

# Pump Flow vs Gravity Flow

Is the cooling tower operating on pump flow or gravity flow? This question is often misunderstood and sometimes results in hydraulic or scope issues that could have been easily avoided.

## Pump Flow

Pump flow is the predominant design. Pump suction is piped directly to the tower basin. When circulating water pumps are shut down water remains in the cold-water basin. Separate basins or tanks are avoided preventing the need for additional real estate and cost. The trade-off is additional energy needed for basin heaters in freezing climates.

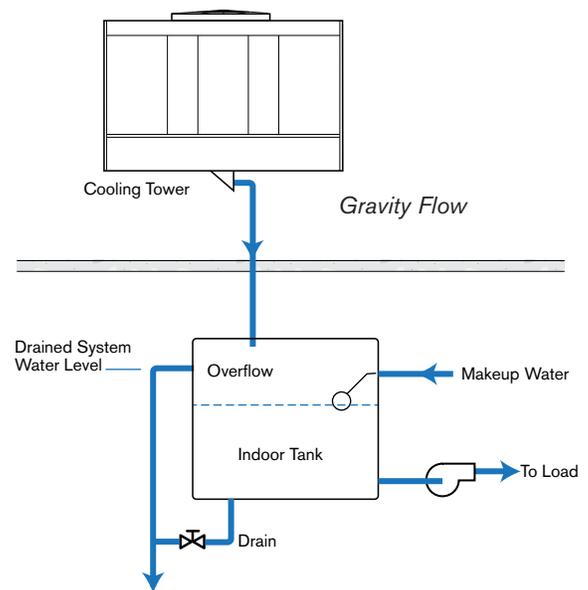
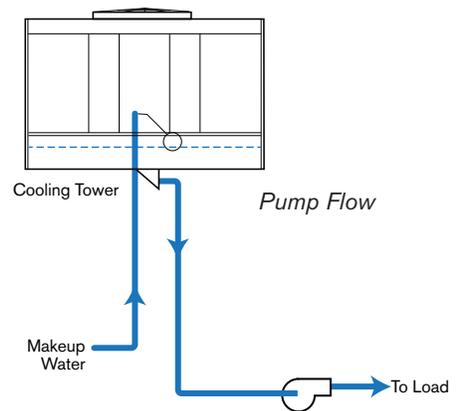
Since pump suction helps remove water from the basin, the outlet pipe diameter size is smaller than with gravity flow.

## Gravity Flow

Gravity flow is less common. Pumps are still used but elsewhere in the system. When circulating water pumps are shut down, the cooling tower basins will drain by **gravity** to a separate basin or remote sump or tank **below** the tower.

No water remains in the tower basin when pumps are off therefore the tower configurator will not allow basin heaters, make-up valves, water level controllers or equalizers to be selected as these options no longer serve any purpose. Note however that these options may be required in the remote basin or tank (especially make-up water). The remote basin or tank **must** be properly sized to account for water draining from the cooling tower as well as the rest of the system.

Since gravity flow relies wholly on gravity to remove water from the tower basin the outlet diameter pipe is larger.



**SPX COOLING TECHNOLOGIES, INC.**

7401 WEST 129 STREET  
 OVERLAND PARK, KS 66213 USA  
 913 664 7400 | spxcooling@spx.com  
 spxcooling.com

AE-MFP-03 | ISSUED 04/2017  
 COPYRIGHT © 2017 SPX CORPORATION  
 In the interest of technological progress, all products are subject to design and/or material change without notice.

