

## **Power-Pipe™ - Design Criteria**

Commercial and Industrial Systems with moderately high flow (12 to 300 usgpm)

### **Preliminary design steps**

- 1) Determine the total drain-water flow (gpm)
- 2) Determine the height available and subtract 12" for the top and bottom headers of the manifolded Pipe-Pipe units.
- 3) Based on the total flow and the Heat Exchange Effectiveness chart, determine the number of 4-unit-manifold required:
  - \* We recommend that the flow per "4-pipe" manifolded Power-Pipe unit be between 12 usgpm and 40 usgpm
  - \* Length to be as long as possible based on clearance available
  - \* If the height is limited then more units should be considered (and vice versa)
- 4) Use the selected length and flow for the "4-pipe" manifolded Power-Pipe unit to determine the System Effectiveness
  - \* Heat Exchange Effectiveness per "4-pipe" unit will be equal to the efficiency of the whole system
- 5) Use the pricing table to estimate total system costs

### **Notes:**

Combination of 4-unit-manifold is used as a reference. Other types of manifold can be used.  
For maximum effectiveness, design equal flow

We strongly recommend that you contact us to confirm design and also for any technical support or ordering:

### **RenewABILITY Energy Inc.**

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## Power-Pipe™ - Heat Exchange Effectiveness

Commercial and Industrial 4-unit-manifold (4 inches)

Effect of Power-Pipe Length and Flow on Heat Exchange Effectiveness						
Length (in)	Flow (gpm)	Effectiveness (%)	Flow (gpm)	Effectiveness (%)	Flow (gpm)	Effectiveness (%)
30	12	30,2%	24	17,8%	40	11,5%
36	12	36,5%	24	22,4%	40	14,7%
42	12	41,9%	24	26,5%	40	17,8%
48	12	46,4%	24	30,2%	40	20,6%
54	12	50,2%	24	33,5%	40	23,2%
60	12	53,5%	24	36,5%	40	25,7%
66	12	56,4%	24	39,3%	40	28,0%
72	12	59,0%	24	41,9%	40	30,2%
78	12	61,3%	24	44,2%	40	32,2%
84	12	63,3%	24	46,4%	40	34,1%
90	12	65,2%	24	48,3%	40	36,0%
96	12	66,8%	24	50,2%	40	37,7%
102	12	68,4%	24	51,9%	40	39,3%
108	12	69,7%	24	53,5%	40	40,9%
114	12	71,0%	24	55,0%	40	42,3%
120	12	72,2%	24	56,4%	40	43,7%

\* Assumes equal flow

\* Optimal flow: 3 gpm to 10 gpm per unit

\* Only 4 inches units listed. 2, 3, 5 and 6 inches also available

### Effectiveness of a "4-pipe" manifolded Power-Pipe™ unit (4 inch diameter pipes) versus flow and length

