

## Choosing the correct Condenser

To select the Edwards Condenser which meets your requirements, use the Water Cooled Condensers Chart below. Performance data is derived from laboratory tests and computer derived. Calculations are based on water and R-22. All temperatures for calculations are in Fahrenheit.

- Step 1. Determine basic operating conditions.
- Entering water temperature (W1)
  - Leaving water temperature (W2)
  - Evaporator temperature/saturated suction temperature (SST)
  - Desired condensing temperature (CT)
  - Evaporator capacity (QE) in BTUH
  - condenser load (QC) in BTUH.

- Step 2. Calculate temperature difference

$$TD = CT - W$$

- Step 3. Calculate range (R)

$$R = W2 - 21$$

- Step 4. If condenser load is known, proceed to step 5. If condenser load is not known, use the Heat Rejection Chart to select the fR and multiply by the evaporator capacity.

- Step 5. Calculate water flow rate (GPM), gallons per minute.

$$GPM = QC / (500 \times R)$$

Note: Normal cooling tower applications use W1 = 85 ;W2 = 95; GPM = 3.0 per ton of evaporator capacity.  
City water applications use W1 = 75;W2 = 95; GPM = 1.5 per ton of evaporator capacity.

- Step 6. Select from chart, page 2 for TD of 20 degrees or 25 degrees calculated in step 2. If the temperature difference falls between the two charts, interpolate the data.

- Step 7. Select column in chart based on GPM calculated in step 5.

- Step 8. Select model number which operates at a capacity on thousands of BTUH (MBH) equal to or greater than the known condenser capacity or as calculated in

### EXAMPLE

Determine basic operating conditions.

- Entering water temperature (W1) = 85
- Leaving water temperature (W2) = 95
- Evaporator temperature/saturated suction temperature (SST) = 40
- Desired condensing temperature (CT) = 105
- Evaporator capacity (QE) in BTUH = 60,000
- condenser load (QC) in BTUH. = known or calculated

Calculate temperature difference

$$(TD) = 105 - 85 = 20$$

Calculate range (R)

$$R = 95 - 85 = 10$$

Since condenser load is not known, use the Heat Rejection Chart to select the fR of 1.2 for CT of 105 and SST of 40. Condenser load is:

$$QC = 60,000 \times 1.20 = 72,000 \text{ BTUH}$$

Calculate water flow rate (GPM)

$$GPM = 72,000 / (500 \times 10) = 14.4 \text{ GPM}$$

Select an Edwards condenser

Using the 20 degree Temperature Difference Table and the 14 GPM and 16 GPM column, select model S-5-1 with a capacity of 72,000 GTUH and pressure drop between 2.9 PSIG and 6.3 PSIG.

CT	Evaporator Temperature - SST					
	0	10	20	30	40	50
115 F	1.38	1.34	1.3	1.26	1.23	1.2
105 F	1.34	1.31	1.27	1.23	1.2	1.17
95 F	1.31	1.27	1.23	1.2	1.17	1.14