

# AUXILIARY VENTILATION FANS



- Robust
- High Pressure Designs
- AS4871:2012 Compliant
- Independently Functionally Safe Assessed
- ANZEx Certified Becker Enclosure
- Variable Inlet Vanes & Air Dilution Valve
- Mechanical & Electrical Options

# VENTILATION FAN OVERVIEW

Our Australian designed & manufactured Becker Auxilliary Ventilation fan is the industry leader in providing ventilation to all underground coal operations. Through strategic design & proven performance, The Becker fan continues to withstand the most hazardous conditions in operation.

Utilising leading edge technology, the Becker fan closely monitors temperature, vibration, motor current, flow and pressure. The results are processed by the PLC and displayed locally on the fan's interface, and in real time via the mines SCADA network to allow remote monitoring and assist with preventative maintenance scheduling to reduce down time.

## MECHANICAL

Designed for high availability and long life, the robust design incorporates solid fan blades to minimise imbalance trips and damage when foreign object enter the fan.

The solid steel sub frame is designed to prevent flex under operating conditions or when it is installed on uneven ground ensuring the integrity of the machine and its components during operation.

The heavy duty in house designed and manufactured jack shaft and long life heavy duty bearings provide superior operating life.



## ELECTRICAL

All fans are installed with the latest in electrical protection and monitoring equipment, designed by our electrical engineering team and fitted, tested & commissioned at our certified ISO9001:2015 & licensed AS/NZ 3800:2012 workshop in Thornton NSW

The Becker VSF5 flameproof enclosure is designed and certified for group one applications, The large viewing window can be used for operational status & diagnostic information which can be displayed via a HMI screen.

## FAN OPTIONS

- ▶ Environmental Monitoring (CH<sub>4</sub>,CO<sub>2</sub>)
- ▶ Pressure & Flow monitoring
- ▶ PLC or Machine watch control
- ▶ Surface Monitoring
- ▶ Fire Suppression
- ▶ Stone Dust Trickle Feeder
- ▶ Dust Scrubber
- ▶ Silencer
- ▶ Monorail Attachment
- ▶ 2 or 4 wheel configuration
- ▶ Hand/PTO hydraulic legs for stabilisation
- ▶ Hydraulic tracks
- ▶ Fan Skid

## STANDARD PROTECTION

- ▶ Incoming Supply Phase Reversal Indication
- ▶ Main Isolator Trip Protection
- ▶ Frozen Contactor Protection
- ▶ Motor Protection Relay
- ▶ Earth Leakage Protection
- ▶ Temperature Monitoring – Motor and Jackshaft
- ▶ Temperature Monitoring – Main Electrical Enclosure
- ▶ Vibration Monitoring – Motor and Jackshaft

## TESTING

Each fan is thoroughly tested following our Testing & Commissioning documentation that is in line with all specific Australian Standards. Once testing is complete, the following test results will be provided to each customer. Any specific testing requirements outside of the normal testing/commissioning phase can be conducted on request.

- ▶ Vibration Testing
- ▶ Bearing heat rise test
- ▶ Performance



## VENTILATION CONTROL

Ventilation control is achieved with Variable Inlet Vanes (VIV) that are fitted for the air volume adjustment with clearly labelled intermediate VIV positions.

