Steam distribution
Typical Steam Circuit

- Pan
- Pan
- Process Vessel
- Condensate
- Vat
- Make-up Water
- Condensate
- Feed Tank
- Feed Pump
- Boiler
- Space Heating System
- Steam
Condensate forming within a steam pipe
Waterhammer

SAGGING MAIN

Condensate

Slug of water from condensate

Vibration and noise caused by waterhammer
Layout of steam main

Boiler

Steam trap

Grade

30 / 50 m

Air vent
Reverse Gradient On Steam Main

Increase in pipe diameter

30-50m

15m

15m

Fall

Fall

Fall
Ineffective, and Proper Drain Points

Correct

Steam

Condensate

Pocket

Steam trap

25/30mm

Incorrect

Steam

Cross-Section

Cross-Section
Steam LineReducers

Correct

Steam

Condensate

Incorrect

Steam
Branch Connections

Steam

Condensate

Incorrect

Correct
Piping Problems
Strainers

Strainer

Control Valve
Effect of insulation

50mm steam pipe

surrounding air 10-21 deg.C

7 bar steam

Heat losses per m run

Bare pipe

525 W

Insulated pipe

80 W
Expansion Bellows
Horse Shoe Loop
Full Loop
Sliding Joint

Pressure acts on this area

Movement due to pipework expansion