

# REFERENCES



Capacity: **10 TPH**  
Industry: Instant noodle  
Location: Korea  
Fuel: Wood pellet



Capacity: **15 TPH**  
Industry: Building Material  
Location: Philippines  
Fuel: Coal & Biomass



Capacity: **15 TPH**  
Industry: Packaging  
Location: Philippines  
Fuel: Wood Chips



Capacity: **15 TPH**  
Industry: F&B  
Location: Philippines  
Fuel: Coal



Capacity: **11 Mkal/h**  
Industry: Instant Noodles  
Location: Korea  
Fuel: Bark & Forestry waste chips



Capacity: **25 TPH**  
Industry: F&B  
Location: Myanmar  
Fuel: Rice Husk, Wood chip, Wood pellet



Capacity: **20 TPH**  
Industry: Feed Mills  
Location: Ben Tre, Vietnam  
Fuel: Wood pellet



Capacity: **20 TPH**  
Industry: Feed Mills  
Location: Binh Phuoc, Vietnam  
Fuel: Rice husk pellet



Capacity **25 TPH**  
Industry: Feed Mills  
Location: Hau Giang, Vietnam  
Fuel: Rice Husk, Wood chip, Wood pellet



## MARTECH JOINT STOCK COMPANY

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SCAN ME



# CHAIN GRATE & STEP GRATE BOILER

Sustainable - Reliable - High Efficient





# GENERAL SYSTEM

- 1 Fuel Handling System

4 Body Boiler

7 Ash Screw

10 Bag Filter

13 Deaerator
- 2 Belt Conveyor

5 Ash Handling

8 FD Fans

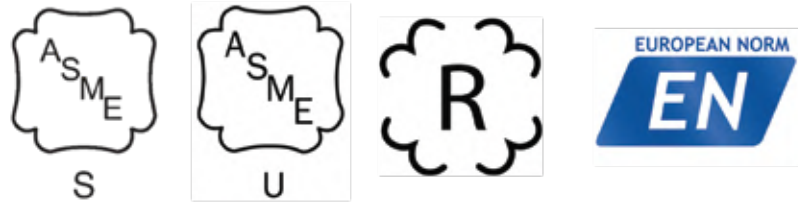
11 Chimney
- 3 Steam Drum

6 Economizer

9 Ducting

12 ID Fans

Martech provides an integrated solution combining combustion chamber design and boiler system design to optimize cost and equipment consistency.



## ENVIRONMENTAL FRIENDLINESS

The boiler is equipped with a state-of-the-art exhaust gas treatment system renowned for its highly effective dust filtration capabilities.



**Multi-Cyclone (Pre-Filter):**  
Filtration efficiency from **80% to 90%**



**Bag Filter (Fine Filter)**  
Filtration efficiency up to **99%**



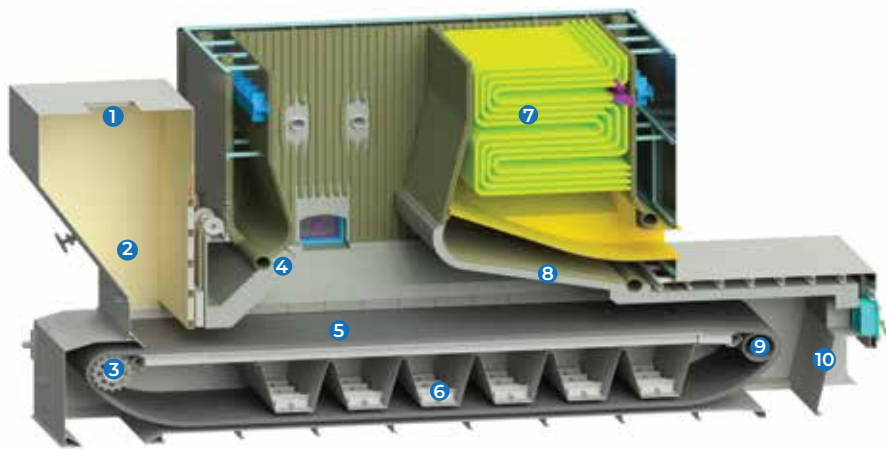
**Absorption Tower : SO<sub>x</sub>**  
absorption/reduction



**Continuously emission monitoring systems (CEMS)**

MARTECH EMISSION RATE (mg/Nm3)			
Total Dust	Carbon Monoxide (CO)	Sulfur Dioxide (SO2)	Nitrogen Oxide (NOx)
< 50	< 100	< 150	< 300

# CHAIN GRATE BOILER COMBUSTION



- 1 Feeding Hopper

4 Ignition Arch

7 Correction Tube

10 Ash Discharger
- 2 Anti-Fire Back

5 Chain Grate

8 Rear Arch
- 3 Drive Sprocket

6 Air Compartment

9 Passive Sprocket

## HIGH EFFICIENCY UP TO 85%:

The thermal flux and grate area will be optimally designed based on fuel characteristics and desired heat capacity.



