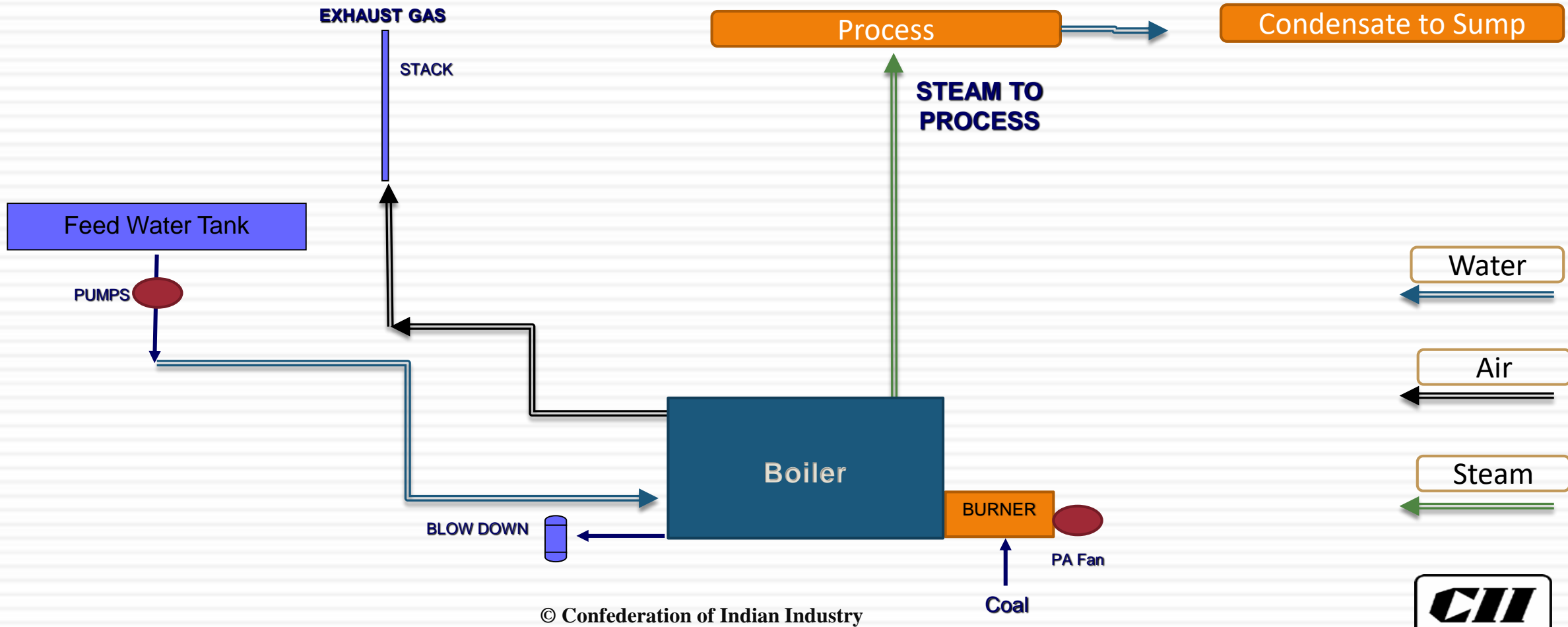
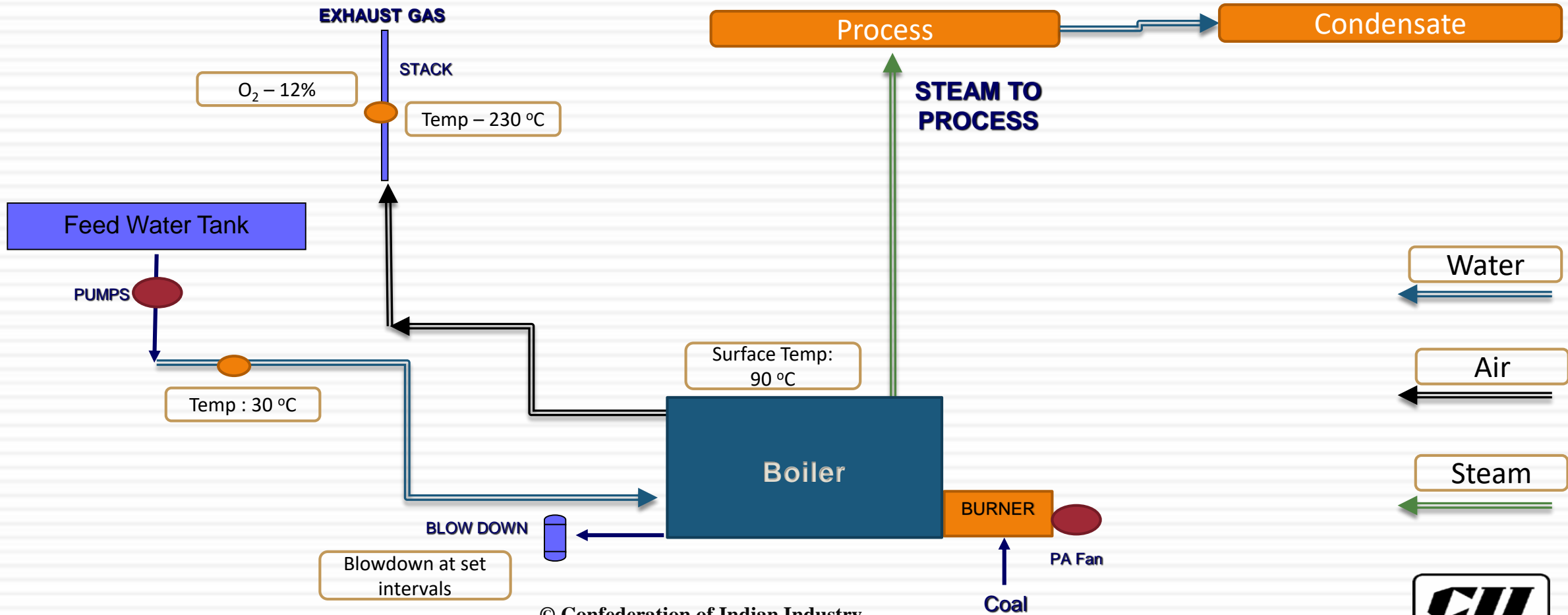


