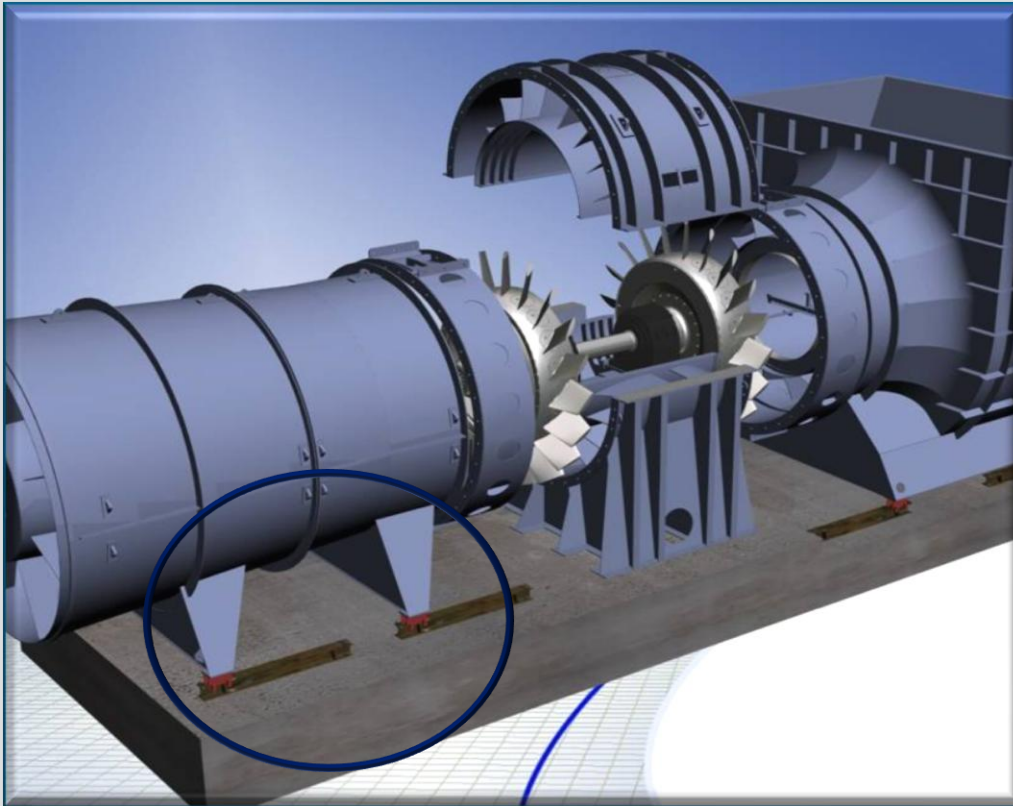


### Typical axial ID fan



- Available in single and two-stage versions depending on pressure requirements
- Very High Specific Speed results in fewer fans being required for a given flow and pressure.
- Requires periodic re-builds of hub and main bearing assemblies.
- Maintains higher efficiency at lower loads

# McIlvaine Hot Topic Hour

Fans for Power Plants



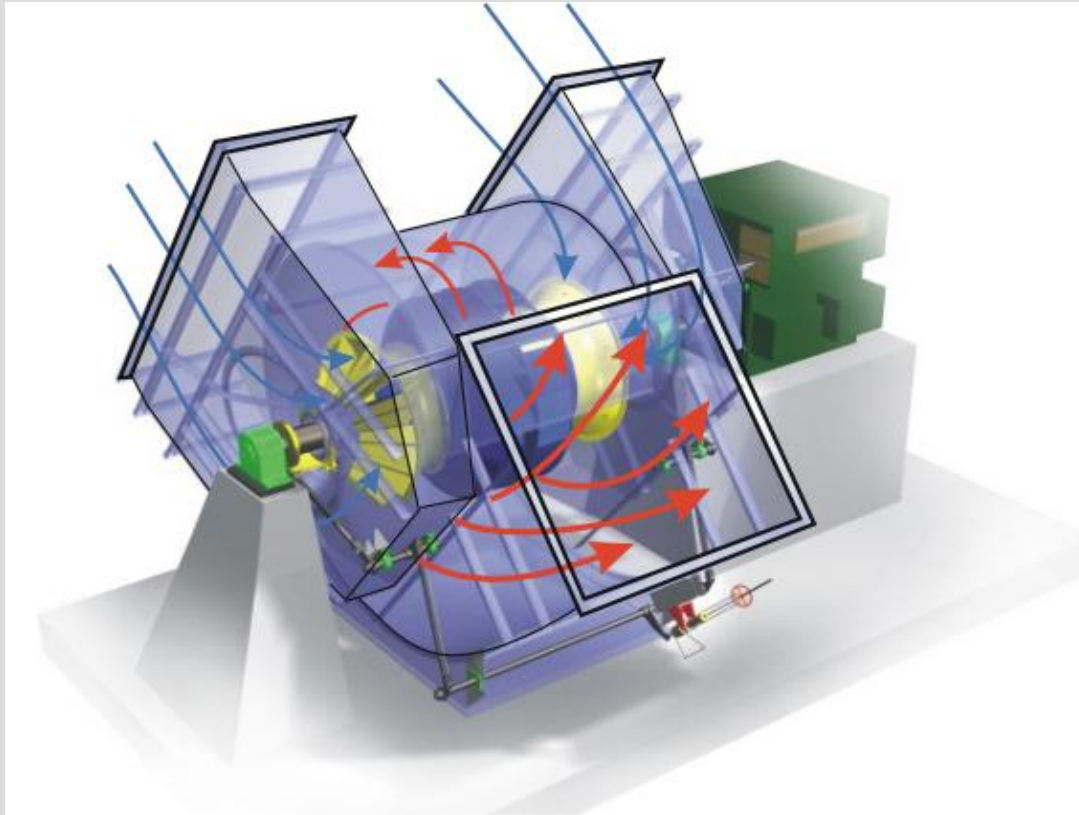
## Axial Fan



## Axial fan properties

- Typically, two axials can do the performance of four centrifugals, at approximately the same total power consumption
- Axials maintain high efficiency over a wide range of performance by varying blade pitch in operation
- Axials are significantly more expensive per fan due to complexity of blade pitch mechanism and hydraulics
- Axials **MUST** have routine periodic rebuilds of hubs and main bearing units, typically every six to eight years
- Heavy dust burdens can erode blade leading edges, leading to efficiency loss
- Axials may require less real estate and smaller foundations

### Typical centrifugal ID fan



- Only a single stage is required to provide sufficient pressure for any power plant ID application
- Limitation in Specific Speed may require a greater number of fans to provide sufficient flow
- Low maintenance requirements
- Can maintain very high efficiency at lower loads by use of variable speed control.
- Variable inlet vanes and inlet louver damper controls are alternate options.



### Typical centrifugal ID fan



## Centrifugal fan properties

- **Rugged well proven designs**
- **If controlled by variable inlet vanes, or inlet louver dampers, efficiency reduces quickly with lower loads.**
- **If controlled by variable speed, efficiency is maintained at high level at all loads**
- **Centrifugals are significantly less expensive per fan due to simple design**
- **Minimal maintenance required compared to axial**
- **Performance is relatively insensitive to erosion of blade leading edges**
- **May require more real estate and heavier foundations**