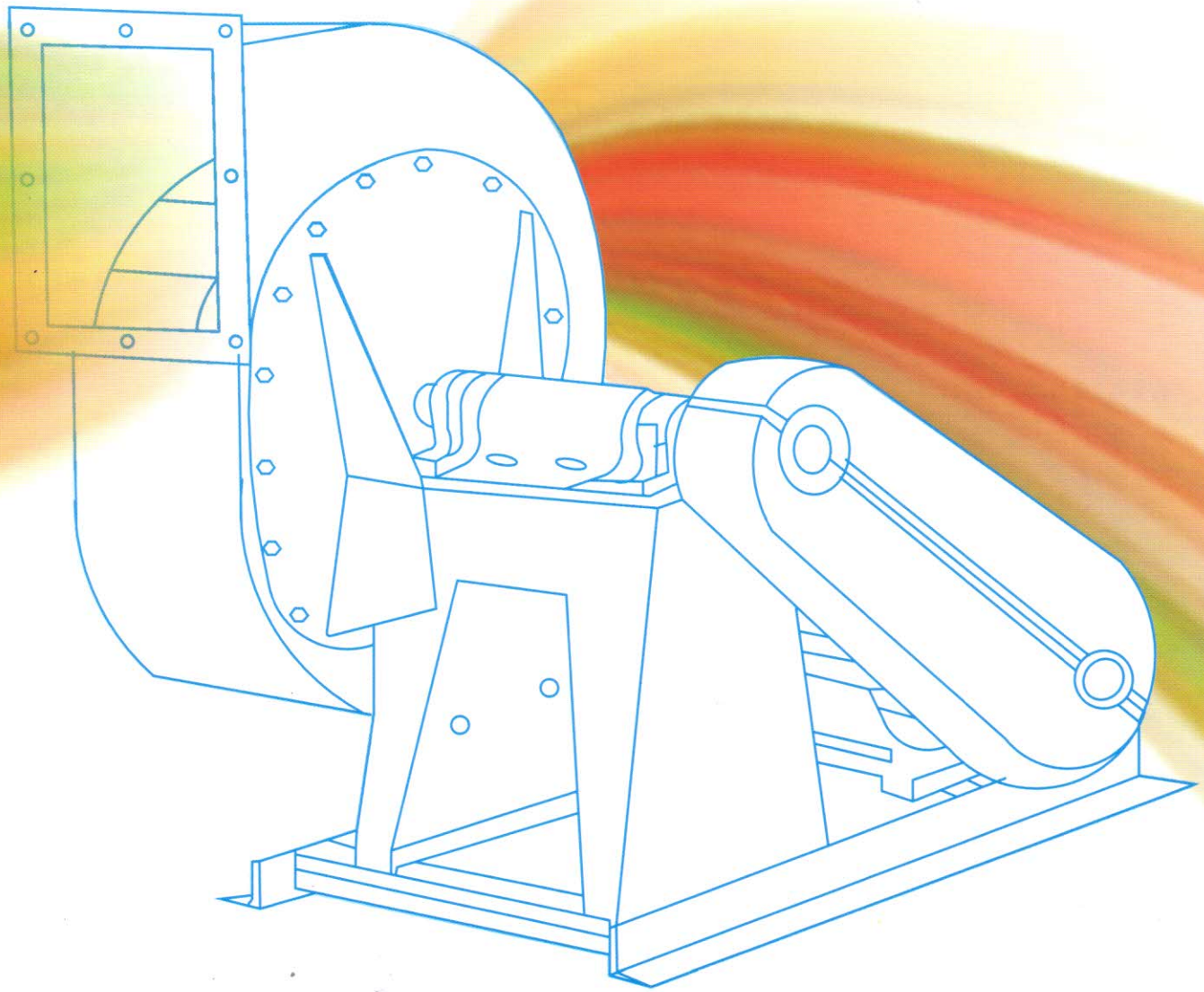
# INDUSTRIAL CENTRIFUGAL BLOWERS



AVENIR PROJECTS PRIVATE LIMITED

## INDUSTRIAL CENTRIFUGAL BLOWER

Avenir offers the Industrial Centrifugal Blowers that are perfectly engineered, with the use of latest manufacturing techniques, to meet the requirements of process / clean air handling applications in Chemical, Cement, Rice, Flour, Automobile, Steel and other industries and Power Plants.

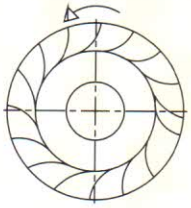
## MATERIAL OF CONSTRUCTION

The blowers are generally made in sheet steel fabricated construction with its shaft of EN-8. However, the blowers can be supplied in SS-304, SS-316 and PPGL+FRP construction also, on request.

