



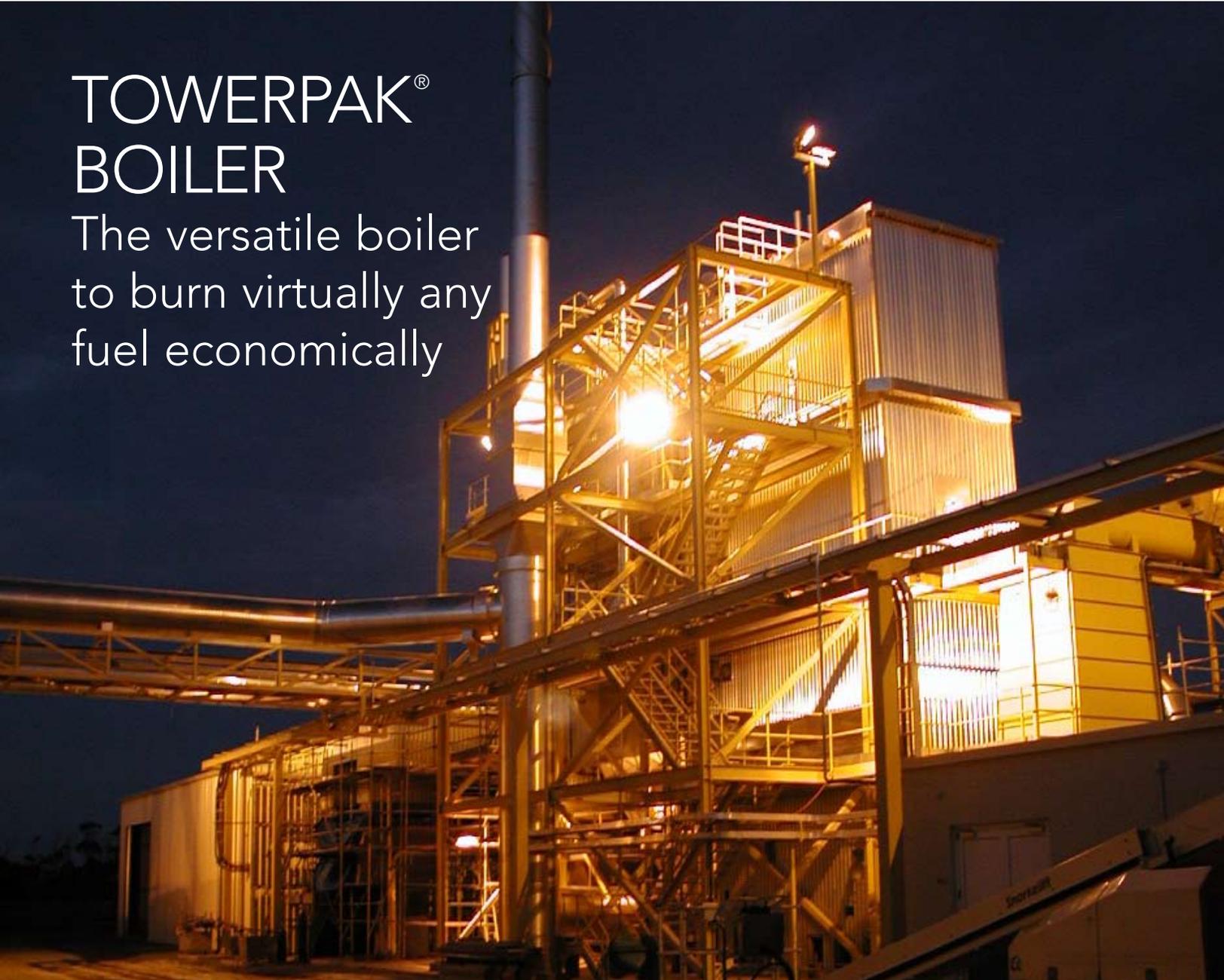
# The Babcock & Wilcox Company

*Generating Powerful Solutions*<sup>SM</sup>

a McDermott company

## TOWERPAK<sup>®</sup> BOILER

The versatile boiler  
to burn virtually any  
fuel economically



# B&W Towerpak® Boiler

Versatility and reliability for cost-effective steam production

*The Babcock & Wilcox Company's (B&W) Towerpak boiler is a version of our Stirling® power boiler (SPB) designed for the lower capacities often required by smaller industrial plants. It incorporates many of the design and manufacturing technology features of the SPB including furnace construction details, convection surface design and circulation enhancements. The versatility of the Towerpak boiler to burn virtually any fuel is especially useful for small industrial applications.*

