



Rules Of Thumb

Air Compressors:

1. Air compressors are normally rated to deliver 4 to 5 CFM per horsepower at 100 PSIG discharge pressure.
2. Depending on the the size of the system, compressed air costs about 25 to 42 cents per thousand cubic feet of free air ingested by the compressor (including operating and maintenance costs).
3. A 50 horsepower compressor rejects approximately 126,000 BTU per hour for heat recovery.
4. Motor amperage draw:

1 Phase	115V - 10 Amps per HP
	230V - 5 Amps per HP
3 Phase	230V - 2.50 Amps per HP
	460V - 1.25 Amps per HP

Air Receivers:

1. Size air receiver tanks for about 1 gallon capacity for each CFM of rotary compressor capacity. Standard receiver tank sizes are listed below:

Gal.	Dimensions	Gal.	Dimensions
30	16" x 38"	400	36" x 96"
60	20" x 48"	660	42" x 117"
80	20" x 63"	1060	48" x 144"
120	24" x 68"	1600	54" x 170"
200	30" x 72"	220	60" x 190"
240	30" x 84"	2560	60" x 220"

2. Cubic Feet: Gallons x 0.13368





Water Content

1. The water vapor content at 100¼ F of saturated compressed air is about two gallons per hour for each 100 CFM of compressor capacity.
2. Every 20¼ F temperature drop in saturated compressed air at constant pressure, 50% of the water vapor condenses to liquid.

Water-Cooled Aftercoolers

1. Most water-cooled aftercoolers will require about 3 GPM per 100 CFM of compressed air at Discharge Air Temperature at 100 psig.

Compressor Discharge Temperature (Before Aftercooling)

1. Approximate discharge temperatures (before aftercooling) at 80¼ F ambient:

<u>PRESSURE</u>	<u>100 PSIG</u>	<u>150 PSIG</u>	<u>200 PSIG</u>
Single-Stage	510	615	---
Two-Stage	325	365	395
Rotary (Oil-Cooled)	180 - 200	190 - 205	200 - 215

Horsepower & Power Cost:

1. Every 2 psig change in pressure equals 1% change in horsepower.
2. Most AIR MOTORS require 30 CFM at 90 psig per horsepower.
3. 10¢/ KWH Electric Power Rate = \$806/ Year for 1 HP/3 shift Constant Run.
4. KW = HP x 0.7457

Saturated Compressed Air

1. At 100 psig every 20¼ F increase in saturated air temperature doubles the amount of moisture in the air.

