



AMT TN-12

Pressure Drop Flow Curves for the 10 L Coflore® ATR

Overview

This technical note summarises both the process- and heat transfer- pressure drops across a 10 L Coflore ATR continuous flow reactor. A 10 L ATR reactor consists of 8x 1.25 L ATR Reactor Tubes mounted in series (Figure 1).

Pressure Drop Calculations

For the process fluid pressure drop, pressure drop was calculated using the Darcy-Weisbach equation.

For the heat transfer fluid (HTF) pressure drop, pressure was recorded at both the HTF inlet and outlet connections mounted to the ATR bulkhead. Water was pumped through the HTF channel at 10 °C at a various flowrates.

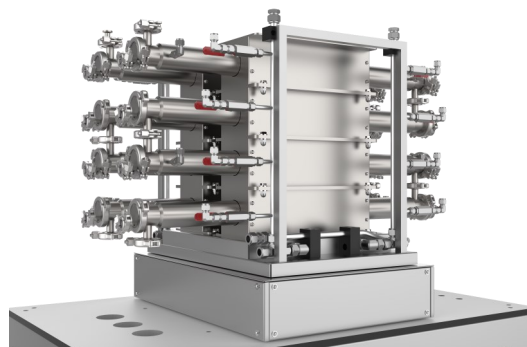
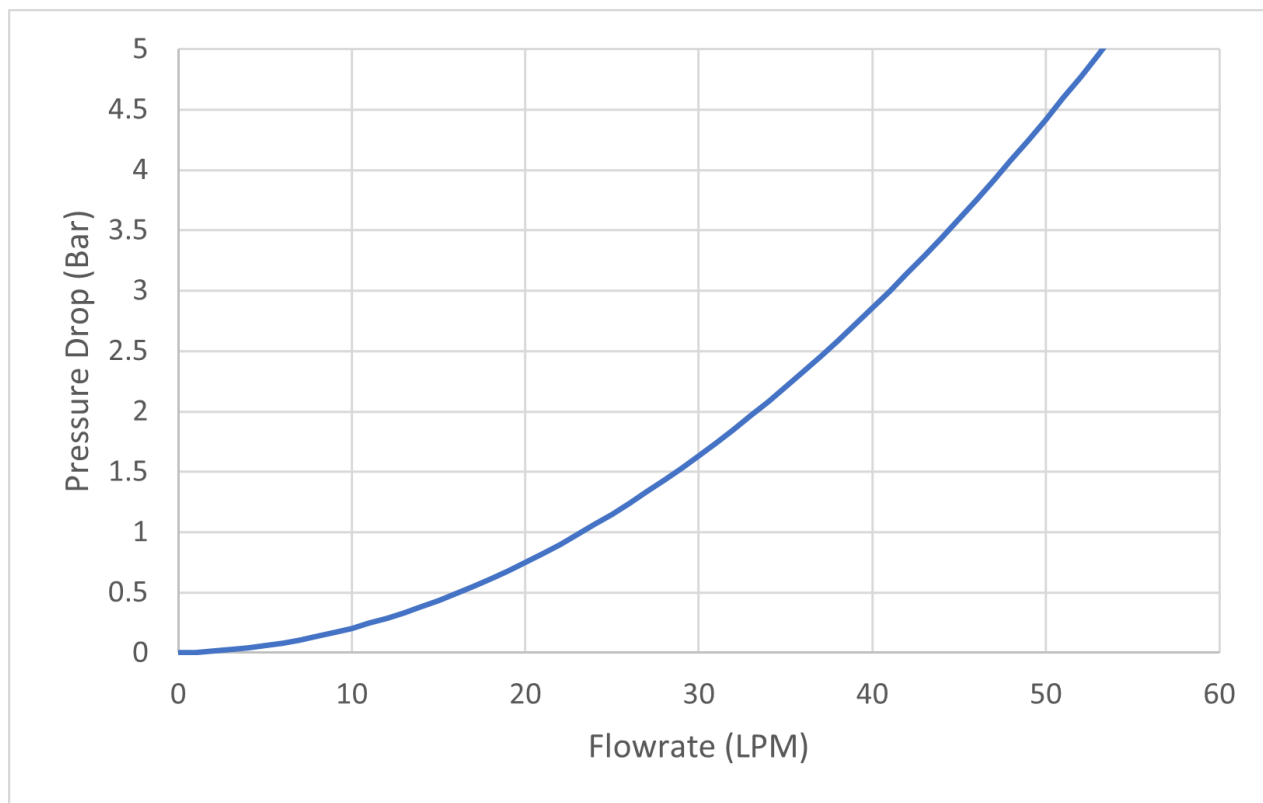


Figure 1: A 10 L Coflore ATR Continuous Flow Reactor.

