Blowdown Heat Recovery (Flash Vessel and Cooler)

11/10/2026

Project: blowdown-heat-recovery

Input Parameters

Blowdown flow	500.00 kg/h
Boiler drum pressure (absolute)	18.000 bar
Flash vessel pressure (absolute)	1.5000 bar
Drain temperature leaving the cooler	40.000 °C
Make-up water flow through the cooler	5,000.0 kg/h
Make-up water inlet temperature	25.000 °C
Make-up water pressure (absolute)	3.0000 bar

Calculated Results

Heat recovered	101.21 kW
Share of blowdown heat recovered	93.480 %
Make-up water outlet temperature	30.819 °C
Flash steam fraction	18.757 %
Flash steam flow	93.784 kg/h
Residual blowdown to the cooler	406.22 kg/h
Heat in the flash steam (above make-up temperature)	67.420 kW
Heat transferred in the drain cooler	33.785 kW
Heat in the blowdown (above make-up temperature)	108.26 kW
Flash vessel temperature	111.35 °C
Boiler water enthalpy	884.61 kJ/kg
Liquid enthalpy at flash pressure	467.08 kJ/kg
Flash steam enthalpy	2,693.1 kJ/kg
Drain enthalpy	167.67 kJ/kg