Existing Boiler - System



Existing Boiler - System

Boiler Eff. : 58%



- 1. Identify Energy Saving Measures**
- 2. Identify water saving opportunity**

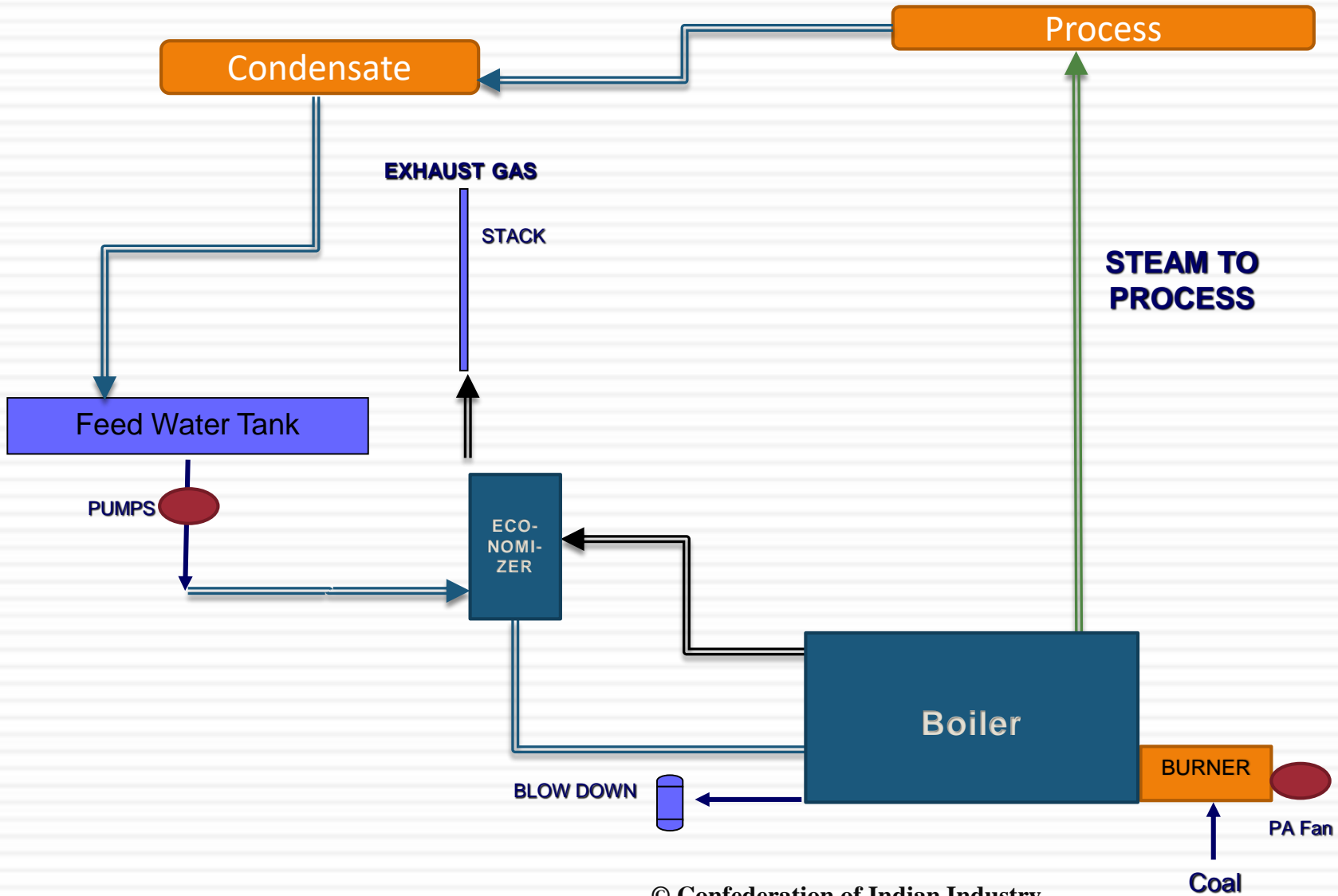
Energy Conservation Measures

1. Low Investment

- A. Reduction of radiation losses
- B. Optimization of Combustion losses (Reduce excess air)

2. Medium Investment