Martech specializes in providing 2 types of advanced chain grate:



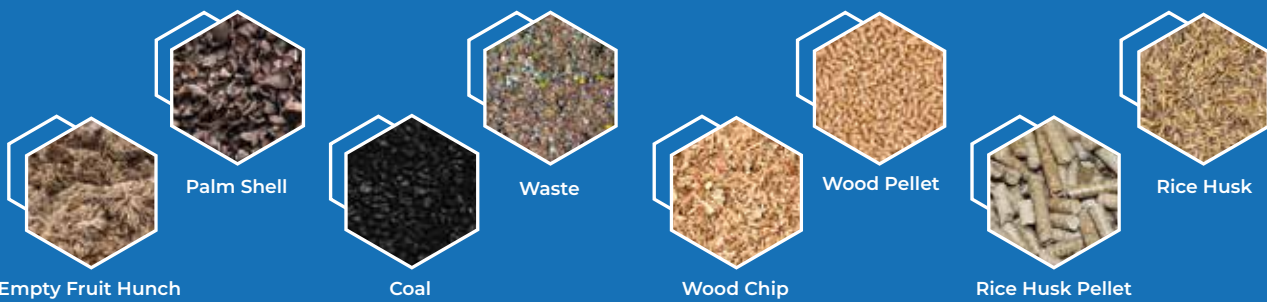
## SPECIFICATION:

Evaporation Cap:  
**3 TPH – 50 TPH**

Design Pressure: **10 – 150 barg**

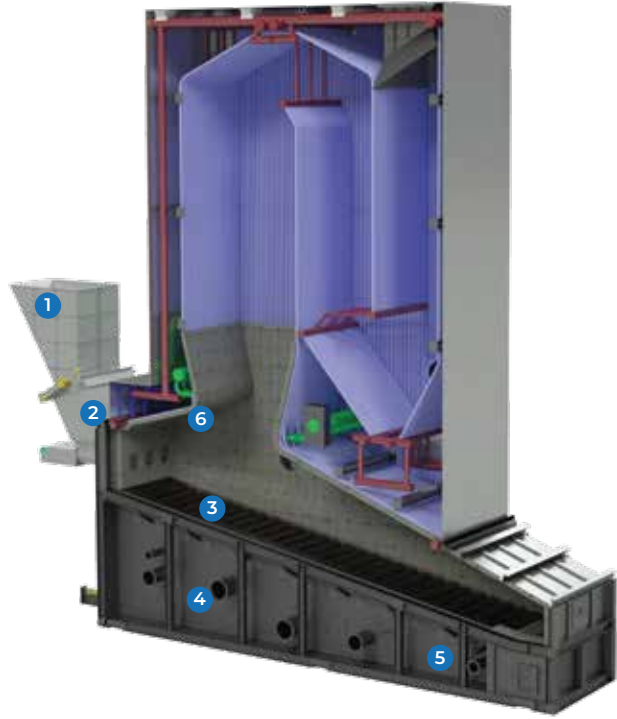
Efficiency: **85%**

## MULTI - FUEL



- Martech boilers can burn many types of fuels with a wide range of calorific values and sizes.
- For chain grate boiler, fuel is treated to less than 50mm before entering the combustion chamber.

# STEP GRATE BOILER COMBUSTION



- 1 Fuel hopper

3 Reciprocating grate

5 Ash discharger
- 2 Ignition Arch

4 Air Compartment

6 Rear Arch

Grate type and combination are selected depending on customer requirements and optimal quality



Sinter Grate Bar      Blind grate bar      Wing grate bar

## SPECIFICATION:

Evaporation Capacity: **3 TPH – 150 TPH**

Design Pressure: **10 – 150 barg**

Efficiency: **85%**

## BOILER BODY STRUCTURE ADVANTAGES

- Corner tube design
- The convection tubes is not directly welded to the steam drum.
- It is configured in a horizontal zigzag arrangement.
- Membrane waterwall furnace without brick combustion chamber



FUEL CONSUMPTION									
No.	Parameter	Unit	Fuel						
			Coal	Wood pellet	Woodchip	Rice Husk	Plastic Waste	EFB Pellet	
1	NAR Basic	kcal/kg	3850	4800	4150	2500	3200	3280	4000
2	Efficiency	%	83±2	83±2	83±2	83±2	83±2	83±2	83±2
3	Fuel Consumption	kg/ton of steam	170-178	136-143	157-165	261-274	204-214	199-209	163-171

Calculated for Chain Grate & Step Grate Boiler with following parameters:  
Saturated Steam output 10TPH, pressure 10 barg.