
TECHNICAL BULLETIN TB247

PRO-BALANCE 1 1/4 IN. MANIFOLD PRESSURE LOSS IN GEOTHERMAL APPLICATIONS

Product: PRO-BALANCE 1 1/4 in. Manifold
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To determine the pressure (head) loss in a geothermal system, pressure loss through all equipment must be taken into account. This includes manifolds.

The charts below inform about the pressure loss through PRO-BALANCE 1 1/4 in. manifolds (Fig. 1), expressed in feet of head. The three charts are based on common antifreeze solutions at 32°F (0°C)¹.

To use the charts, choose the flow rate that is the total flow rate for the entire PRO-BALANCE 1 1/4 in. manifold – the total of all circuits (example: 15 USGPM). Plot a vertical line upward to intersect with the line for the size of the manifold (example: 6 outlets). From that point, move to the left to find pressure loss in feet of head. This is the total head loss through the whole manifold.

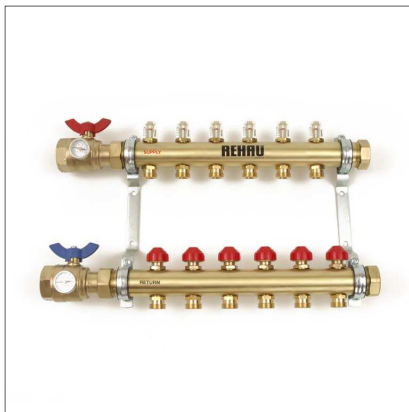


Fig. 1: PRO-BALANCE 1 1/4 in. manifold

¹Ground-Source Heat Pumps, Design of Geothermal Systems for Commercial and Institutional Buildings, S. P. Kavanaugh, K. Rafferty, ASHRAE, 1997, Atlanta

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Note 1: Fig. 2, 3 and 4 are logarithmic graphs. This means that the intervals between 0.1 to 1.0 gpm, for instance, are tenths of a gpm, and the intervals between 10.0 to 100.0 gpm are in tens of gpm (20, 30, 40, etc.).

