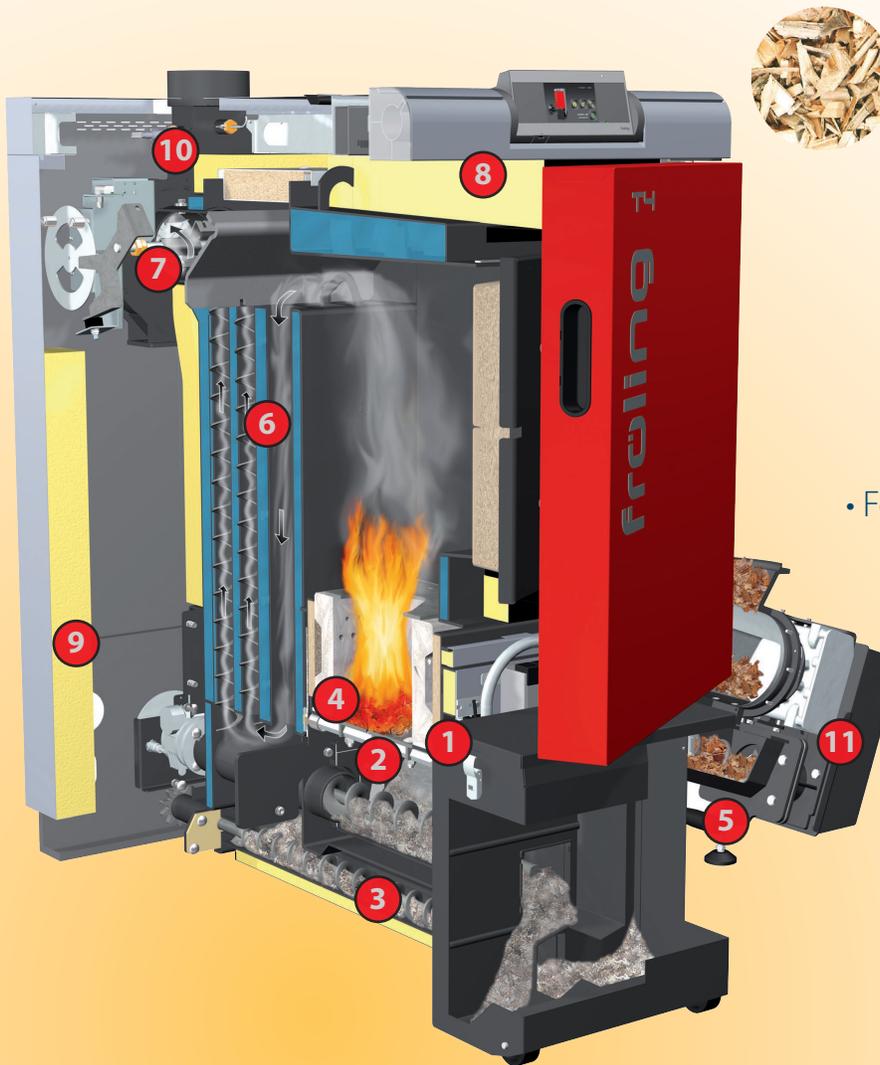


# COMMERCIAL BOILERS



fröling 

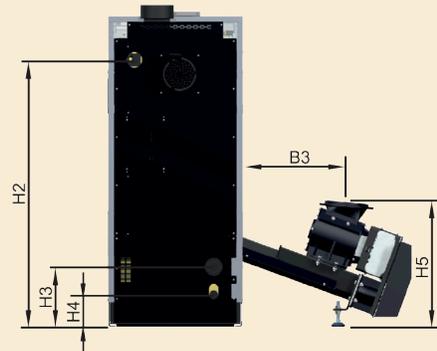
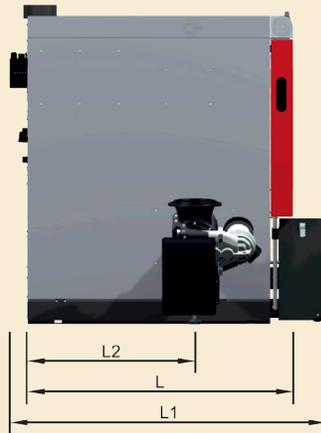
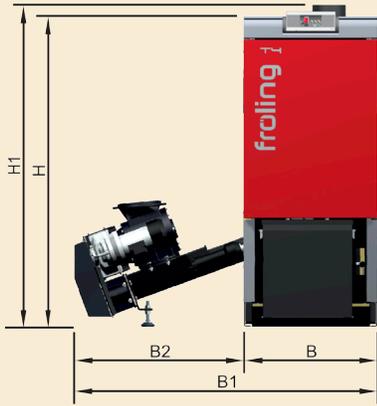
## T4 150

