throttling, steam becomes even superheated as a result of the throtling process. If steam dryness fraction x_2 is passed through a throtling valve, then it is sent to be throttled. The enthalpy before and after throttling is same so,

$$h_1 = h_2 \qquad \text{or} \qquad h_{f1} + x_1 h_{fg} = h_{f2} + x_2 h_{fg}$$

since $h_2 = h_{f2} + x_2 h_{fg}$ . . . . . (2)

If the pressure before throttling is known h_f and h_{fg} can be found from the standard steam tables knowing pressure and temperature after throttling h_2 can be found using the Mollier diagram or the tables so x_2 can be calculated out of equation (2).

For combined seperating and throttling calorimeter, the dryness fraction x is given by $x = x_1 x_2$ . . . . (3)

It is neccessary to mix the combined seperating and the throttling calorimeter because the dryness fraction x of the seperating calorimeter is an approximation ~~value~~ and alone can not be used for determining the dryness fraction when the steam is too wet. In this case steam is not dry or ~~When the~~ superheated after throttling so the enthalpy can't be determined.