BTU OUTPUT

Each panel has a different BTU output depending on the room temperature and input/output average temperature. Our standard BTU values are reported on a basis of 68F room temperature and a 108F ΔT (Average Water Temperature Inlet/Outlet – Room temperature)

Reference	ΔT 108F (BTU/H)
11-500	1686
11-1000	3368
21-750	2546
21-1500	5088
22-900	3293
22-1800	6583
33-2500	9399
11-850	2682

Chart1: Standard Output

It is possible to obtain each individual radiator value following the information mentioned in one of the two charts showed below, applying correction factors or taking into account different water entrance temperatures.

ΔT	BTU CORRECTION FACTOR
48	0,35
53	0,40
58	0,45
63	0,50
68	0,55
73	0,60
78	0,66
83	0,71
88	0,77
93	0,82
98	0,88
103	0,94
108	1,00
113	1,06
118	1,12
123	1,18

Chart2: Correction factors for different AT

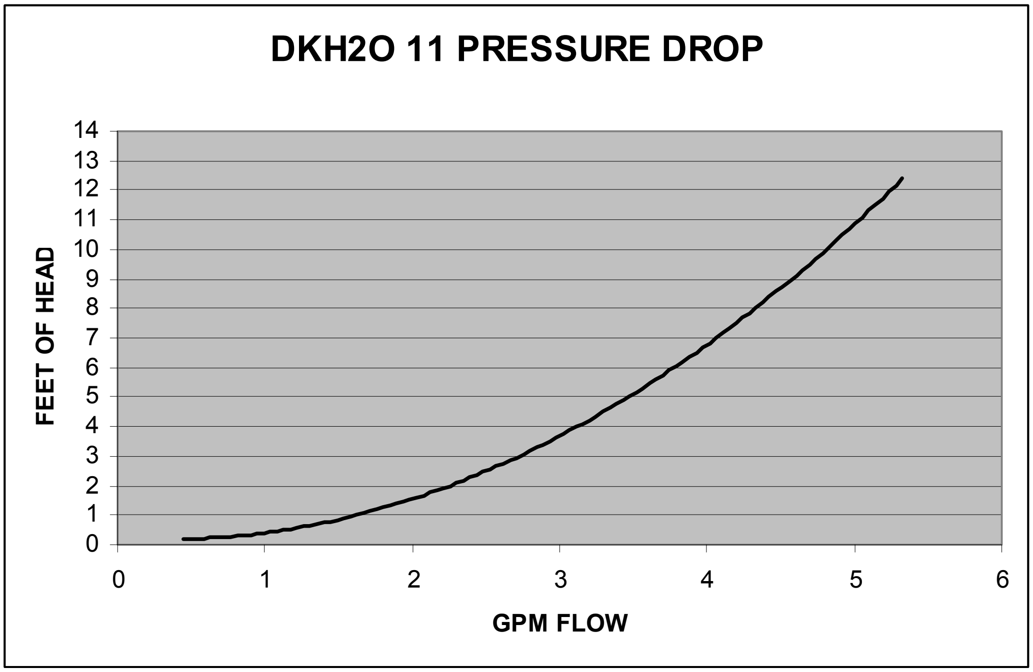
DUAL KHERR H2O OUTPUT													
Room Temperature 68F													
Water entrance (F)	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**	**190**	**200**	**210**	**220**	**Water content**
Referente BTU/H													**GAL**
11-500	468	623	789	964	1143	1331	1522	1722	1924	2134	2345	2564	0,326
11-1000	936	1245	1578	1928	2285	2662	3044	3444	3847	4268	4690	5128	0,653
21-750	701	934	1186	1452	1723	2010	2301	2606	2914	3236	3558	3894	0,651
21-1500	1401	1868	2373	2903	3446	4020	4603	5213	5829	6471	7117	7788	1,302
22-900	893	1196	1524	1871	2227	2604	2987	3390	3797	4223	4651	5096	0,660
22-1800	1783	2388	3045	3737	4448	5201	5967	6772	7585	8434	9289	10180	1,321
33-2500	2542	3406	4344	5333	6350	7426	8521	9672	10835	12051	13274	14548	1,902
11-850	745	991	1256	1535	1819	2119	2424	2742	3063	3398	3734	4082	0,528

