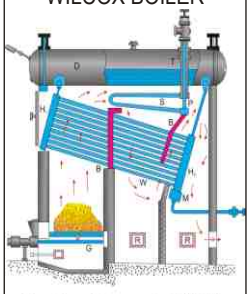
PHOTOGRAPHS OF CHARTS ON STEAM SECTION

STEAM (S - 1)

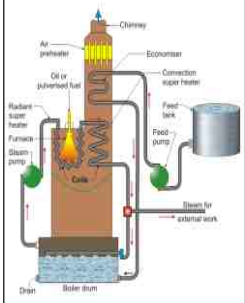
BABCOCK AND WILCOX BOILER



D - Steam and water Drum
T, P - Steam pipe
G - Grate
S - Super heater
H_1 - Uptake header
B - Baffle
H_2 - Down take header
W - Water tube
E - Damper
M - Mud box
V - Stop valve
R - Door

STEAM (S - 2)

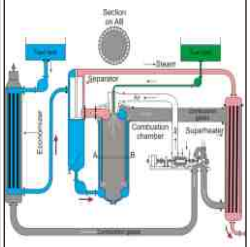
LOEFFLER BOILER



The novel feature of the Loeffler boiler is to evaporate water solely by means of superheated steam. The furnace heat is supplied only to econo miser and super heater. In other words, steam is used both as a heat carrying and heat absorbing medium.

STEAM (S - 3)

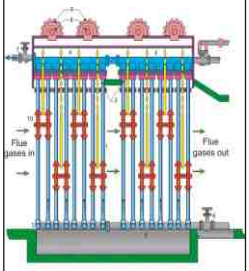
VELOX BOILER



The Velox boiler is a fire tube boiler using oil or gaseous fuel. The revolutionary feature is that the hot gases produced by the combustion of the fuel are circulated through the tubes with a velocity greater than that of sound. The combustion and circulation is carried out under high pressure from an air compressor. The boiler utilizes the fact that the heat flow through the tube walls is greatly increased if the velocity of the gases is supersonic.

STEAM (S - 4)

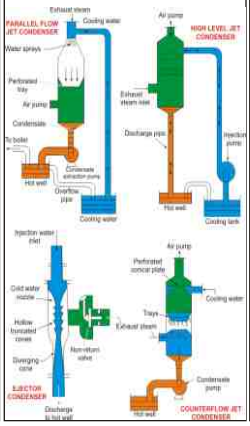
GREEN'S ECONOMISER



1. Vertical tubes;
2. Horizontal pipes or boxes at the top;
3. Horizontal pipes or boxes at the bottom;
4,5. Pipes; 6. Feed water in;
7. Water out;
8. Pulleys;
9. Worm wheel;
10. Scrapers.

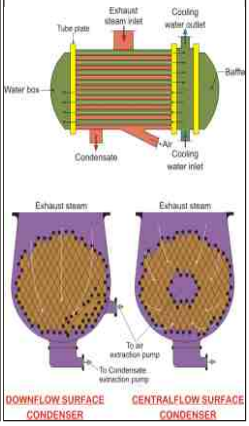
STEAM (S - 5)

JET CONDENSERS



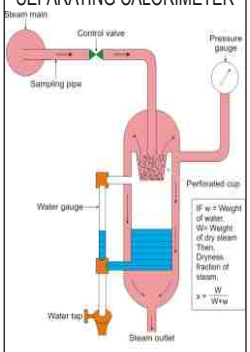
STEAM (S - 6)

SURFACE CONDENSERS



STEAM (S -7)

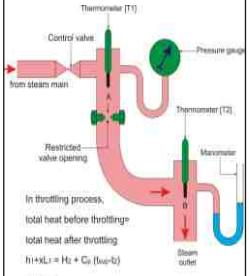
SEPARATING CALORIMETER



The separating calorimeter is used to determine the dryness fraction of steam by mechanically separating the water particles from the wet steam.

STEAM (S - 8)

THROTTLING CALORIMETER

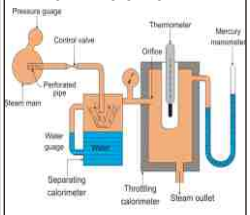


In throttling process,
total heat before throttling= total heat after throttling
$h_1 + xL_1 = H_2 + C_p (t_{sup} - t_2)$

Where,
h_1, L_1 = Sensible heat and latent heat of steam at Pressure P_1,
H_2 = Total heat of dry steam at pressure P_2,
t_{sup} = Temp. Of superheated steam after throttling
t_2 = Saturation temp. at pressure P_1,
C_p = Specific heat of superheated steam,
X = Dryness fraction of steam sample.

STEAM (S - 9)

COMBINED SEPARATING AND THROTTLING CALORIMETER

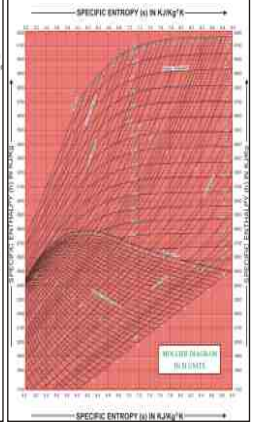


For getting accurate results, we use combined separating and throttling calorimeter.

IF X1 = Dryness fraction of steam considering separating calorimeter, and
X2 = Dryness fraction of steam entering the throttling calorimeter, then,
Net Dryness fraction of sample,
X = X1 x X2

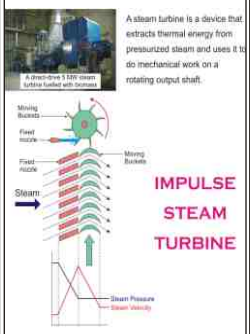
STEAM (S - 10)

MOLLIER DIAGRAM



STEAM (S - 11)

STEAM TURBINES (IMPULSE)



A steam turbine is a device that extracts thermal energy from pressurized steam and uses it to do mechanical work on a rotating output shaft.

IMPULSE STEAM TURBINE

An impulse turbine has fixed nozzles that orient the steam flow into high speed jets. These jets contain significant kinetic energy, which is converted into shaft rotation by the bucket-like shaped rotor blades, as the steam jet changes direction. A pressure drop occurs across only the stationary blades, with a net increase in steam velocity across the stage.

STEAM (S - 12)

STEAM TURBINES (REACTION)