



## Integrated biomass solution

### Gasification for clean and efficient energy

The POWERMAX gasifier, in combination with the POWERMAX dual-fuel burner, allows:

Total or partial substitution of fossil fuel (fuel oil, natural gas, propane) by solid biomass for heat production

Production of syngas at a competitive price compared to fossil fuels

Valorization of all types of solid biomass (wood chips, agricultural residues, RDF- Refuse Derived Fuel)



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#### CONVERTING A BOILER TO BIOMASS:

Steam boilers and thermal oil for industrial processes: in food industry, dairy, industrial laundries, insulation products, surface treatments, thermal treatments, pre-heating...

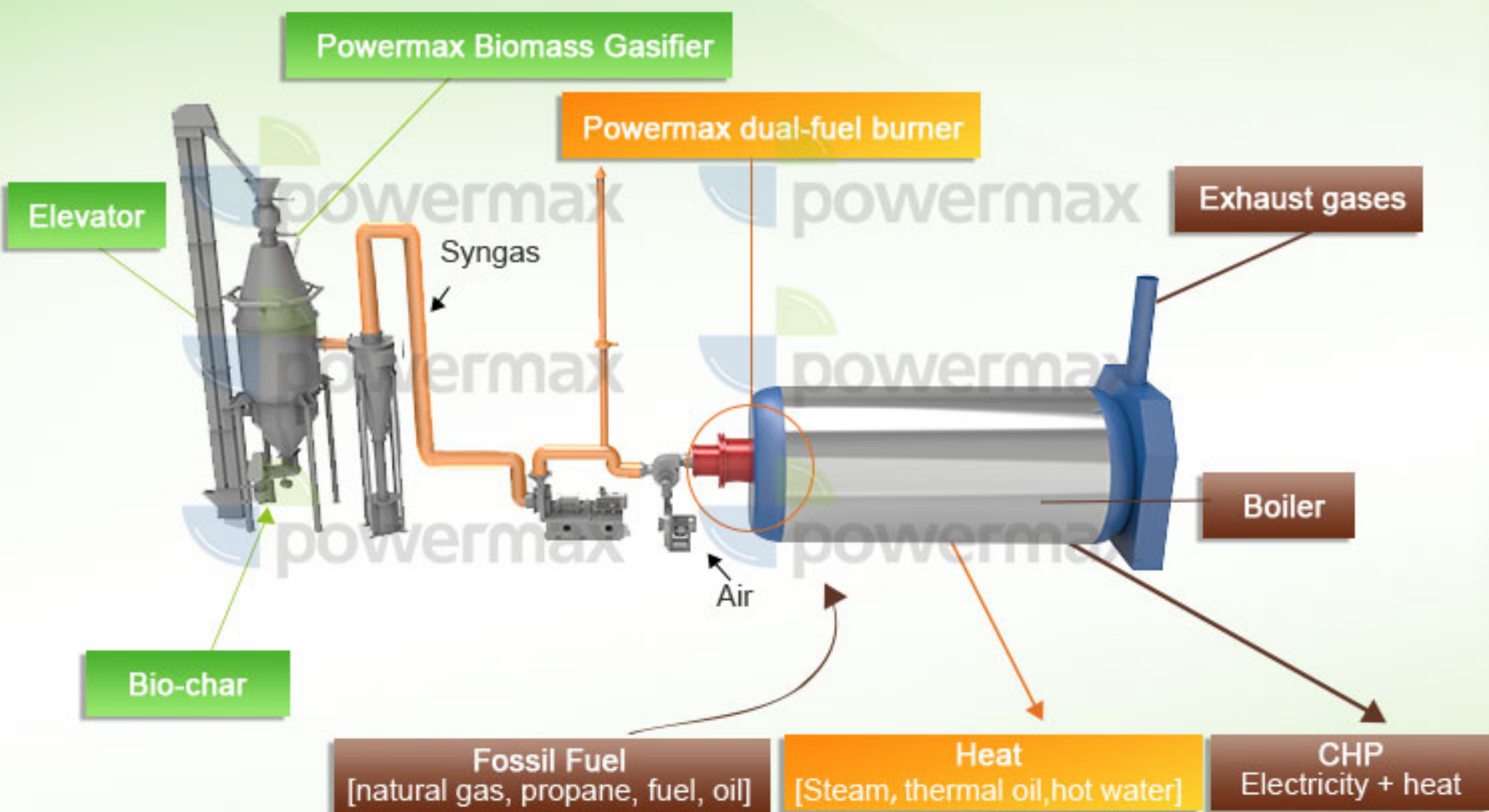
Hot water boilers: district heating, hospitals, aquatic centers, retirement homes, greenhouses...

