



P7660 SEPARATING AND THROTTLING CALORIMETER

Separating and throttling calorimeters are used to determine the dryness fraction of steam. In this equipment a combined separating and throttling calorimeter is used to determine the dryness fraction of the steam supplied to the system.

The 'Separating' calorimeter is a mechanical process in which the incoming wet steam is made to change direction through a series of obtuse angles. As the steam travels through these angles, the inertia of the water droplets prevents them from following the changes in direction of the steam and causes them to drop out of the steam into the collection chamber.

In the 'Throttling' calorimeter the incoming steam is fed into the throttling calorimeter body via a fixed orifice, the pressure inside the calorimeter body being slightly above atmospheric. This causes the steam to become super heated and by measuring the final temperature and pressure of this steam the dryness fraction of the steam can be calculated.

However, both these types of calorimeters have shortcomings. The separating calorimeter cannot

separate out all of the water and some is carried over with the dry steam. The throttling calorimeter relies on the steam being throttled into the superheat region which is not possible if the steam is too wet before throttling.

The solution to these problems is to combine the two types of calorimeter by connecting them in series; the separating calorimeter being nearest the incoming main.

The unit is provided with a pressure gauge for measuring the steam main pressure and a mercury manometer for measuring the pressure inside the throttling calorimeter. Temperatures of the steam main and the throttling calorimeter interior are measured by a multipoint pyrometer, the readout of which is mounted at the top of the unit.

When supplied with a Cussons laboratory steam plant scheme the separating and throttling calorimeter's panel may be mounted on the water/fuel tank set framework.