

CHIPTEC
WOOD ENERGY SYSTEMS[®]



www.chiptec.com

LEADING THE BIOMASS REVOLUTION

*through superior technology,
systems and support*

LEADING WITH EXPERIENCE AND VALUE

BIOMASS GASIFICATION

CHIPTEC Wood Energy Systems is North America's most experienced manufacturer of biomass gasifiers. Today, there are nearly 200 CHIPTEC gasifiers installed throughout North America and Europe, generating clean, renewable energy from materials that would otherwise be channeled into waste streams.

Some CHIPTEC gasification systems have been in continuous operation for more than 25 years, and many of these units feature their original equipment. CHIPTEC strives to provide customers with maximum value by ensuring a high return on their investment in biomass energy, in both the short and long term.

Explore CHIPTEC biomass gasifiers and discover your source of renewable energy to fuel your enterprises of tomorrow.

CHIPTEC Gasification at a Glance

- Incorporates two-stage, close-coupled gasification technology, for wider variety of feedstocks, superb efficiency, minimal emissions, and reduced labor and maintenance.
- Turndown capacity of 10:1 or better
- Two available models to choose from with heat exchanger outputs of 1.5 to 60 MMBTU/hr
- Modular design for reduced shipping and installation costs
- Multiple systems on a manifold can produce more energy, provide greater redundancy and provide greater savings
- Fully automated feedstock storage and delivery, operational controls, and ash removal for convenience and reduced labor costs
- Deep fuel bed to accommodate a quick response to changes in demand
- Easily passes EPA's most stringent clean air regulations and oxidizes virtually all volatile hydrocarbons making it safe for any facility
- Reliably provides years of trouble-free service with very low maintenance requirements
- 100% manufactured in the U.S.A.
- Installation, start up commissioning and training services provided by CHIPTEC

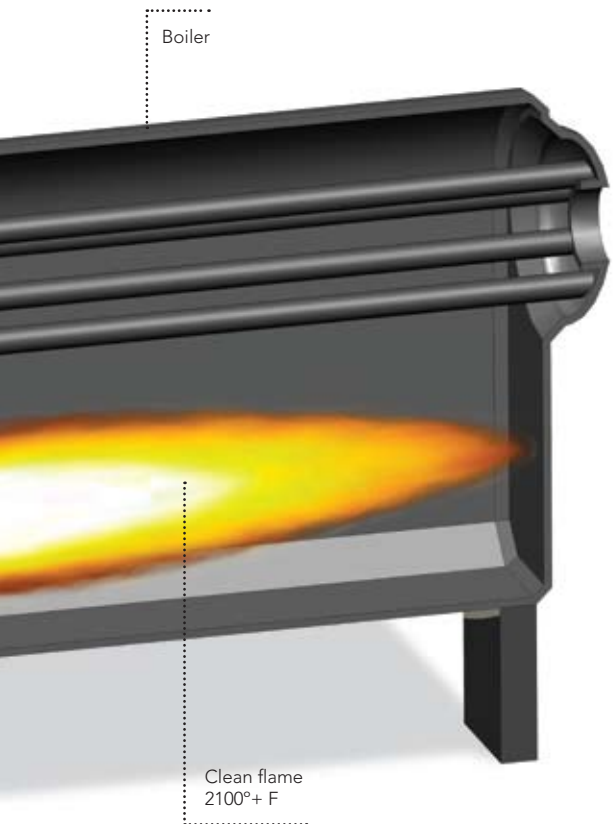


Compare oil burning to biomass gasification with a CHIPTEC system. Annually, a plant can replace 1.0 million gallons of oil with 22,000 tons of biomass by using CHIPTEC's B Series Gasifier System and realize an annual fuel savings of \$2.12 million. This savings pays back the cost of the system in just 9 months and the cost of the complete building project in 5.2 years. More dramatically, over the 25 year minimum expected lifecycle of the CHIPTEC system, the plant will save nearly \$52.5 million.

