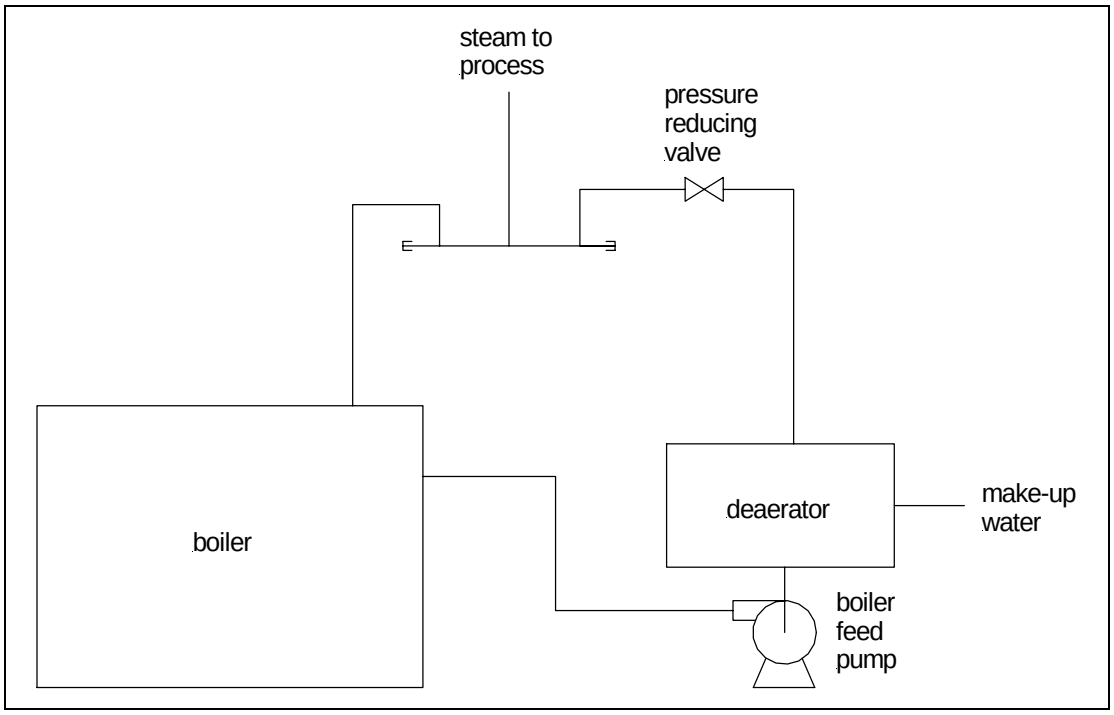
How a Deaerator Affects Steam Flow to Plant

A deaerator removes dissolved oxygen from boiler make-up water. Oxygen removal is accomplished by heating the make-up water to its boiling temperature. Dissolved oxygen gets freed then and escapes to the atmosphere. Steam is taken from the boiler and is piped to the deaerator to heat the make-up water.



The amount of steam that is available to the process varies depending on the amount of make-up, the steam pressure and the temperatures of the water entering to the deaerator. For example: a boiler needs to be selected for a process requiring 15,500 #/Hr of 125 psig steam. A 500 hp boiler looks like the right size but it will be undersized if there is 50% or more make-up.

Following is a tabulation of how make-up water affects the amount of steam available to the process assuming:

500 HP boiler operating at 125 psig. 5 psig deaerator pressure with 65^0F make-up water and 200^0F returns

% make up	steam out of boiler	steam to deaerator	steam to system
0%	16,809	370	16,439
10%	16,809	560	16,437
20%	16,809	750	16,059
30%	16,809	940	15,869
40%	16,809	1,130	15,679
50%	16,809	1,320	15,489
60%	16,809	1,510	15,299
70%	16,809	1,700	15,109
80%	16,809	1,890	14,919
90%	16,809	2,080	14,729
100%	16,809	2,270	14,539