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## Irrigation in the Pacific Northwest

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## Pipeline Pressure Loss

The first form calculates the [pressure](#) or [friction loss](#) along a given length of pipeline with a specified inside diameter. The second form calculates the minimum pipe size to limit pressure loss to a specified value.

Additional [pressure](#) losses can occur due to fittings, which add an extra length to the total pipeline. The [pressure](#) losses can be estimated using the [fitting pressure loss calculator](#), which gives an equivalent pipe length to add to the overall pipeline length.

[Learn more about the units used on this page.](#)

## Pressure/Friction Loss

Flow Rate In The Pipe:

Pipe Inside Diameter:

Pipe Length:

Pipe Material:

Pressure Loss:

## Minimum Pipe Size

Flow Rate In The Pipe:

Pipe Length:

Pipe material

Maximum Allowable Pressure Loss:

Minimum Pipe Size:

## The Equation

This calculator uses this formula to determine the pressure loss due to pipe friction.

$$P_{loss} = 4.53 \times L \times \frac{\left(\frac{Q}{C}\right)^{1.852}}{D^{4.857}}$$

where:

$P_{loss}$  = Pressure loss due to friction (psi)

$L$  = Pipe length (ft)

$Q$  = Flow rate of water inside pipe (gpm)

$C$  = Pipe coefficient

PVC = 150

Aluminum w/ Couplers = 120

Galv. Steel/Asb.-cement = 140

Cast Iron/Old Steel = 100

$D$  = Pipe inside diameter (in)

[WSU Prosser](#) – IAREC, 24106 N Bunn Rd, Prosser WA 99350–8694, 509–786–2226, [Contact Us](#)

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