

Steam Systems Design

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Steam Systems Design

Identification of steam system requirements

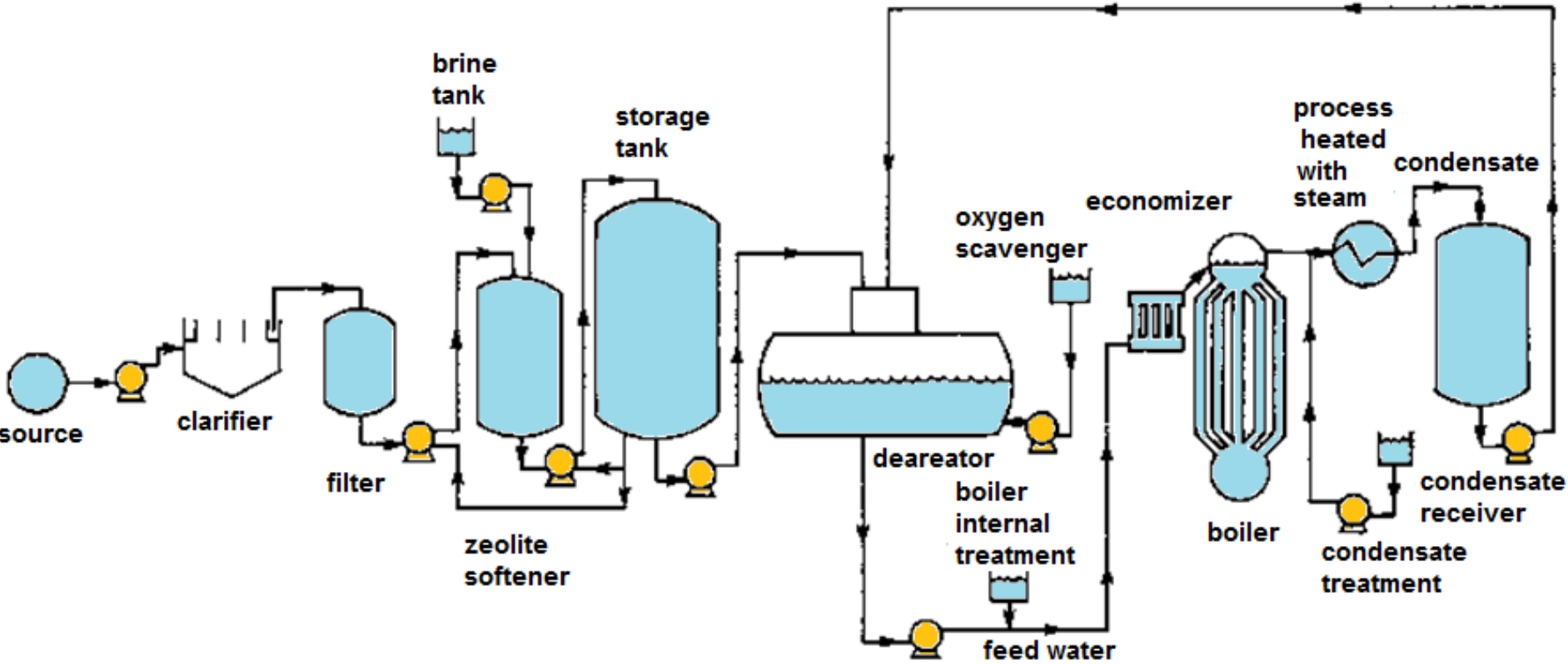
Defining total steam demand and overall system requirements

- process and turbine requirements
- pressures, temperatures

Steam System Design

- Water treatment system
- Deareator
- Economizer
- Boiler Selection
- Fuel/Air Ratio Control
- Water Chemical Treatment
- Steam Piping Layout
- Water Hammer