	Quantity		Cost		Annual Cost
Oil	1,000,000 gal	X	\$3/gal	=	\$3.0 million
Biomass	22,000 tons	X	\$40/ton	=	\$880,000

Annual Savings	\$2.12 million
Cost for CHIPTEC B Series Gasifier System	\$1.5 million
Cost for complete building project	\$11 million
ROI – complete building project	5.2 Years
Savings Over 25 Years	\$52.5 million

SYSTEM



The Power of Close-Coupled Gasification

CHIPTEC systems employ a unique patented two-stage, close-coupled gasification technology. First, feedstocks are transported into a refractory-lined gasification chamber. Here, they are roasted and pyrolysis gas is released into an oxygen deprived environment. Next, this gas is released through a burner nozzle and combined with oxygen for combustion at temperatures exceeding 2,100° F. CHIPTEC's high oxidation temperatures maximize system efficiency and virtually eliminate waste byproducts such as ash, creosote and stack effluent. More importantly, these high temperatures destroy virtually all volatile hydrocarbons found in biomass and minimize harmful emissions, making CHIPTEC systems safe.

The Advantages of Keeping It Cool

CHIPTEC systems operate at far cooler temperatures than others, producing pyrolysis gas at 1,000° - 1,400° F, well below ash fusion temperatures. This enables CHIPTEC systems to accommodate a broader spectrum of low value biomass fuels with moisture content up to 55%. Lower temperatures also eliminate the potential for mineral fusion within the system, a troublesome occurrence with other gasifiers that results in system downtime and labor intensive grate maintenance.

Automated Operations and Controls, Accessible from Anywhere

CHIPTEC gasifiers feature fully automated fuel storage and delivery systems, and computerized system controls – features that minimize labor costs. CHIPTEC's intuitive touchscreen control panels utilize Programmable Logic Control (PLC). PLC programming and troubleshooting is conducted by in-house CHIPTEC technicians. Controls can also be conveniently accessed remotely from anywhere in the world, via the Internet.

Scalable and Adaptable Systems to Suit Your Application

CHIPTEC systems offer a turndown capacity of 10:1 or better and are offered in a range of scales to match your application. Whether you operate a school or university, a municipality, or a large-scale agricultural or industrial operation, with system outputs from 1.5 to 60 MMBTU/hr, there's a CHIPTEC system to fit your needs. Plus, CHIPTEC gasifiers are designed to adapt easily to the widest variety of heat exchangers and uses, including hot air furnaces, hot oil system, hot water and steam up to 900 psig superheated. Systems are also easily retrofit to existing boilers.

Feedstock Specifications

Moisture Content:
from 6 - 55% (wet basis)

Mineral Content:
up to 10%

Particle Size:
nominal <2.5"
(with exceptions)

Fines: < 5% sander dust
and wood flour

Acceptable Feedstocks

- Green or dry chips or hogged fuel
- Hardwood or softwood chips or hogged fuel
- Wood pellets
- Saw dust and shavings
- Crushed, Cleaned and magnetized pallets
- Certain nut shells and husks
- Railroad ties
- Particle board
- MDF
- Plywood
- Paper cubes
- Coconut shells
- Certain seeds
- Processed and cleaned construction and demolition waste

Note: Other feedstocks may be possible, please contact CHIPTEC for additional information and discussions regarding the use of other feedstocks.

When all the advantages of CHIPTEC gasification systems are understood – both economic and environmental – installing a CHIPTEC system at your facility becomes an easy decision to make. For a complete evaluation of your specific application, contact CHIPTEC today.

In the words of CHIPTEC customers...

" In short, my concerns about wood gasification have been unfounded. CHIPTEC knows their business well."

John Thurston - J.A. Thurston Company

" Probably the most enjoyable part of having a CHIPTEC system is that even when fuel prices are low we still save \$80,000 per year. Imagine what we are saving this year!"

John Herrick - Herrick Mill Works

" Any manufacturing plant that uses more than 25 HP for production is CRAZY not to have a state-of-the-art CHIPTEC Wood Energy System. They've allowed us to close the loop on our end process material. The savings are fantastic."

Dexter Landers - Northfield Wood Products

CHIPTEC
WOOD ENERGY SYSTEMS



www.chiptec.com

54 Echo Place, Unit #1
Williston, VT 05495
CHIPTEC.com
sales@CHIPTEC.com
Toll Free: 1.800.224.4146
Phone: 802.658.0956
Fax: 802.660.8904

© 2011, CHIPTEC Wood Energy Systems



Printed on recycled paper.