Heat Transfer Fluid Pressure Drop

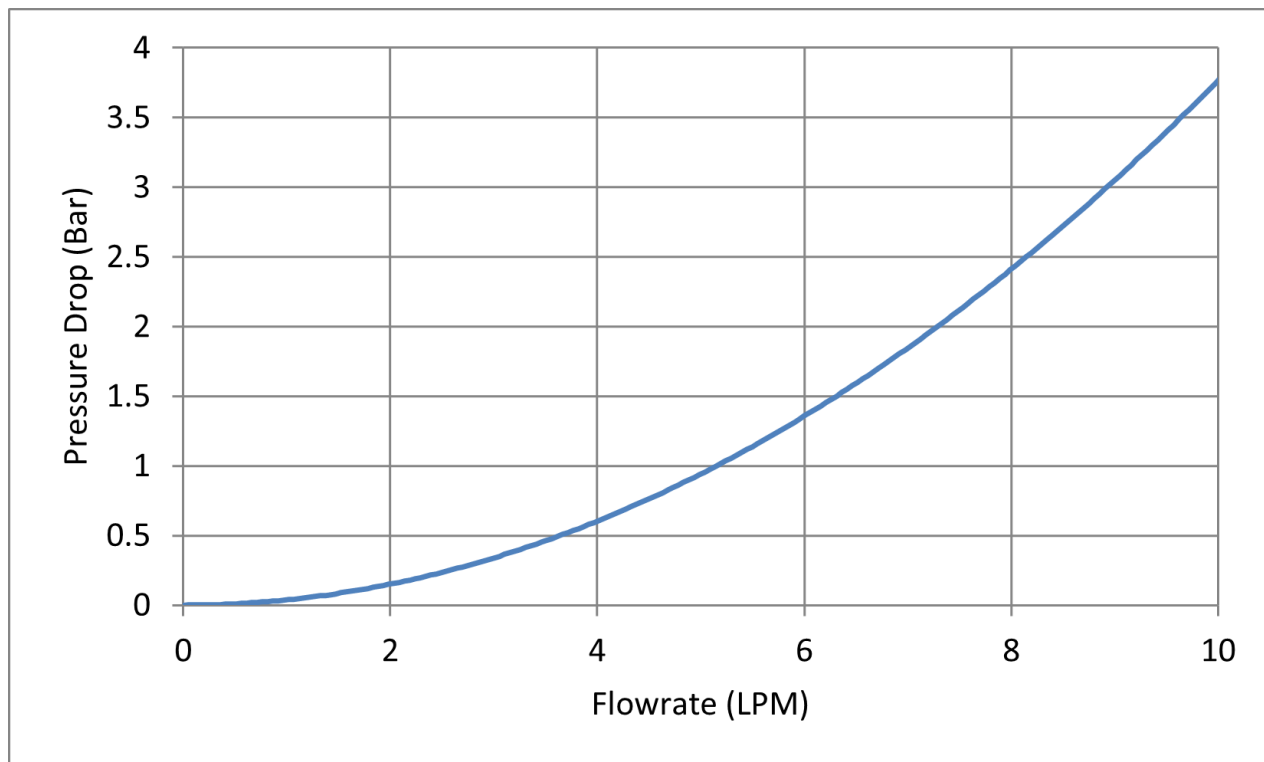




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Process Fluid Pressure Drop



Pressure Drop Summary

Greater than 95% of the observed pressure drop for the process fluid occurs in the 3/8" supply hoses, with negligible pressure drop across the reactor tubes themselves. The pressure drop across a single 0.35 L ATR reactor tube has previously been summarised in AMT-TN08, with a pressure drop value of around 10 mBar observed experimentally at all flowrates..