**BIOMASS ENERGY FOR OVENS AND DRYERS:** brick and tile factories, pre-heating ovens, agricultural dryers, cement plants...

**CHP:** small combined heat and power units(50kWe to 2MWe) by combining the POWERMAX process with a syngas engine or an ORC module (Organic Rankine Cycle).







### Advantages of the POWERMAX solution:

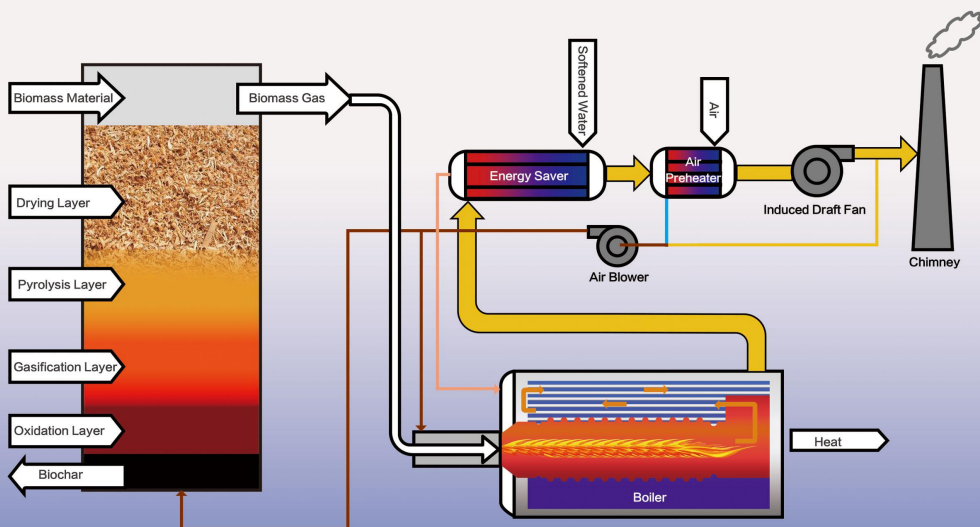
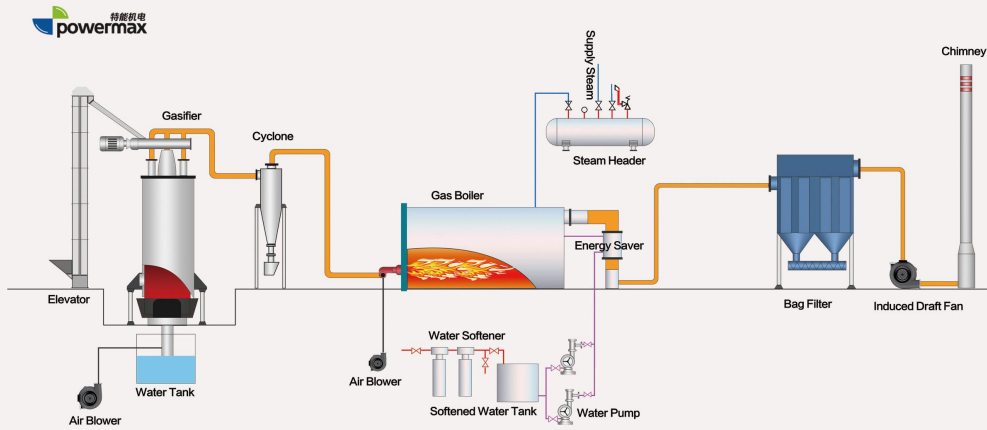
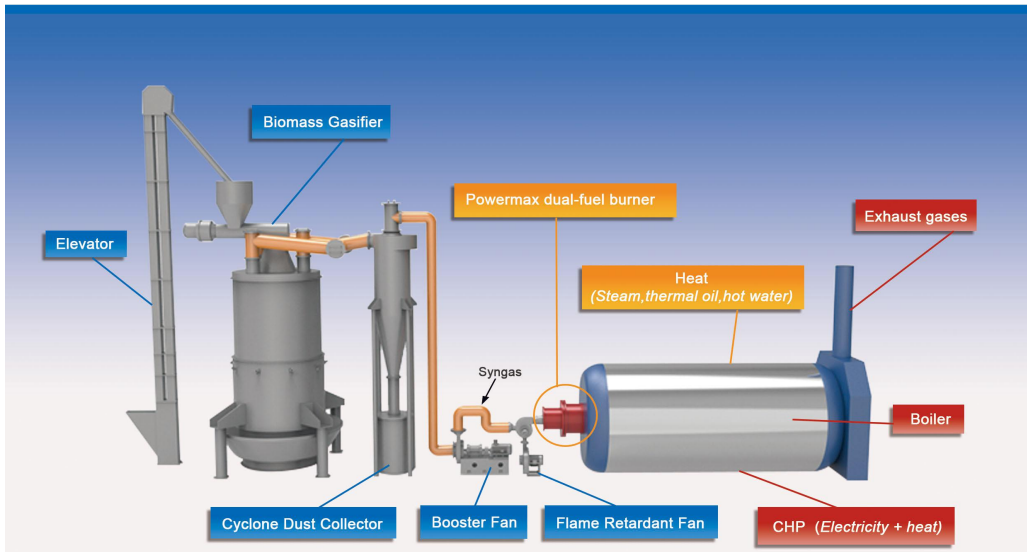
- ◆ Easy installation (small footprint)
- ◆ No modification of existing equipment
- ◆ Flexible use (quick start and stop)
- ◆ Fully automated operation
- ◆ Short response time to power demands
- ◆ Operational safety
- ◆ Reliability and robustness
- ◆ Cost-effective
- ◆ Reduction of environmental footprint
- ◆ Choice of fuels depending on price development

