Steam Tube Dryer (STD) for Low Rank Coal Drying in Power Plant

TSUKISHIMA KIKAI

Features of STD

1. Abundant experience

: TSUKISHIMA KIKAI CO. LTD (TSK) has supplied more than 500 sets for various applications.

* 9 units for coking coal dryer at commercial plant.

2. Large capacity

: Maximum capacity is 500t/h by one dryer as coking coal.

*Coal moisture range ; 10 →6%

3. Reliable operation

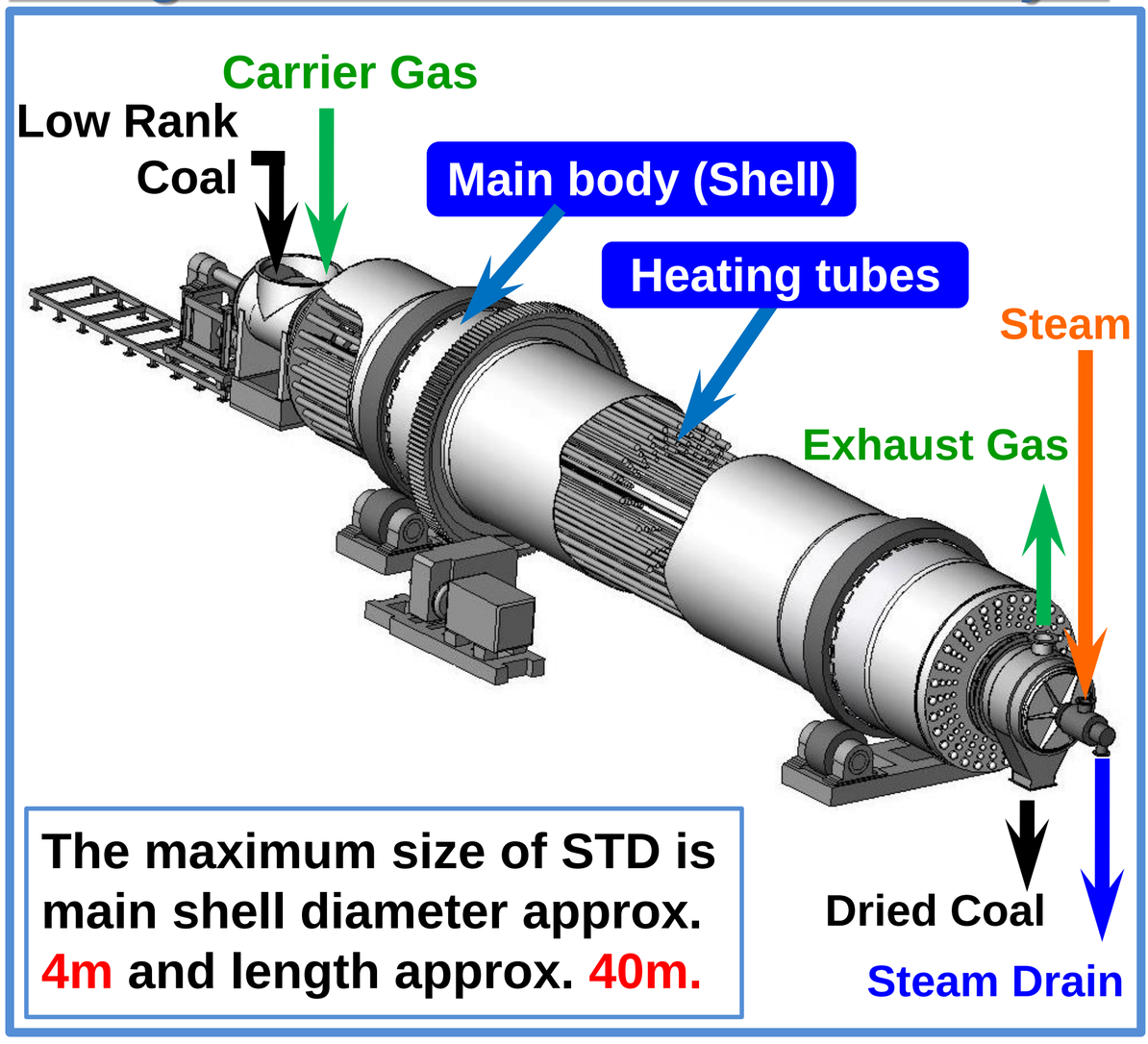
: 1 year continuous operation can be achieved without major maintenance or shutdown.

