

SEATTLE CHEMICAL INDUSTRIES
ENGINEERING DEVELOPMENT LABORATORY
SEATTLE, WA 98195

To: Team F
From: Engineering Management
Subject: Orifice characteristics

We often use orifice meters to measure liquid flow rates. Our lab has installed a test facility equipped with seven circular and rectangular orifices, and devices to measure flow rate and pressure drop.

Please develop a model of the relationship between Reynolds number (based on the orifice velocity and characteristic length) and discharge coefficient over a 5:1 turndown based on the maximum flow possible with each orifice. Use the radius taps only. Can the same model be used for all seven orifices? If not, can we use the same model structure with different values of the adjustable parameters? In any case, please report the expected model accuracy.