- A. Heat Recovery through economizer and air pre-heater
- B. Automatic Blowdown (based on TDS)
- C. Recovery of Condensate



Boiler Eff. : 68%



Existing System

22 year old motor Eff2 class
Rated 22 kW
Operating 9 kW



Heating of lugs at
motor terminal

Frequent winding and
bearing failure

New System

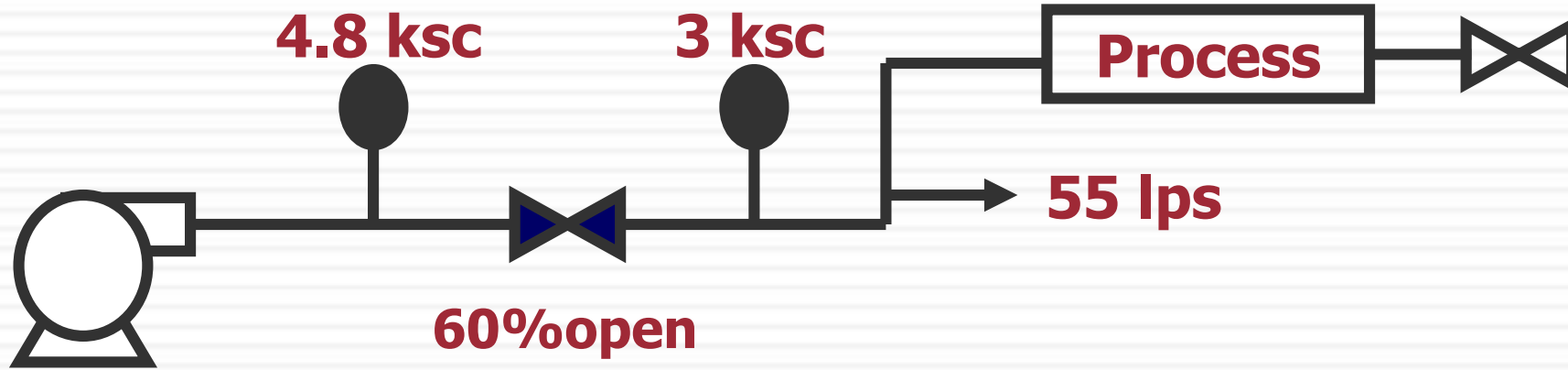
Installed new IE3 11 kW
energy efficient motor