4. Low pressure steam

: Low pressure steam such as extract steam from turbine at power plant can be utilized as heat source of STD.

* From energy balance point of view, STD fit with the power plant and gasification plant

Configuration of TSK's Steam Tube Dryer

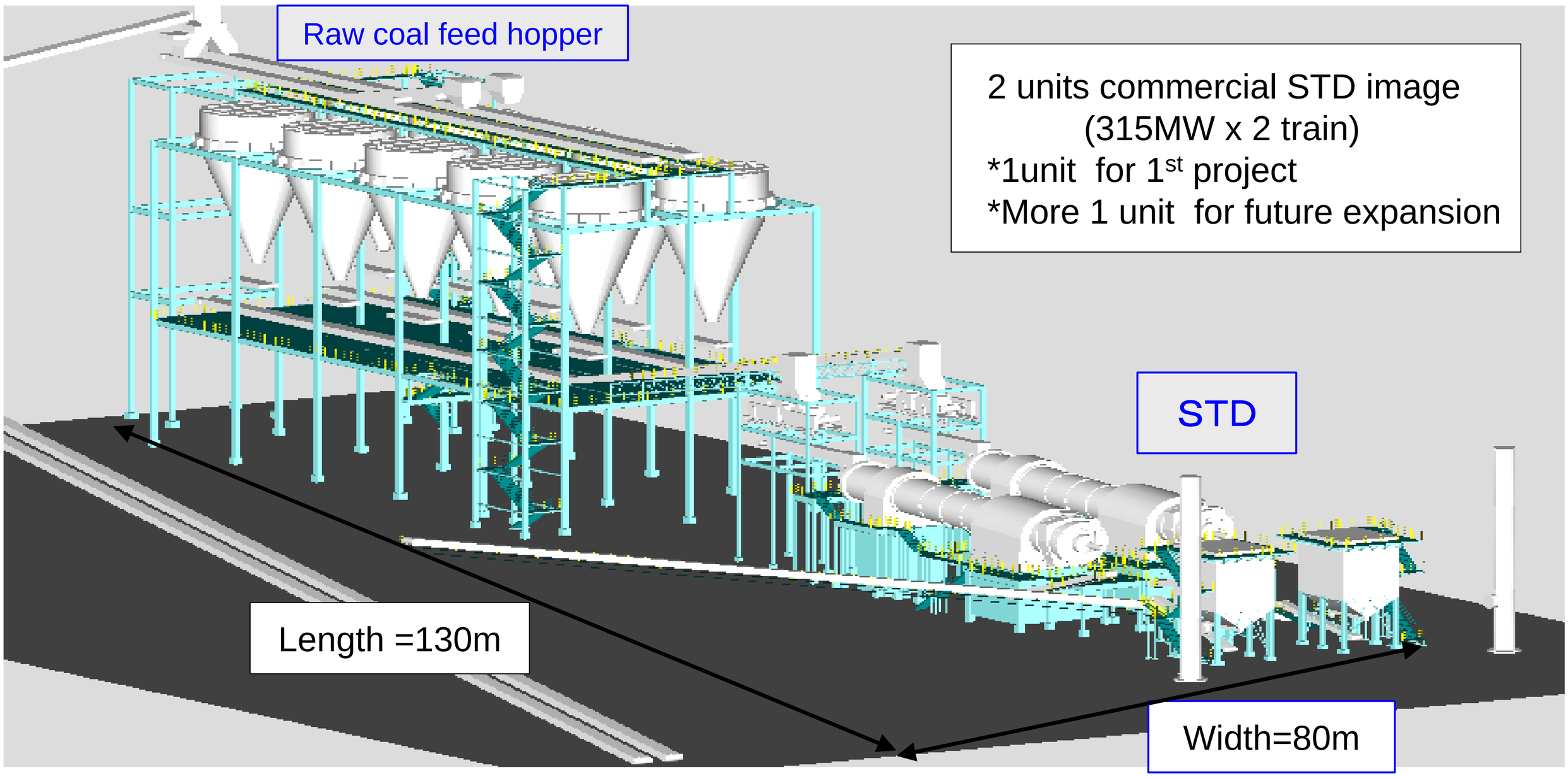


The maximum size of STD is main shell diameter approx. 4m and length approx. 40m.

