



Pressure loss in AQUASYSTEM fittings

The pressure loss in a fitting depends on the type of fitting as well as the flow in the fitting. The coefficient of resistance, ζ is used for the calculations.

Coefficient of resistance, ζ for AQUASYSTEM fittings.

Description	Symbol	Coefficient of resistance
Equal coupling		0,25
Elbow 90°		2,00
Elbow 45°		0,60
Equal tee 90°		1,80
Reduced tee 90°		3,60
Equal tee 90°		1,30
Reduced tee 90°		2,60
Equal tee 90°		4,20
Reduced tee 90°		9,00
Equal tee 90°		2,20
Reduced tee 90°		5,00
Threaded tee 90°, male		0,80
Concentric reductions up to 2 size		0,55
Concentric reductions up to 3 size		0,85
Threaded fitting, male		0,40
Threaded fitting, male, reduced		0,85
Threaded elbow, male		2,20
Threaded elbow, male, reduced		3,50

To calculate the total pressure loss in all fittings in a pipeline, take the sum of the individual losses, i.e. the sum of all the ζ values. The pressure loss can then be calculated according to the following formula:

$$\Delta p_{F1} = \Sigma \zeta \cdot \frac{v^2}{2 \cdot 10^5} \cdot \rho$$

Where Δp_{F1} = pressure loss of all fittings (bar)

$\Sigma \zeta$ = sum of the coefficient of resistances

v = flow velocity (m/s)

ρ = density of transported media (kg/m³) (1 g/cm³ = 1000 kg/m³)