### Technical Parameters:

Gasifier Model	TFBG200	TFBG400	TFBG800	TFBG1000	TFBG1400	TFBG1800	TFBG2000
Gasifier Type	Twin fire fixed bed gasifier						
Gasification Agent	Air						
Water Requirements	≤15%						
Dimensional Requirement	Diameter: 20-80mm, Length: 20-80mm						
Biomass Consumption (kg/h)	200-300	400-640	800-12800	1000-1600	1400-2240	1800-2800	2000-3200
Gas Production (m³/h)	500-600	1000-1200	2000-2400	2500-3000	3500-4200	4500-5400	5000-6000
Gas Composition	CO:15-20% H <sub>2</sub> :15-20% CO <sub>2</sub> :8-12% CH <sub>4</sub> :>3% N <sub>2</sub> :45-50%						
Gas Temperature (°C)	450-550						
Gas Calorific Value	≥1200Kcal/Nm³						
Ash Type	Dry Type						
SynGas Heat from Gasifier (MWh)	1	2	4	5	7	9	10

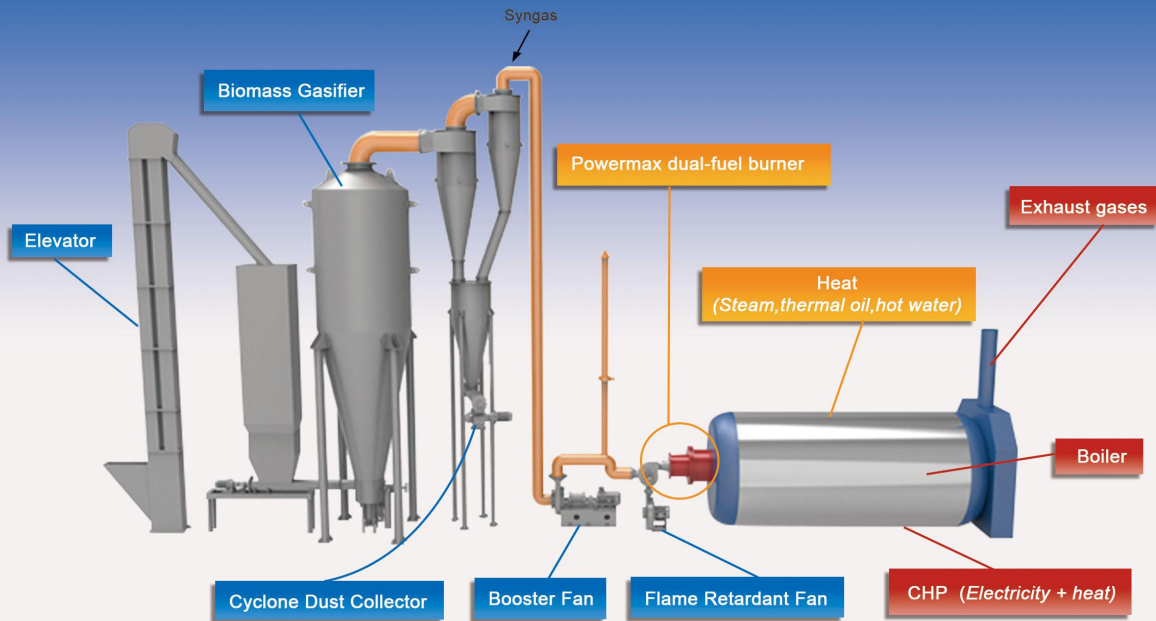
POWERMAX, a company specializing in the production and sale of gasifier and generator sets  
<http://www.powermaxgasifiers.com/>

