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Glycol Pressure Drop Corrections for Hydronic Systems (Part 2)

Monday Morning Minutes | by Norm Hall, July 25, 2022

Last week the article covered pressure drop correction calculations. Today we offer you some handy charts to use for second glycol correction pressure drop.

Pressure Drop Corrections for Glycol/Water Solutions						
	Percent Propylene Glycol			Percent Ethylene Glycol		
Average Temperature	30%	40%	50%	30%	40%	50%
35F	1.56	1.78	2.00	1.37	1.47	1.60
45F	1.46	1.63	1.90	1.30	1.39	1.51
50F	1.41	1.56	1.80	1.27	1.36	1.47
80F	1.20	1.29	1.45	1.11	1.18	1.27
100F	1.10	1.19	1.30	1.04	1.10	1.17
130F	1.01	1.07	1.15	0.96	1.01	1.06
150F	0.96	1.01	1.07	0.92	0.96	1.01
170F	0.93	0.97	1.02	0.89	0.92	0.96

Glycol Pressure Drop Correction Example

Let's assume we have a primary variable chilled water system with a 40% Dowfrost fluid. The system is designed for a 45°F average temperature. The engineer's calculations would be more detailed, but this will get the point across as an example.

ITEM	WATER BASED PD (FEET)	GLYCOL BASED PD (FEET)
Chiller		28
Mechanical room equipment	10	
Distribution piping	33	
Pipe fittings (25%)	8	
Farthest (controlling) AHU		16
Control valve	12	
AHU piping and valves	4	
Totals	67	44
Glycol correction factor	1.63	1.0
Correction head	109	44
Total before safety	153	
Pump head with 15% safety factor	176	

You can see the correction factors add up quickly. Not something you want to miss. We hope this short R. L. Deppmann Monday Morning Minutes will help you in your determination of glycol based system pump head.