

ABSTRACT**ORIFICE PLATES**

Implementations of an orifice plate used to regulate flow through a conduit are provided. In some implementations, a balanced restriction orifice (BRO) plate configured to maximize pressure loss is provided. In some implementations, the BRO plate may be configured to limit pipe and plate noise, erosion, cavitation, shear stress, etc. while maximizing pressure loss, and limiting flow to required values. In some implementations, openings through a BRO plate may be configured to satisfy a Velocity-Head Pressure-Loss equation. Alternatively, in some implementations, the hole pattern of an orifice plate may be optimized through the use of a provided Reynolds matching (RM) equation. In some implementations, an orifice plate may be optimized to improve process variable measurements, minimize system pressure drop, recover pressure, and reduce noise and other inefficiencies within the system using equations provided herein.

Figure 1A