TSK's Supply List for Coal drying

Category	Dryer Type	Capacity [t/h/unit]	Moisture (In→Out) [wt%]	Heat Source	Supply Country
Lignite	STD	10～30	60 → 10	Steam	Australia
Thermal Coal	STD	40	20～30 → 10	Steam	Japan
Coking Coal	STD	500	10 → 6	Steam	Japan, Korea, Taiwan, China

Commercial STD image



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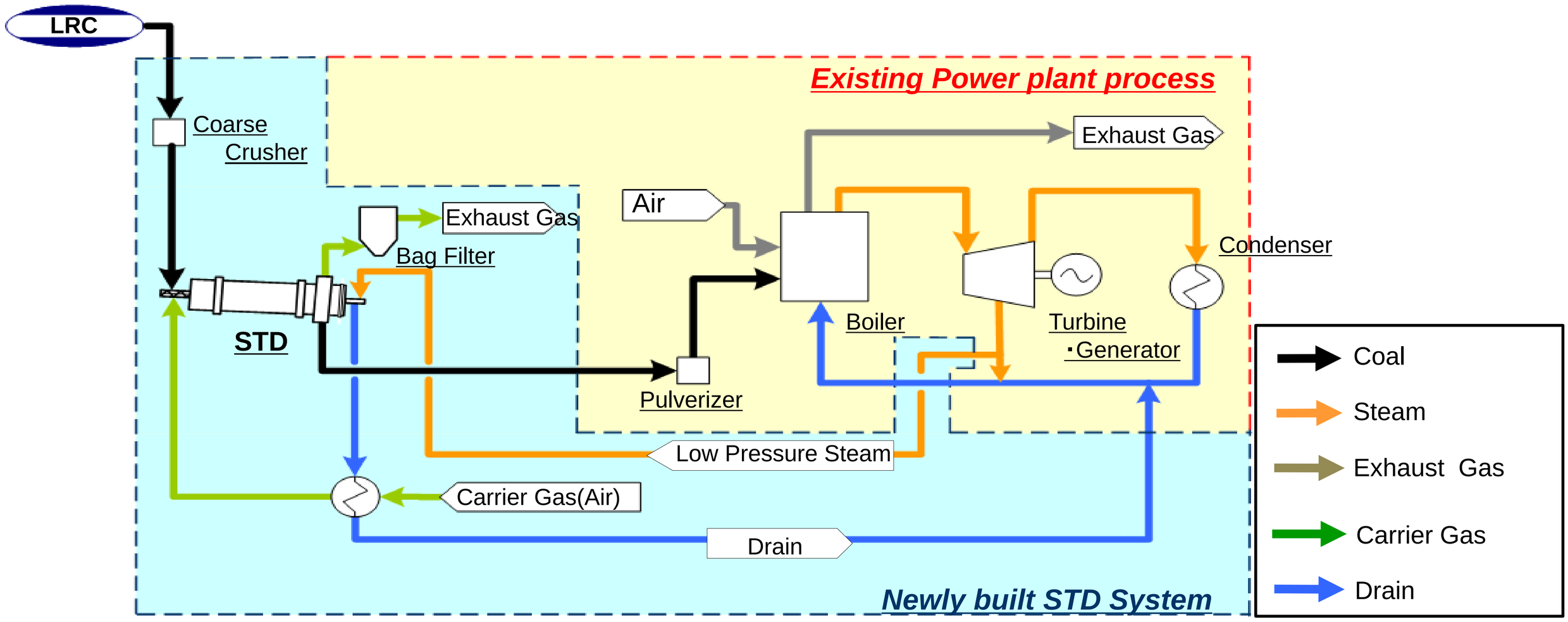
Summary of Technology



: **Thermal efficiency of Low Rank Coal(LRC) power plant is low, due to its low calorific value caused by high moisture content.**

: **Pre-drying of LRC improves thermal efficiency and reduce coal consumption and CO_2 emission.**

: **STD is suitable for power plant process, because low pressure steam can be utilized.**

