



## Cost of Compressed Air Leaks

Do you know how much your compressed air leaks cost you? Maybe not but it is quite easy to work out.

Step 1 – Turn off all your machines that use air.

Step 2 – Run your compressor till it stops and note the pressure in the receiver.

Step 3 – Start your stopwatch

Step 4 – turn off your compressor

Step 5 – time how long it takes for the pressure to fall by 1 bar (time = T in seconds)

To calculate, proceed as follows:

V = Receiver volume in litres

H = Hours per week that your factory or workshop is operational

E = Electric costs in £ per KWH

$$\frac{V \times 60}{T \times 1000} = \text{leak rate in cubic meters / min (LR)}$$

A screw compressor will (typically) deliver approximately 0.149 cubic meters/minute free air at 8 bar per KW.

$$\text{KW required to maintain leak} = \text{LR}/0.149$$

$$\text{Cost per year} = \text{KW} \times \text{E} \times \text{H} \times 52$$

This is only an approximate calculation but is sufficiently accurate for all practical purposes in industry and can be used for any size of factory.

### Sample Calculation

Air receiver is 500 litres and it took 45 seconds for the pressure to fall from 7 to 6 bar.

Electric cost is £0.15 per KWH and the shift pattern is 16 hours a day, 5 days per week = 80 hours per week.

$$\frac{500 \times 60}{45 \times 1000} = 0.667 \text{ cubic meters / minute (Leak Rate = LR)}$$

$$\text{Cost per year} = (0.667/0.149) \times 0.15 \times 80 \times 52 = \text{£2,793 in electricity costs alone.}$$

In addition to the electricity cost is the servicing and capital cost of the compressor although this is typically somewhat less than the electricity costs (estimate 20-25% of the electricity cost).

Do not tolerate compressed air leaks of any kind!!