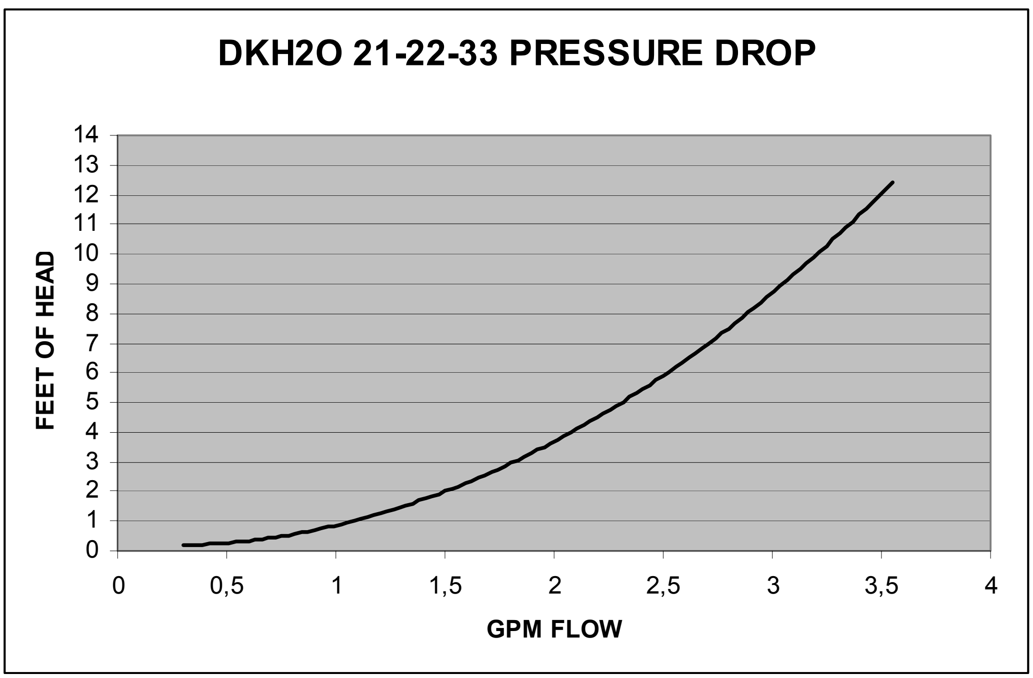
Chart3: Corrected values for different water entrance temperatures at constant 68F room temperature.

PRESSURE DROP CALCULUS

Two factors are needed to size a circulator pump correctly. Gallons per minute (GPM) and system pressure drop (feet of head). Following the example on the next page, use the GPM value to calculate the pressure drop through the entire system to be able to correctly size the circulator pump.

Using the tables below, find the pressure drop the DKH2O has in feet of head.





To calculate GPM for a system circulator, use the following formula:

GPM = (Total BTU/H) / (500 x ΔT)

Which reads: GPM needed **equals** the total BTU's the circulator needs to provide **divided by** 500 **times** the temperature differential between the supply and return water temperatures. Normally, the target temperature differential is 20°. This is what we will use in our example.

Example 1:

We have (3) model DKH2O 21-1500 with 190°F water entrance temperature. Each provides 5829 BTH/H (chart 3)

3 x 5829 BTU/H = 17487 BTU/H. Our ΔT will be 20°F (supply-return).

GPM = (Total BTU/H) / (500 x ΔT)

GPM = 17487 / (500 x 20)

GPM = 17487 / 10000

GPM = 1.7487

Go to the second pressure drop chart and find 1.7487 GPM flow. Follow the chart up until you cross the pressure drop curve. Read the corresponding feet of head on the left. It is approximately 3.2 feet of head.

Example 2:

We have (1) model DKH20 11-1000, (1) model DKH20 21-1500 and (2) model DKH20 33-2500 with 200°F water entrance temperature.

4268 + 6471 + (2 x 12051) = 34841 BTU/H. Our ΔT will be 20°F (supply-return).

GPM = (Total BTU/H) / (500 x ΔT)

GPM = 34841 / (500 x 20)

GPM = 34841 / 10000

GPM = 3.4841

With example 2, multiple models have been used and both charts need to be consulted. Pressure drop on the 11-1000 from the top chart is approximately 5 feet of head. Pressure drop on the other three units from the bottom chart is approximately 12 feet of head.

Knowing the head loss, keep this in mind when sizing a circulator: When piping in series, the pressure drop of all components are added together to determine total head loss (feet of head). When piping in parallel, the largest single head loss of all parallel components is used.