Steam System



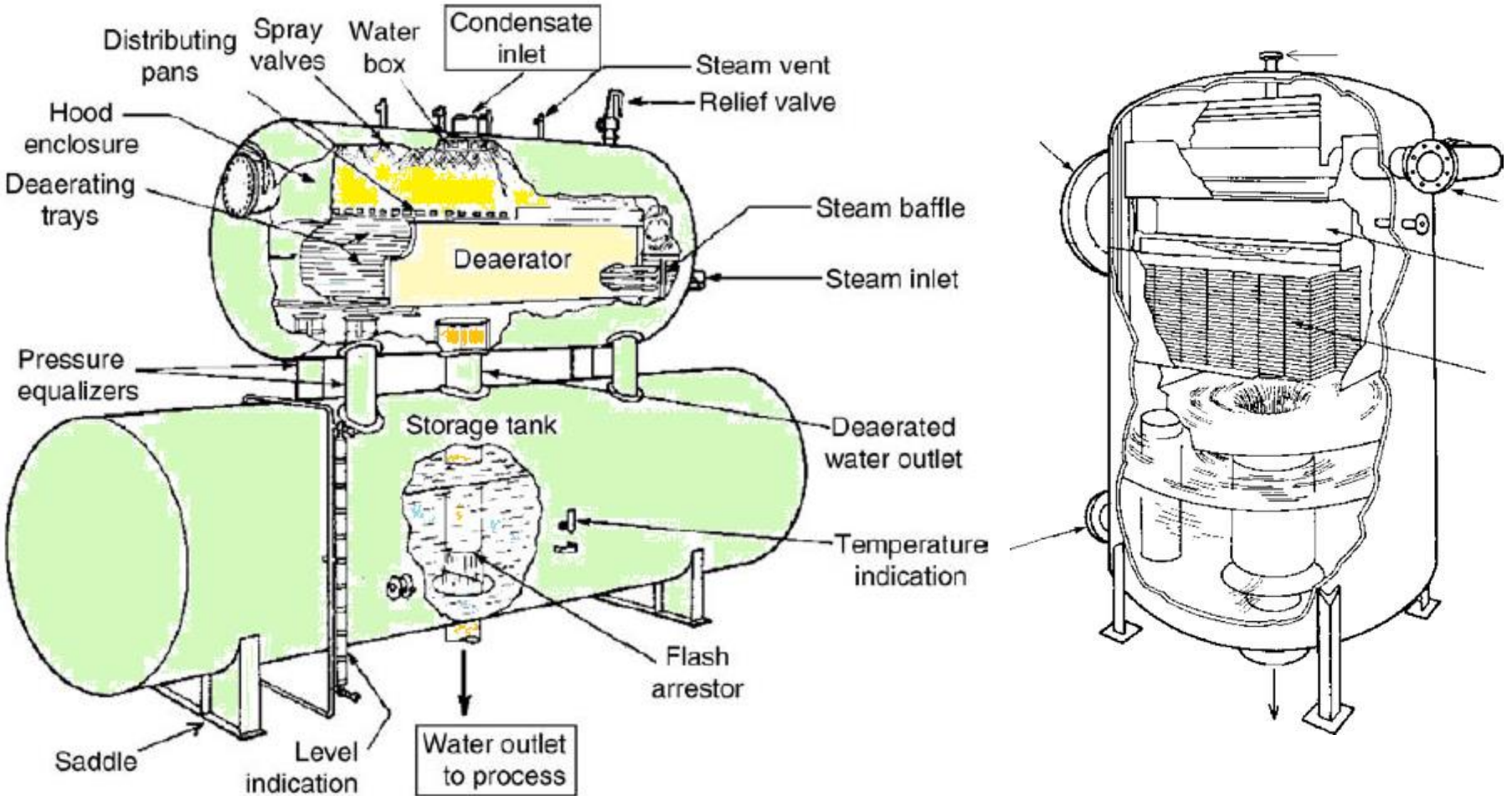
OTSG boiler spec

. Total Hardness	< 1 mg/l CaCO ₃ (0.5 mg/l recommended)
. barium	< 0.1 mg/l
. copper	not reported
. iron	< 0.25 mg/l
. free chlorine	< 0.1 mg/l
. oxygen	< 0.02 mg/l
. pH	7.0 – 9.5
. silica	< 100 mg/l
. total dissolved solids ...	< 12,000 mg/l (600 mg/l recommended)
. oil	< 0.5 mg/l