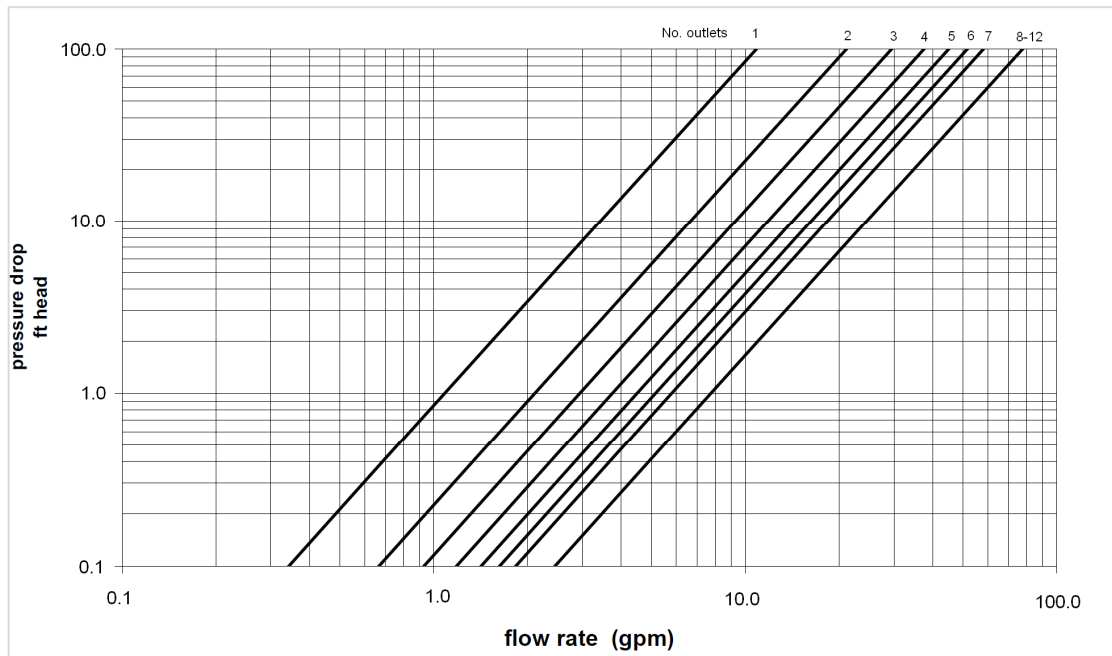


Fig. 2: Water

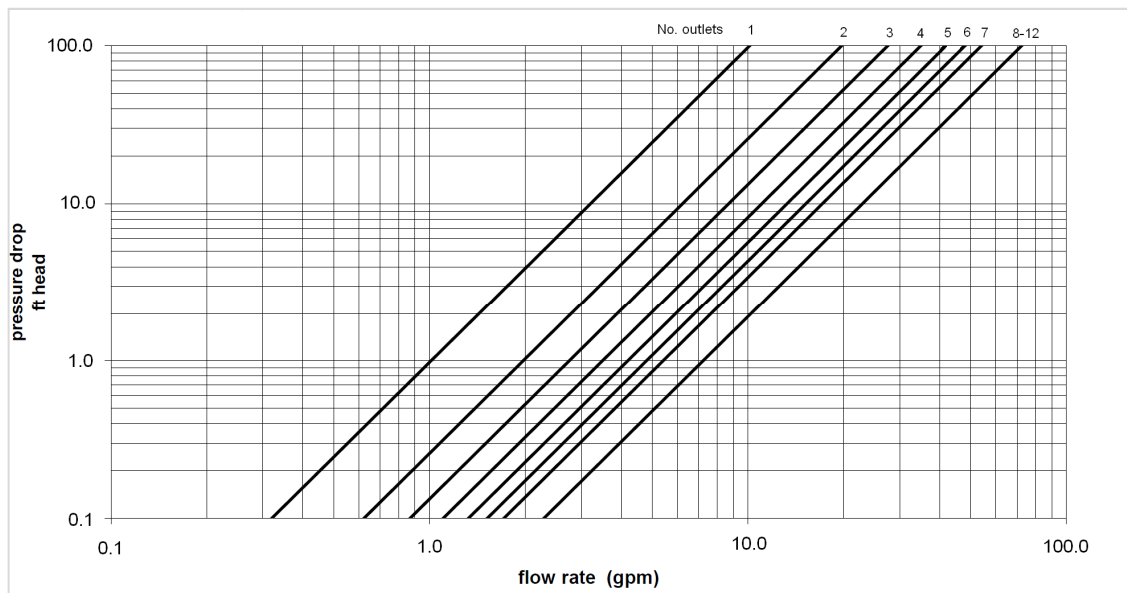


Fig. 3: 20% Ethylene glycol with water

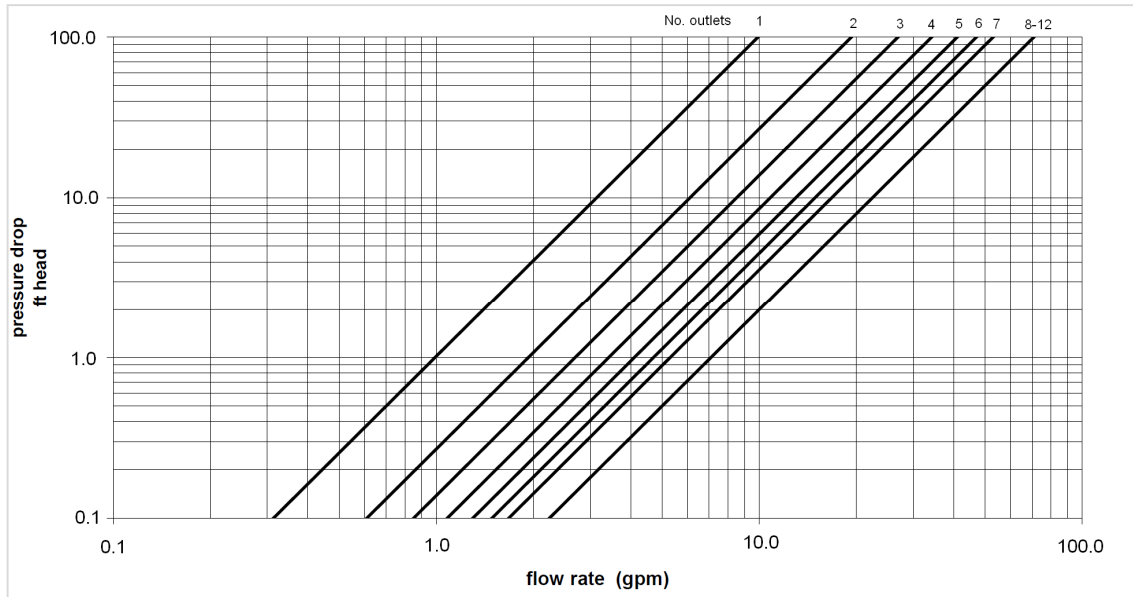


Fig. 4: 20% Propylene glycol with water