Typical fan wheel designs, features, and applications

**Axial Flow (AX)**
- Static Efficiency (Es): 31-52%
- Specific Speed Range (Ne): 115,000 – 184,230
- Peak efficiency range (Np): 125,000 – 175,000
- **FEATURES**: Single or reversing flow capability; high volumes at low pressures.
- **USES**: High temperature furnaces, soaking pits, recirculation; usable up to 2,000°F and above.

**Paddle Wheel (PW)**
- Static Efficiency (Es): 55-68%
- Specific Speed Range (Ns): 8,100 – 34,740
- Peak efficiency range (Np): 18,000 – 22,000
- **FEATURES**: Reversible; surgeless design; low to medium volumes at medium to high pressures.
- **USES**: High temperature furnace, ovens, carburizing; abrasive and dirty airstreams; usable up to 2,000°F and above.

**Radial Tipped (RT)**
- Static Efficiency (Es): 64-76%
- Specific Speed Range (Ns): 19,310 – 46,100
- Peak efficiency range (Np): 28,000 – 35,000
- **FEATURES**: Medium volumes at medium to high pressures.
- **USES**: Often in abrasive or dirty airstreams; scrubbers; large baghouses; usable up to 1,200°F.

**Backward Inclined (BI)**
- Static Efficiency (Es): 70-78%
- Specific Speed Range (Ns): 29,120 – 66,900
- Peak efficiency range (Np): 35,000 – 42,000
- **FEATURES**: Non-overloading HP; high volumes at low to medium pressures.
- **USES**: Dust collection; general ventilation; oven plug fans; usable up to 1,200°F.

**Forward Curved (FC)**
- Static Efficiency (Es): 45-57%
- Specific Speed Range (Ne): 24,440 – 39,070
- Peak efficiency range (Np): 26,000 – 30,000
- **FEATURES**: High pressure in small diameter wheel. Also known as Sirocco™ or squirrel cage wheel.
- **USES**: High temperature furnaces; gas recirculation; plug fans; base annealing; heat treating; usable up to 2,000°F and above.

**Radial Bladed (RB)**
- Static Efficiency (Es): 55-75%
- Specific Speed Range (Ns): 3,200 – 31,650
- Peak efficiency range (Np): 7,000 – 22,000
- **FEATURES**: Low to medium volumes at very high pressure.
- **USES**: Scrubbers; high pressure applications; dirty airstreams; combustion air; turbo pressure blowers; usable up to 1,000°F.

**Backward Curved (BC)**
- Static Efficiency (Es): 74-82%
- Specific Speed Range (Ne): 11,200 – 51,650
- Peak efficiency range (Np): 22,000 – 27,000
- **FEATURES**: Non-overloading HP; high volumes at medium to high pressures.
- **USES**: Boiler FD/ID fans; HRSG; heat recovery; thermal oxidizers; usable up to 1,200°F.

**Airfoil Bladed (AF)**
- Static Efficiency (Es): 76-87%
- Specific Speed Range (Ns): 16,340 – 62,750
- Peak efficiency range (Np): 40,000 – 45,000
- **FEATURES**: Non-overloading HP; high volumes at low to medium pressures; highest efficiency.
- **USES**: Clean airstreams; cooling fans; boiler FD fans; heat recovery; general ventilation usable up to 1,000°F.

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