Motor lug terminals and
loose connections
tightened



Directly
Coupled

Effect of Valve Throttling



Design

Capacity = 85 lps

Head = 4 ksc

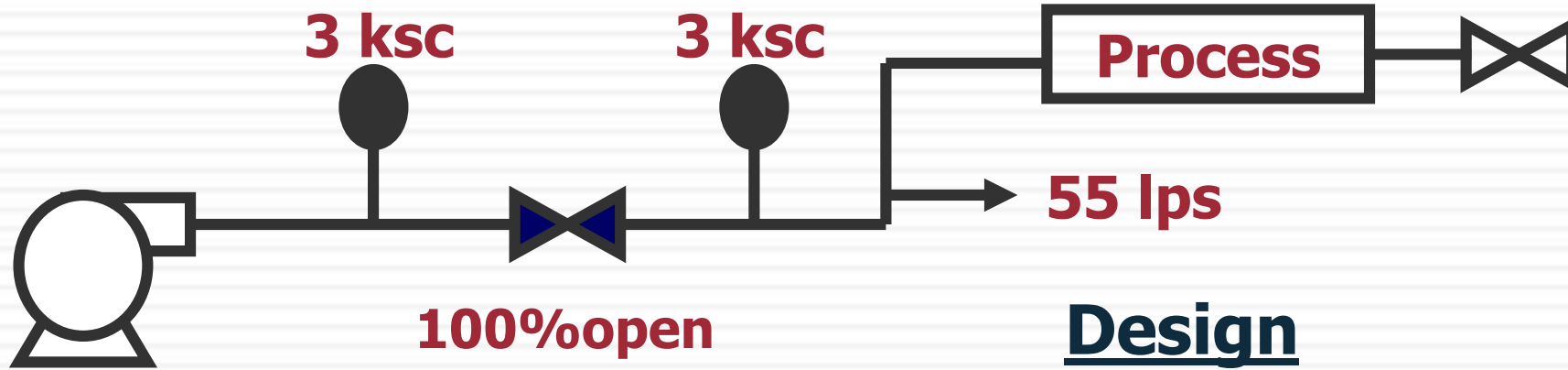
Existing = 4.8 ksc

$kW_{EX} = 55 \times 48 / (102 \times 0.7)$

= 37.0 kW

Identify Energy Saving Measures

Effect of Valve Throttling



Design

Capacity = 55 lps

Head = 3 ksc

Existing = 3 ksc

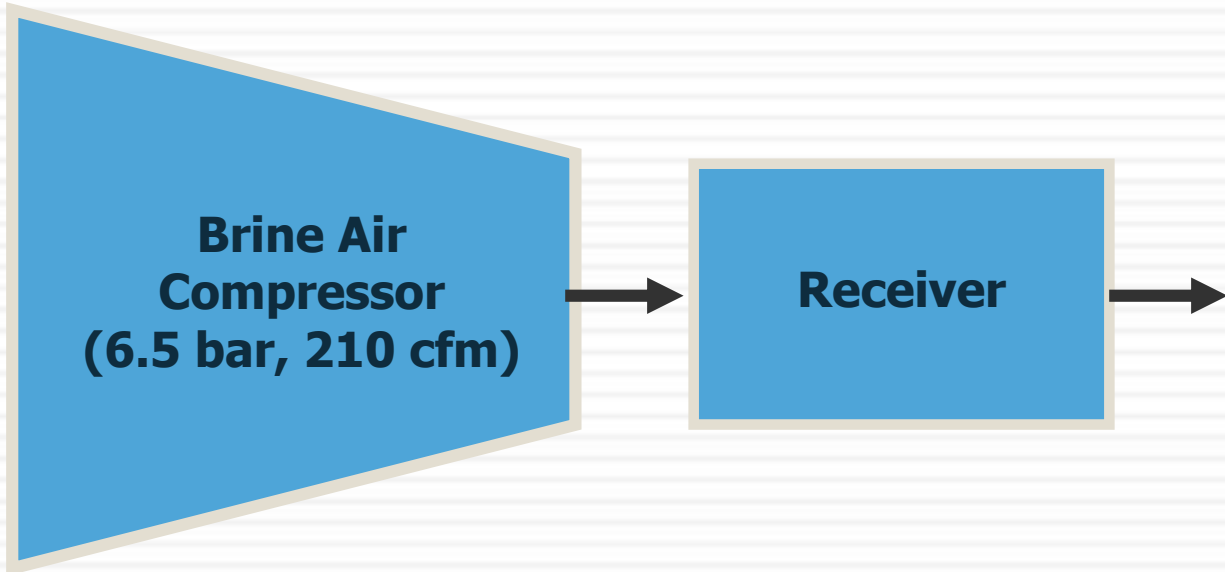
$kW_{EX} = 55 \times 30 / (102 \times 0.7)$

= 23.0 kW

Savings = 14 KW



Average loading: 60%
Load power : 85.2 kW
Unload power : 43.5 kW
Hourly average : 68.52 KW