*Towerpak boilers are bottom supported, with either one or two drums depending on design pressure and customer requirements. Maximum modularization of the boiler is a key design feature. A completely shop-assembled furnace is provided for smaller sizes. Larger units are designed for maximum shop assembly and modularization for ease of field erection.*

## Key features provide many customer benefits

### **Furnace**

#### *Modular design*

For Towerpak boilers up to 60,000 lb/h (7.6 kg/s) steam capacity, the furnace is shop assembled. For larger units, the furnace, superheater and generating bank are modularized to minimize field-assembly labor requirements.

#### *Bottom supported*

The full range of Towerpak sizes are bottom supported so that building steel requirements are minimized. Only platform support for access to the boiler and associated equipment is necessary.

*Depending upon steam capacity, major components are shop assembled to minimize field-assembly labor requirements, such as the complete furnace (top) or generating bank (bottom).*





*B&W can supply a wide range of heat transfer equipment, combustions systems and environmental equipment for a complete package that meets our customer's requirements.*

## **Superheater**

### *Optimized surface arrangement*

Superheater arrangement is designed for modular construction. This eliminates the need for tube-to-tube butt welds in the field. Superheater tube spacing is designed to provide the most effective heat transfer.

### *Steam temperatures up to 1000F (538C)*

With superheater sizes available for up to half of the furnace depth, enough surface can be installed to provide controlled steam temperatures up to 1000F (538C) for electric generation applications. The surface

arrangement is also optimized to provide the required steam temperature with the minimum use of high-cost alloys.

## **Drums and generating bank**

A two-drum generating bank is provided for low-pressure applications where a large amount of generating bank surface is required. Higher pressure applications use a one-drum design. The generating bank for one-drum applications is a proven modular design with a long history of success on recovery boiler and SPB applications.

## **Equipment flexibility**

Heat transfer equipment can be provided with the boiler to meet a wide range of customer requirements such as economizers, tubular air heaters, water coil air heaters, steam coil air heaters or condensing heat exchangers.

## **Economizers**

Bare tube and extended surface economizers can be supplied to provide increased boiler efficiency. The economizers are shop assembled into modules that can be quickly installed and connected to the boiler flues and piping.



Fuel flexibility is a key feature of B&W's BFB Towerpak design.



The Towerpak boiler is backed by B&W's vast experience in meeting the ever-changing steam generation and environmental equipment needs of both the process and utility industries.

### Combustion air heating

Combustion air heating can be a critical requirement for biomass fuels that typically have a wide range of moisture content. Tubular air heaters are available for high air temperature requirements normally associated with high-moisture fuels. Water coil air heaters and steam coil air heaters can be provided to provide additional air temperature control for high-moisture fuels. For lower-moisture fuels a water or steam coil air heater may provide adequate air temperature control.

### Combustion systems

#### Stokers

Stoker combustion applications include wood, biomass, coal or any combination of the three fuels. Vibrating grate stokers are the most common stokers on Towerpak applications, although traveling grate stokers have also been provided. As part of the stoker combustion air system, B&W provides the Precision-Jet® overfire air system. This system is unmatched in its ability to provide

reduced carryover and lower emissions when compared with other overfire air systems.

#### Bubbling fluidized-bed technology

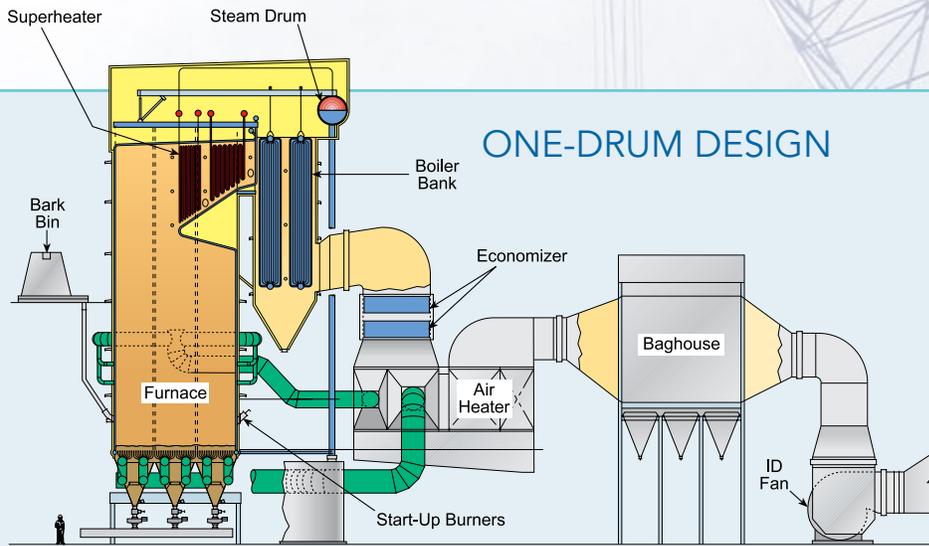
For applications firing a wide variety of fuels, or when the fuel is consistently high in moisture, a bubbling fluidized-bed (BFB) boiler may be the best option. B&W has many years of experience supplying BFB combustion systems for a wide range of fuels including biomass, wood waste and paper mill sludge.

