

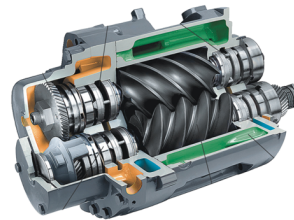
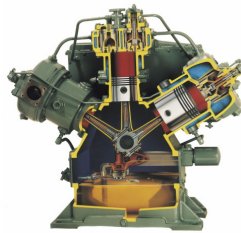
Rules of Thumb

- Lowering compressor pressure settings by **2 PSIG** results in a **1% savings**
- Lowering compressor inlet air temperature by **10°F** results in a **2% savings**
- **80% of the electric** energy going into compressors is lost as **heat**

Efficiency Index – kW/CFM

- **Compressor data sheet (CAGI)** provides kW/CFM at the rated capacity and the full load pressure
- **Logging the energy consumption** by the compressor

Major Types



Positive displacement	Positive displacement	Dynamic compression
Suited for high pressure operations	Better turn down characteristics	Good for full load operations
Typically used in smaller applications	Small – mid-sized applications <500 HP	Large applications >500 HP
Typical Controls – On/Off	Typical Controls – Load/Unload, Modulating, VSD	Butterfly Valves, Inlet Guide Vanes

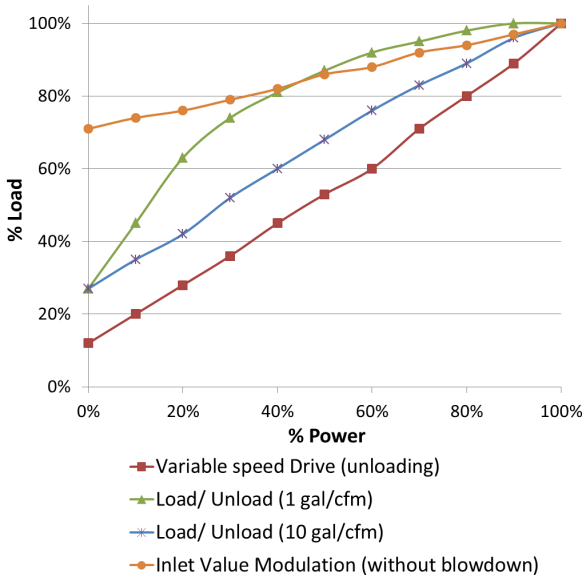
Air Leaks (CFM)

Pressure (psig)	Orifice Diameter (inches)					
	1/64	1/32	1/16	1/8	1/4	3/8
70	0.29	1.16	4.66	18.62	74.4	167.8
80	0.32	1.26	5.24	20.76	83.1	187.2
90	0.36	1.46	5.72	23.1	92	206.6
100	0.40	1.55	6.31	25.22	100.9	227
125	0.48	1.94	7.66	30.65	122.2	275.5

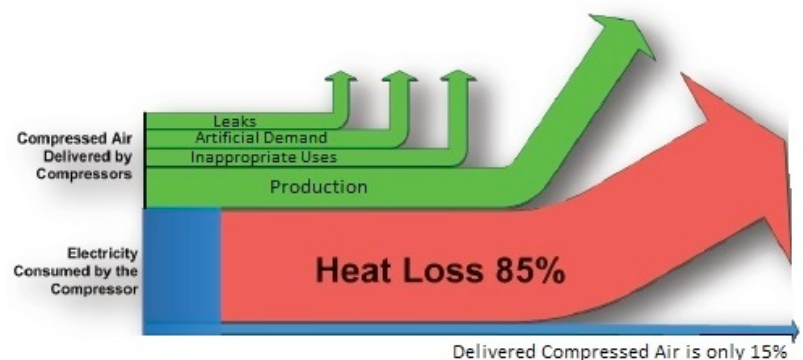
*For well-rounded orifices, values should be multiplied by **0.97** and by **0.61** for sharp ones

**Cost savings = # of leaks × leakage rate (cfm) × kW/cfm × # of hours × \$/kWh

Power drawn @ Part Load



Typical Losses



Inappropriate Uses	Alternatives
Clean up, drying, Process cooling	Low pressure blowers, electric fans brooms
Sparging	Blowers and mixers
Aspirating, atomizing	Low pressure blower
Vacuum generator	Dedicated Vacuum pump
Air operated diagram pumps	Electric pump with proper regulator
Air motor	Electric motor
Idle equipment	Air stop valve at the inlet
Abandoned equipment	Disconnect air supply