Small Tonnage Chillers
Minimum Water Volume Recommendations

ENGINEERING SUPPLEMENT	Supersedes: Nothing	Form 050.40-ES7 (703)

Historically, York has not published recommendations for minimum system water volume recommendations, since most systems inherently have had adequate water volume, which resulted in satisfactory water temperature control.

Small tonnage chillers have been growing in popularity and are being considered on more applications. Some have short water loops with less water, which can result in less stable control. Thus, there has been increasing customer interest and here is what we would recommend.

Application Duty	Effective Loop U.S. GALLONS/TON & LITERS/Cooling kW			
	Minimum Gal/Ton	(Liters/KW)	Preferred Gal/Ton	(Liters/KW)
Air Conditioning	3.0	3.3	5.0 to 8.0	5.4 to 8.6*
Process	6.0	6.5	7.0 to 11.0	7.6 to 11.9*

* or more

Example: 150 Ton Chiller (for air conditioning) = 150 X 3 = 450 U.S. Gallons Minimum

The above should be satisfactory guidelines for most applications. However, York will not be responsible for any resulting operation abnormalities, due to unique or unplanned application matters.

It is always good practice to include as much water volume as possible. This increases the thermal mass and “flywheel” effect within the system (i.e. the more; the better). This promotes stable water temperature control and increases reliability by reducing compressor cycling.