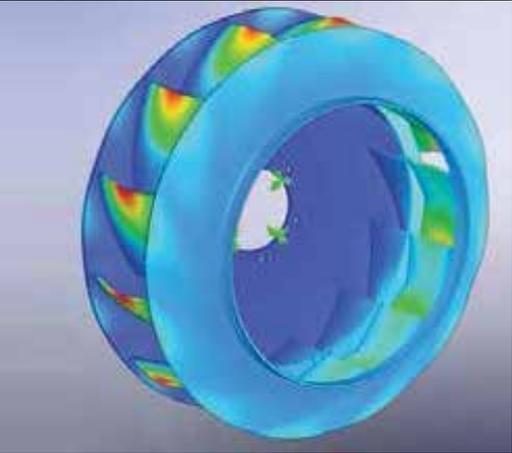
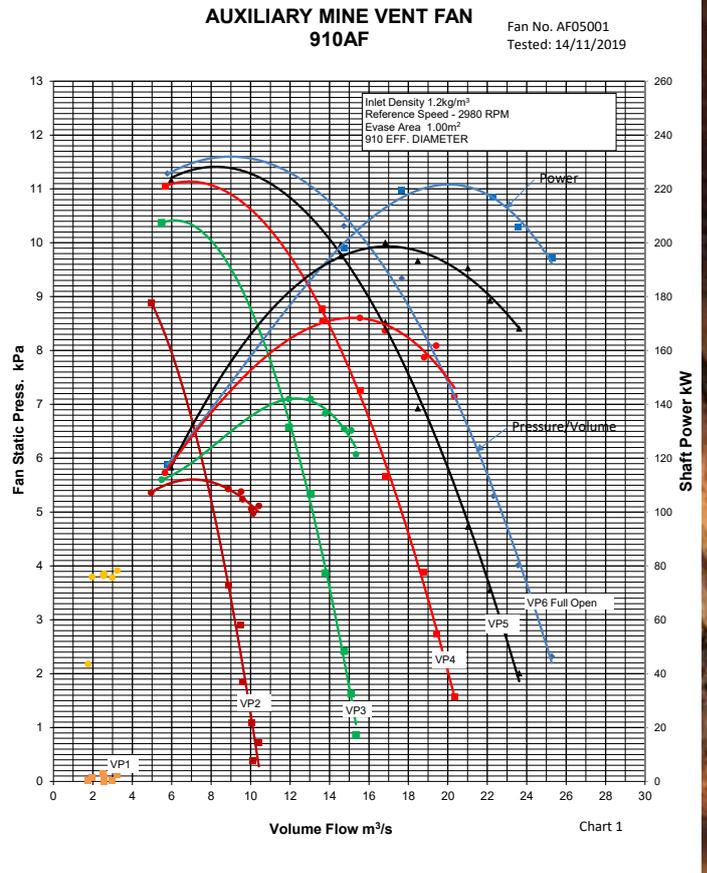
The fan is fitted with an air dilution valve (ADV) which is used to dilute plugs of methane gas that may accumulate in the ventilation tubes after a fan stoppage.

## AIR STREAM

A solid centrifugal impeller is located on an inline shaft which is coupled to a flameproof 1000VAC motor which is out of the air stream. The variable inlet vane (VIV) and air dilution valve (ADV) are high efficiency low maintenance designs. The VIV guides the air flow on to the impeller and the (ADV) robust design avoids damage when debris passes through the fan.

The stone drop out box is accessible from either side of the ADV to aid in the removal of debris accumulated during operation.

AUXILIARY MINE VENTILATION HIGH SPEED TYPE COMPARISON CURVES





### 834 Impellor Design 160Kw

MECHANICAL DATA	
Mass	6,200kg
Length	6235mm
Width	1450mm
Operating Speed	2,980rpm
Inlet & Outlet Diameter	Customisable
Impeller	Solid Plate
Maximum Airflow	18.8m <sup>3</sup> /s
Maximum Pressure	8.7KPA

### 870 Impellor Design 200Kw

MECHANICAL DATA	
Mass	6,500kg
Length	6235mm
Width	1450mm
Operating Speed	2,980rpm
Inlet & Outlet Diameter	Customisable
Impeller	Solid Plate
Maximum Airflow	19.8m <sup>3</sup> /s
Maximum Pressure	8.7kPA

### 910 Impellor 200Kw

MECHANICAL DATA	
Mass	6,500kg
Length	6235mm
Width	1450mm
Operating Speed	2980rpm
Inlet & Outlet Diameter	Customisable
Impeller	Aerofoil
Maximum Airflow	25m <sup>3</sup> /s
Maximum Pressure	11.3kPA

ELECTRICAL DATA	
Main Supply Voltage	1000 VAC 50hz +/-5%
Control Voltage	110V AC, 24V DC, 12V DC
Fan Motor Rating	150kW-200kW
Main Incoming CB	250A Thermal, 14kA Fault Level
Compliance	AS/NZ 4871:2012
Enclosure Explosion Protection	AS/NZ 3800:2012 Exd, Exi

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