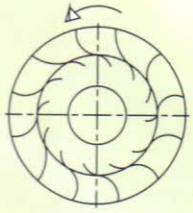
## CAPACITY

The blowers are made in wide range of impeller sizes varying from 200 mm to 2050 mm diameter suitable for air handling capacities of 500 $m^3$/hr. to 200000 $m^3$/hr., while the pressure developed by the blowers could be as high as 1000 mm WG.

## TYPE OF IMPELLER

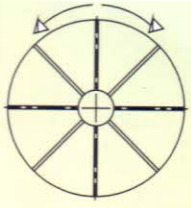


Type: AB
Backward curved aerodynamic blades to handle clean air or gas.



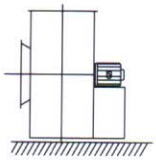
Type: AL
Double curved backward tip discharge for clean and conditioned air.

Type: AR
Backward curved radial tip discharge for conveying air containing flue gases and light dry dust particles.

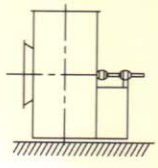


Type: AS
Straight radial blades for air conveying air containing dry and fibrous dust particles.

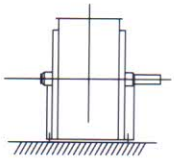
## DRIVE ARRANGEMENT



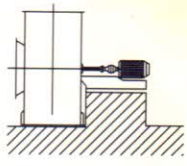
ARRANGEMENT: X
The impeller is mounted on the motor's shaft.



ARRANGEMENT: Y
The impeller is mounted on a shaft supported by the bearings placed on a pedestal.



ARRANGEMENT: Y(S)
The impeller is mounted on a shaft supported by the bearings furnished on each side of the blower's casing and pulley is overhung.



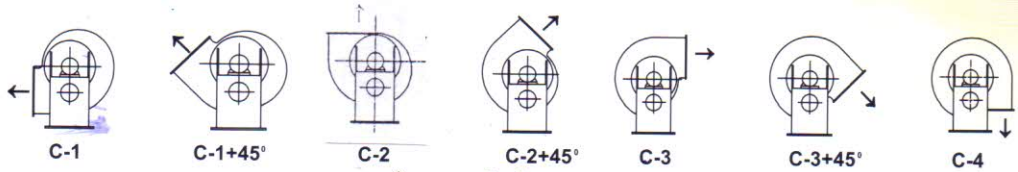
ARRANGEMENT: Z
The impeller is mounted on a shaft supported by the bearings, and coupled directly to the drive motor mounted on a short height common pedestal.

**NOTES :**

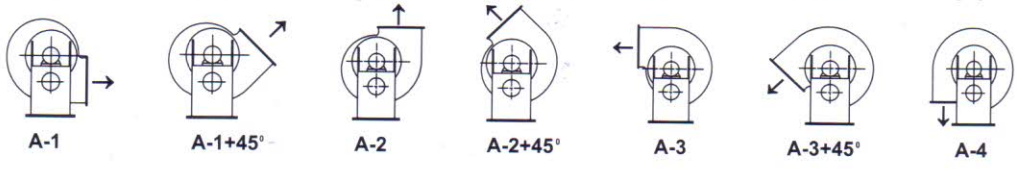
Arrangement – X & Z is preferable when the blower speed is the rated speed of drive motor.
Arrangement – X is suitable for blowers up to size 600.
The maximum permissible temperature is normally 100° C but with arrangement 'Y' & 'Z', the shaft and bearings can be equipped with cooling disc, which permit conveying of air at higher temperature up to 350° C.