#### Auxiliary fuel burners

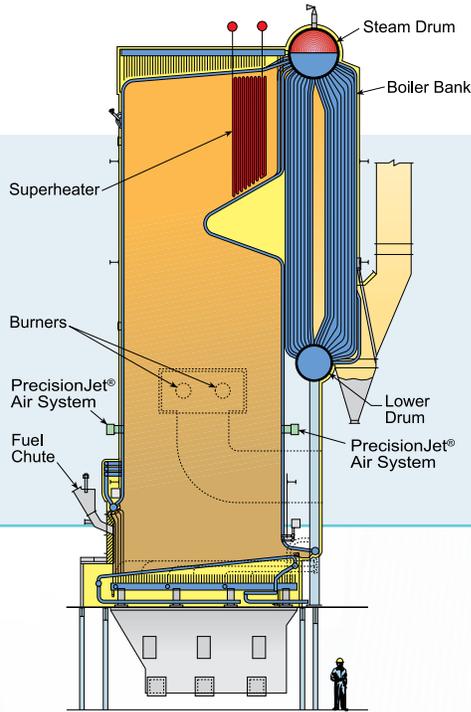
Start-up burners are typically oil or natural gas fired. Auxiliary fuel capacity up to maximum continuous rating can be provided for the small and mid-sized boilers with a stoker. The burners can even be configured to burn sawdust if needed.

Rely on the experience of B&W

Since 1867, B&W has built its reputation on reliability. We have the experience and flexibility to meet the ever-changing needs of both the process and utility industries. The Towerpak boiler is no exception to B&W's long list of capabilities in providing dependable steam production. Since its inception in the early 1970s, our Towerpak boiler design is providing more than 1,000 MW of thermal output and 3,000,000 lb/h steam flow.



## ONE-DRUM DESIGN



## TWO-DRUM DESIGN

### B&W TOWERPAK® BOILER SPECIFICATIONS

	Shop Assembled	Field Erected	High Capacity
Fuels	Solid fuel such as wood, biomass, refuse derived fuel and stoker coal, or oil and natural gas.		
Capacity	20,000 to 60,000 lb/h (2.52 to 7.56 kg/s)	60,000 to 150,000 lb/h (7.56 to 18.9 kg/s)	150,000 to 225,000 lb/h (18.9 to 28.4 kg/s)
Temp	Saturated to 900F (482C)	Saturated to 900F (482C)	To 1000F (538C)
Pressure	150 to 1000 psig (1.03 to 6.90 MPa)	150 to 1600 psig (1.03 to 11.03 MPa)	1000 to 1800 psig (6.90 to 12.41 MPa)

The Babcock & Wilcox Company – we’re the original. We’ve been generating powerful solutions in the design, construction and service of steam generating systems since 1867. So put our experience and capabilities to work for you today. Insist on us by name.

For more information, or a complete listing of our sales and service offices, call **1-800-BABCOCK (222-2625)**, send an e-mail to **info@babcock.com**, or access our Web site at **www.babcock.com**.

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## Total-scope services

Construction and field operations are also available from B&W. Customers are served through a strategic network of field sales and service offices, agents, licensees and joint ventures located around the world.

B&W’s wide range of aftermarket product support services include:

- Project management
- Boiler construction and repair
- Start-up and commissioning
- Training programs
- Field service, inspection and diagnostic testing
- Engineered upgrades and supply of replacement parts for any make or type of boiler
- Balance of plant construction and repair