
System Total Static Pressure	Pascal (Pa)	400 to 4,800 Pa
Electrical Core Motor Duty	Volts / Phase / Frequency	415 V / 3-Phase / 50 Hz
Rotational Operating Speed	RPM (Revolutions Per Minute)	960 / 1440 / 2880 RPM
Drive Transmission Architecture	Type Mechanism	V-Belt Pulley Drive Configuration
Airstream Thermal Tolerance	Celsius Degree Limit (°C)	-20°C up to +120°C (Standard)
Structural Casing Material	Steel Grade Specifications	IS 2062 MS / SS 304 / SS 316

4. Industrial & HVAC Deployment Sectors

- **Commercial Air Handling Units (AHU):** Serves as the primary air-moving driver inside heavy-duty multi-zone ducted HVAC distribution frameworks.
- **Factory & Warehouse Ventilation:** Delivers highly effective volume extraction for paint booths, welding bays, and large manufacturing spaces.
- **Chemical & Corrosive Gas Exhaust:** Can be customized using stainless steel or specialized protective coatings to manage moisture-laden, acid-fume, or solvent exhausts safely.
- **Industrial Dust Collection Loops:** Works effectively on the clean-air side of pulse-jet dust collectors, baghouses, and wet scrubbers to pull particulate-laden airstreams through filters.