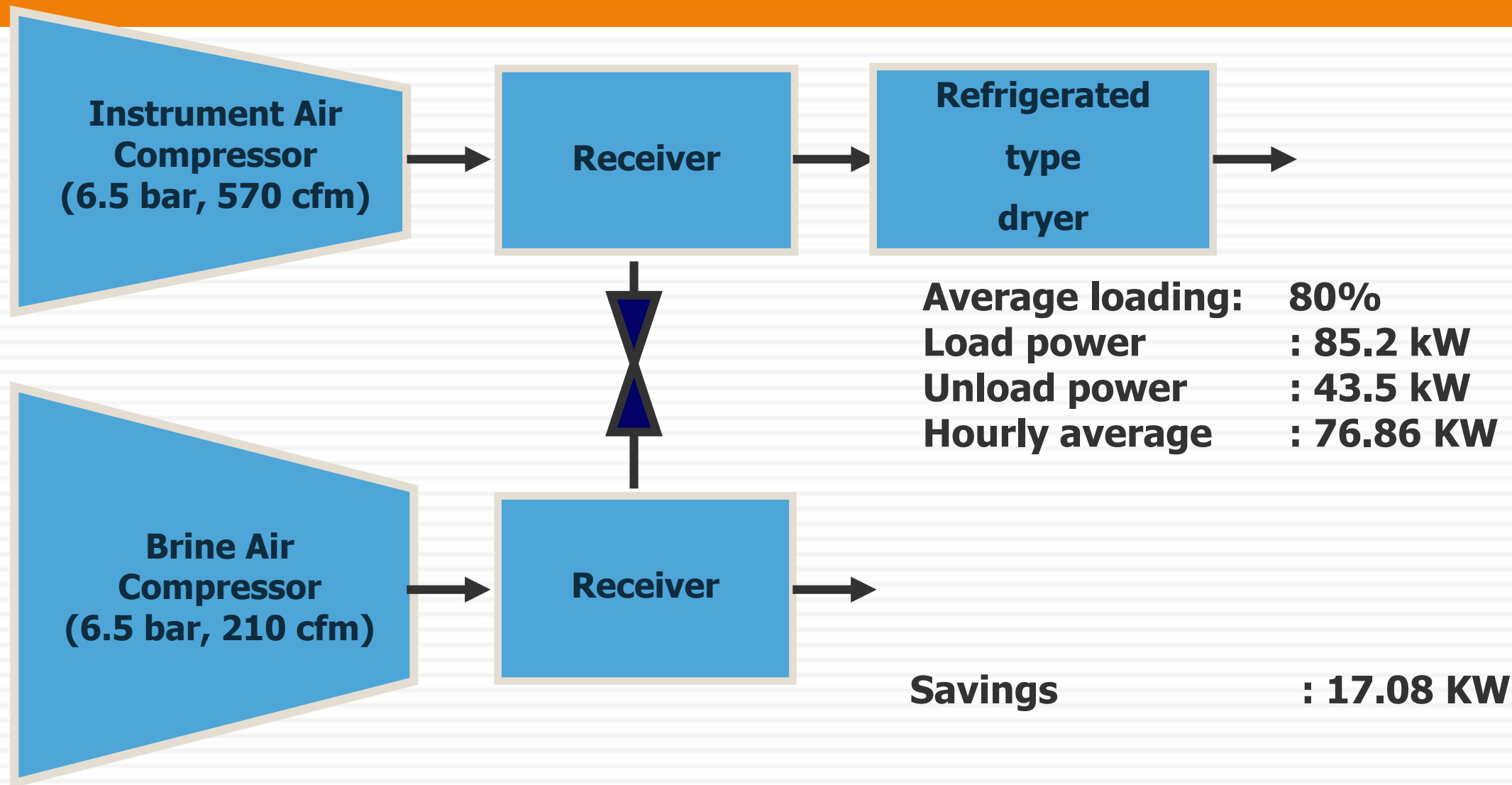


Average loading: 55%
Load power : 33.7 kW
Unload power : 15.3 kW
Hourly average : 25.42 KW

Total – 93.94KW

Identify Energy Saving Measures

Manage Available Facility Optimally



Identify the Performance indicators

Sr. NO	Equipment	Performance Indicator	Remarks
1	Air Compressor		
2	Electrical Motor		
3	LED		
4	Boiler		
5	Diesel Generator Set		
6	Chiller/Air Conditioner		
7	Pumps		
8	Process Fans		
9	Transformer		

Identify the Performance indicators

Sr. NO	Equipment	Performance Indicator	Remarks
1	Air Compressor	KW/CFM	specific power
2	Electrical Motor	Efficiency	IE standards
3	LED	Lumens / Watt	
4	Boiler	Efficiency, Specific Fuel Consumption	
5	Diesel Generator Set	KWH/Litre	
6	Chiller/Air Conditioner	KW/TR	
7	Pumps	Efficiency	
8	Process Fans	Efficiency	
9	Transformer	Efficiency	