## DISCHARGE DIRECTION

CLOCK-WISE FROM DRIVE END

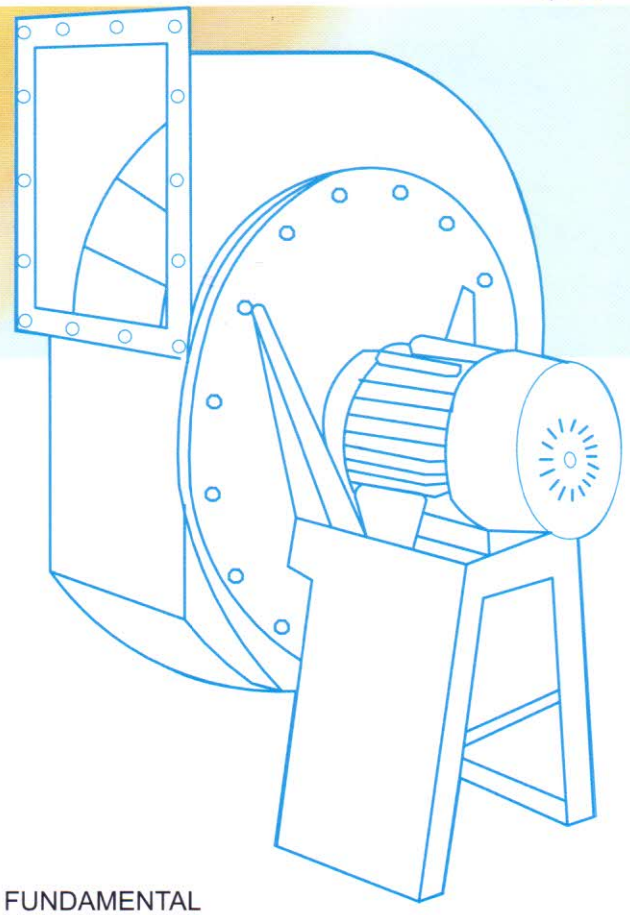



ANTI CLOCK-WISE FROM DRIVE END



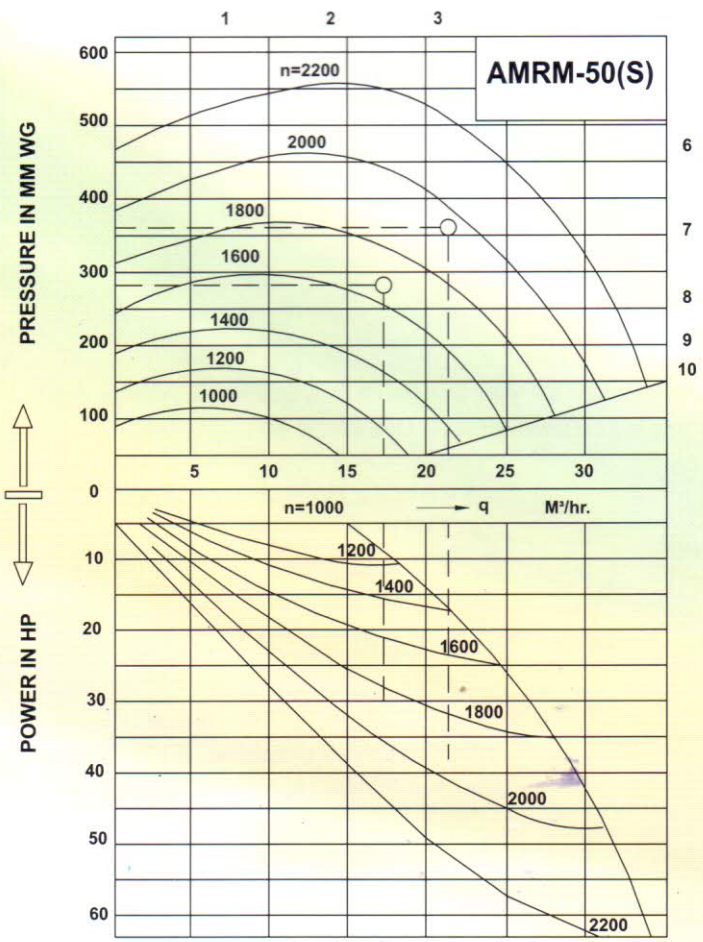
## STANDARD FEATURES

- Mild steel casing of welded construction.
- Stationary inlet guide vane.
- Cast iron / MS hub.
- Shaft of EN-8.
- Self aligning ball / roller bearing.
- Statically and dynamically balancing.
- Synthetic enamel paint on two coat of primer.



## FORWARD CURVED BLOWER

These blowers are of GP sheet steel construction with the double inlet double width housing which encloses forward curved blades impeller on a shaft, duly dynamically balanced as per ISO 1940 and suitable for air handling capacities of 1000 m³/hr. to 50000 m³/hr. and static pressure up to 60 mm WG.




FAN FUNDAMENTAL

Air Quantity (**Q**) is expressed in cubic meters per unit of time (Cu. Mt./sec.).

Pressure (**P**), is expressed in millimeters of water gauge (mm WG).
**1 mm WG = 1 kgf/sq.mt.**

The total pressure (**Pt**) is a measure of the energy supplied to the air flow per cubic meter of air passing through the blower and in quantum, is an algebraic sum of the static pressure (**Ps**) and the velocity / dynamic pressure (**Pd**), ie. **Pt = Ps + Pd**

The static pressure is equal to the manometer pressure as measured perpendicular to the direction of flow. The velocity pressure is a measure of the kinetic energy of the air. It is calculated from the formula:
**$Pd = \rho.v^2 / 2g$** , where
v : Velocity of air in m/sec.
ρ : Density of air = 1.2 kg/m³ at a temperature of 20° C, a relative humidity of 50% and a barometric pressure of 760 mm mercury
g : Acceleration due to gravity = 9.81 m/sec. / sec.

Power requirement (bhp), **$Ne = Q \times Pt / 75 \times n$**
Where n is the total (mechanical) efficiency of the blower