

CONVERSION FACTORS — SATURATED/DRY AIR FOR LIQUID RING VACUUM PUMPS

The performance curves for DEKKER liquid ring vacuum pumps are based on dry air at 68°F with 60°F seal water. However, some liquid ring vacuum pump manufacturers show their performance data in saturated air at 68°F and a seal-water temperature of 60°F.

The difference is that the saturated performance shows a much higher capacity, especially in the higher vacuum range 22" Hg or below 200 Torr. The difference in capacity has nothing to do with the type of pump but is rather a function of thermodynamics.

In the graph below we show the conversion factors for saturated to dry air.

Example:

A saturated air curve shows a capacity of 2,000 ACFM at 28" Hg.

The conversion factor at 28" Hg is 0.63 (see graph)

Dry air capacity is $2,000 \times 0.63 = 1,260$ ACFM

To calculate the saturated performance from DEKKER dry air performance data at 1,260 ACFM, use the same factor in reverse: $1,260 / 0.63 = 2,000$ ACFM saturated performance under the same conditions specified above. For saturated performance data at higher inlet temperatures, contact our application department.

