ORIFICES

Function

Orifices are used in hydraulic systems to restrict flow.

Sizing

To calculate the orifice diameter required to pass a desired flow at a specified pressure:

\[ D = 0.23 \times \sqrt{\frac{Q}{\Delta p}} \]

Where

\[ D \] = orifice diameter in inches
\[ Q \] = flow in US gallons per minute
\[ \Delta p \] = differential pressure across orifice

And assuming: specific gravity = 1 and orifice coefficient = 0.63

To calculate the flow through an orifice of a known diameter at a specified pressure:

\[ Q = (D / 0.23)^2 \times \sqrt{\Delta p} \]

Where

\[ Q \] = flow in US gallons per minute
\[ D \] = orifice diameter in inches
\[ \Delta p \] = differential pressure across orifice

And assuming: specific gravity = 1 and orifice coefficient = 0.63

To calculate the pressure drop (differential pressure) across an orifice of a known diameter at a specified flow:

\[ \Delta p = \left[ \frac{Q}{(D / 0.23)^2} \right]^2 \]

Where

\[ \Delta p \] = differential pressure across orifice
\[ Q \] = flow in US gallons per minute
\[ D \] = orifice diameter in inches

And assuming: specific gravity = 1 and orifice coefficient = 0.63

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<td>litre</td>
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