## POWERMAX Updraft Fixed Bed Gasification Boiler System

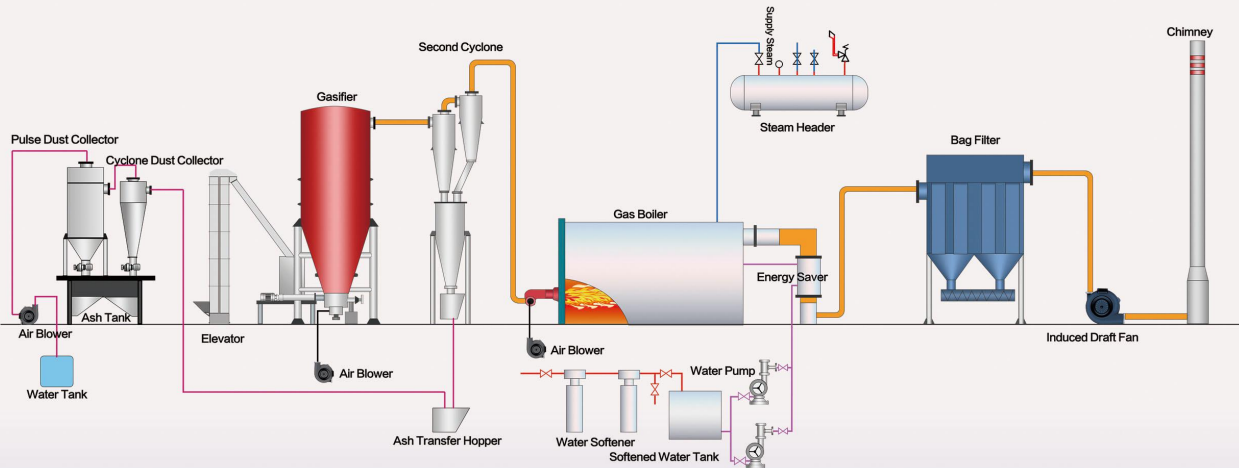


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## POWERMAX Fluidized Bed Gasification Boiler System



High Temperature Gas (  $> 600^{\circ}\text{C}$  ) goes into the Boiler without any Tar!