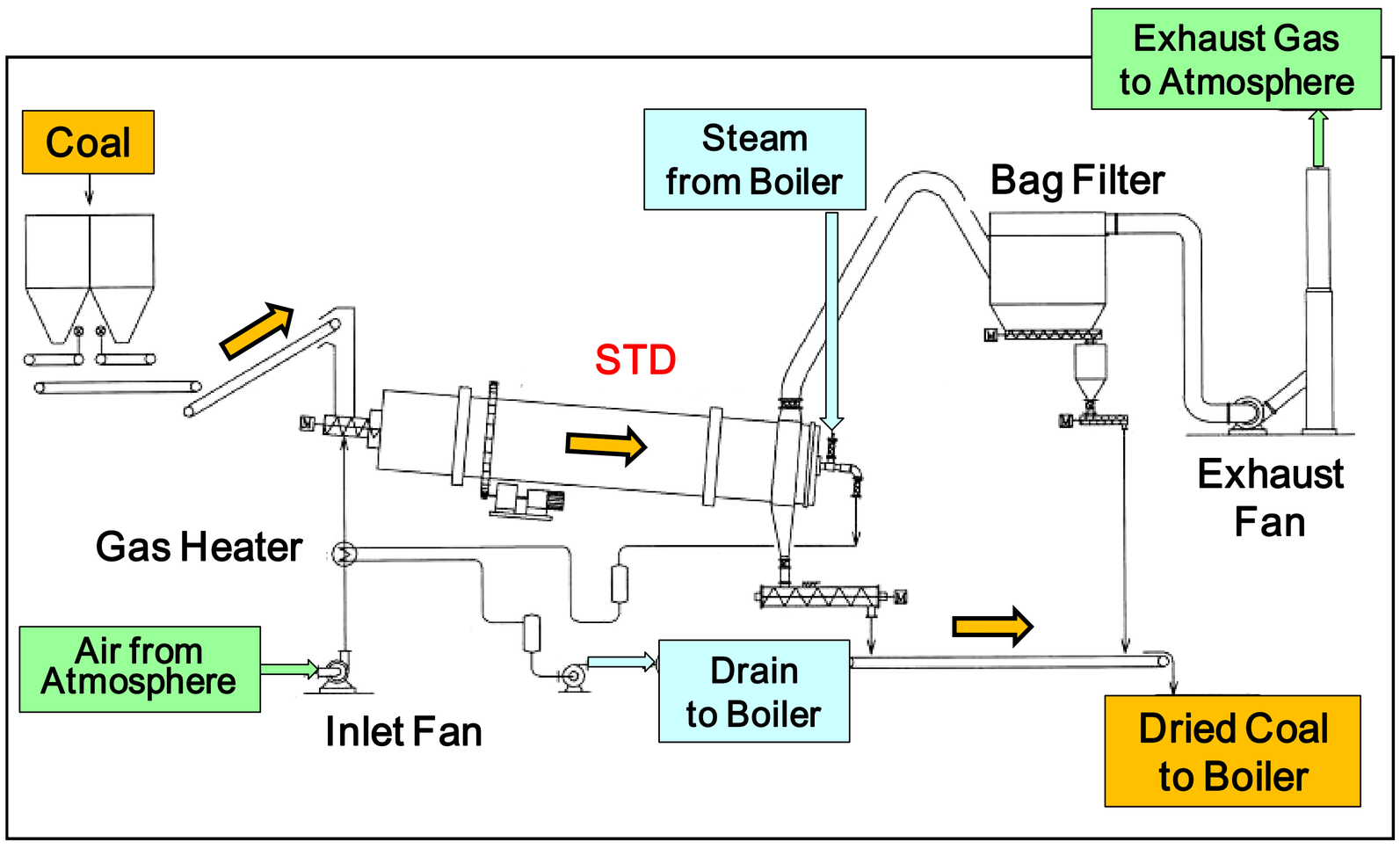
Merit

1. Recovery of generation capacity
2. Reduction of Coal consumption
3. Reduction of Fuel cost
4. Expansion of Low Rank Coal Utilization

Application

1. Existing Low Rank Coal power plant
2. Future High efficiency power plant
3. Low Rank Coal Gasification system

STD Flow



STD Photo

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Steam Tube Dryer (STD) for Low Rank Coal Drying in Power Plant

Commercial STD of Thermal Coal in SIGMA Power, Japan

Power Capacity : 47.5MW
Commissioning : 1983
Coal Moisture : 20 ~ 30% → 10% (Design)
Dried Coal Production : 30t/h per Unit

Commercial STD of Coking Coal in POSCO Gwangyang, Korea

First and Second STD : 1997 / Third STD :2009
Coal Moisture : 10% → 6%
Dried Coal Production : 500t/h per Unit

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