Relative costs of water treatment processes

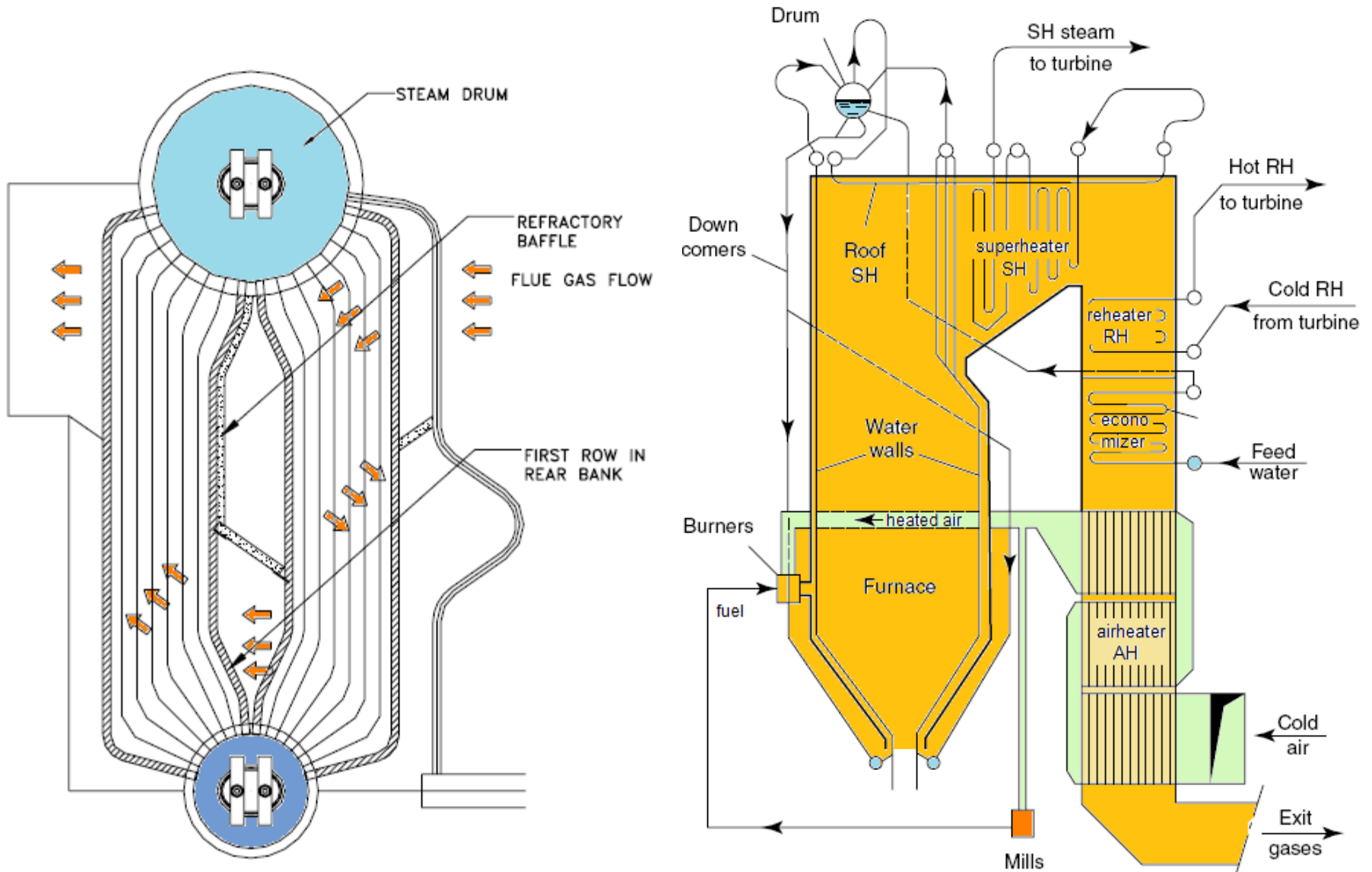
Type of System	comparative cost scale	
	capital cost	operating costs
base exchange	1	1
dealkalisation + base exchange	4	2
demineralisation	8	3

Deareator

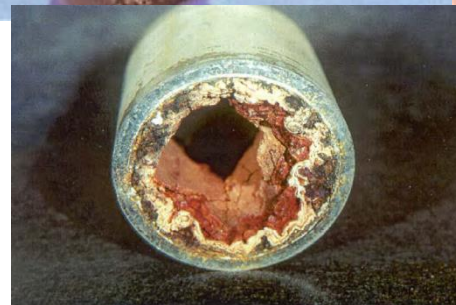


Water is heated up to its saturation point, gases are vented out

Water Tube Boiler



Water chemical treatment



Nalco



Thanks!

**This presentation contains just
a few slides, please contact me**

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