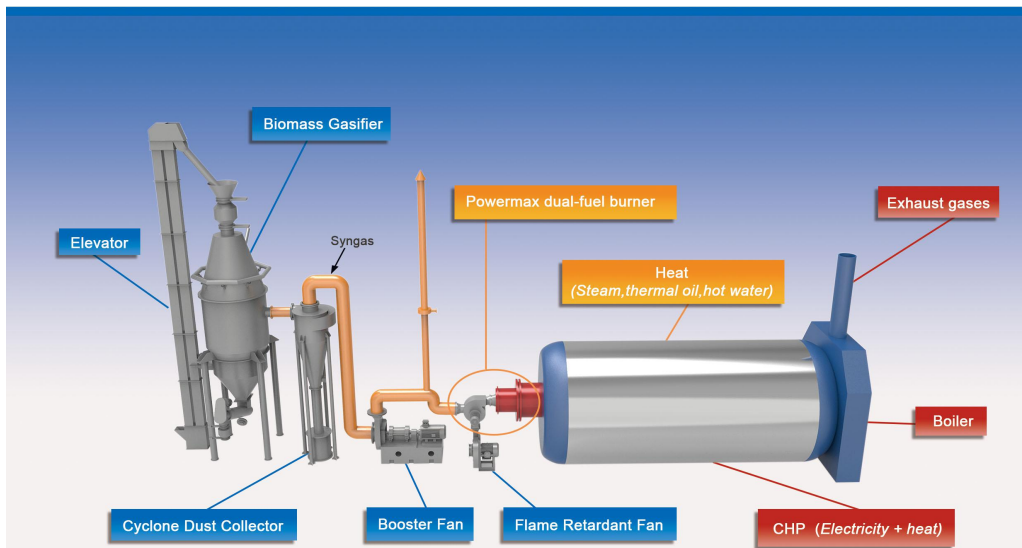


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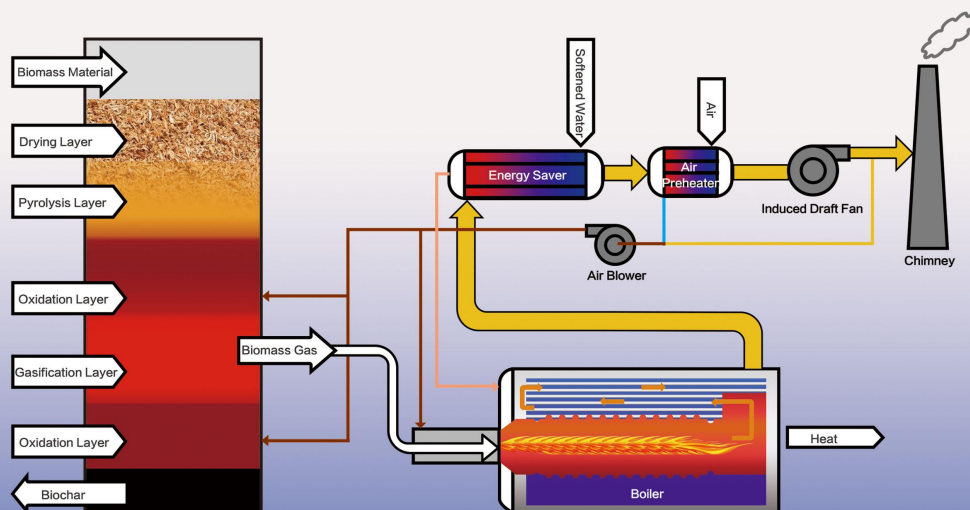
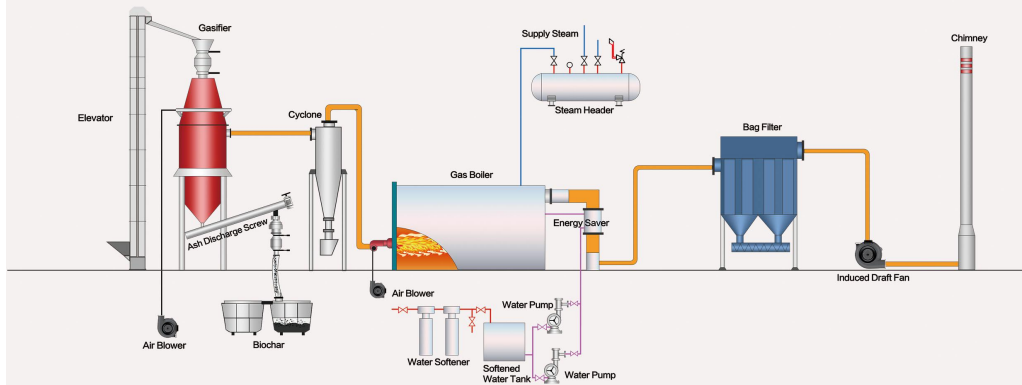




## POWERMAX Twin Fire Gasification Boiler System



High Temperature Fuel Gas ( $>350^{\circ}\text{C}$ ) goes into Boiler without Tar!



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