Wood Chip  
or  
Pellet Boiler

- For commercial or Institutional use
- Low maintenance design
- Fully automatic
- Wide range of fuel feed systems
- ASME stamped pressure vessel

- 1 Durable high-temperature silicon carbide combustion chamber for effective combustion resulting in high efficiency and very low emissions.
- 2 Multi-part combustion grate consisting of a fixed insertion zone and the automatic tipping grate for cleaning away ash and foreign bodies.
- 3 Automatic ash removal from the combustion chamber and the heat exchanger to the generously-sized mobile ash container.
- 4 Induced draft combustion air supply for primary and secondary air.
- 5 Stoker screw with coupled rotary valve for optimal fuel supply and maximum safety.
- 6 3-pass heat exchanger with Efficiency Optimisation System-EOS (turbulators for automatic cleaning of the heat exchanger pipes).
- 7 Speed-controlled induced-draught fan with function monitor for maximum operational reliability.
- 8 Lambdatronic H 3200 controller with innovative bus technology for complete system solutions. New boiler console with 4.3" touch display for simple, intuitive operation and free access to Fröling connect monitoring software.
- 9 Fully insulated jacket to minimize radiant heat loss.
- 10 Broadband Lambda probe for automatic adjustment to different fuel qualities.
- 11 Energy-saving drives with spur gears for extremely low power consumption.

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**Dimension Data**

**Unit**

H	Height of boiler	inches	67 ¾
H1	Total height (incl. flue connector)	inches	69 1/16
H2	Height, supply connection	inches	60 5/8
H3	Height, return connection	inches	7 7/8
H4	Height, drain connection	inches	5 1/2
H5	Height, rotary valve connection	inches	25 9/16
B	Width of boiler	inches	34 1/16
B1	Total width with stoker unit	inches	64 15/16
B2	Width, stoker unit	inches	29 15/16
B3	Distance boiler to stoker connection	inches	18 1/2
L	Length, boiler	inches	75
L1	Total length (incl. ash container and fan)	inches	90 1/2
L2	Distance boiler backside to stoker center	inches	51 3/8
	Flue collar diameter	inches	8



High-temperature silicon carbide combustion chamber

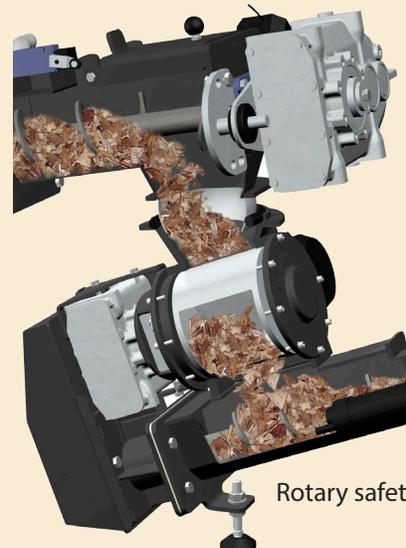
**Performance Data**

**Unit**

**130**

**150**

Rated heat output	BTU/hr	443,000	512,000*
Heating efficiency range	BTU/hr	133,000- 443,000	153,000- 512,000
Electrical connection		240 V 60Hz, 20 Amp Circuit	
Electrical consumption	Watts	110-262	110-262
Boiler weight	pounds	3858	3858
Water capacity	gallons	90	90
Minimum return temp.	°F	113	113
Max. operating temp.	°F	194	194
ECM pump control		Yes	Yes
Permitted fuel		Wood Pellets Ø ¼" (6mm) Wood Chips ½" X 2", <30% Moisture	

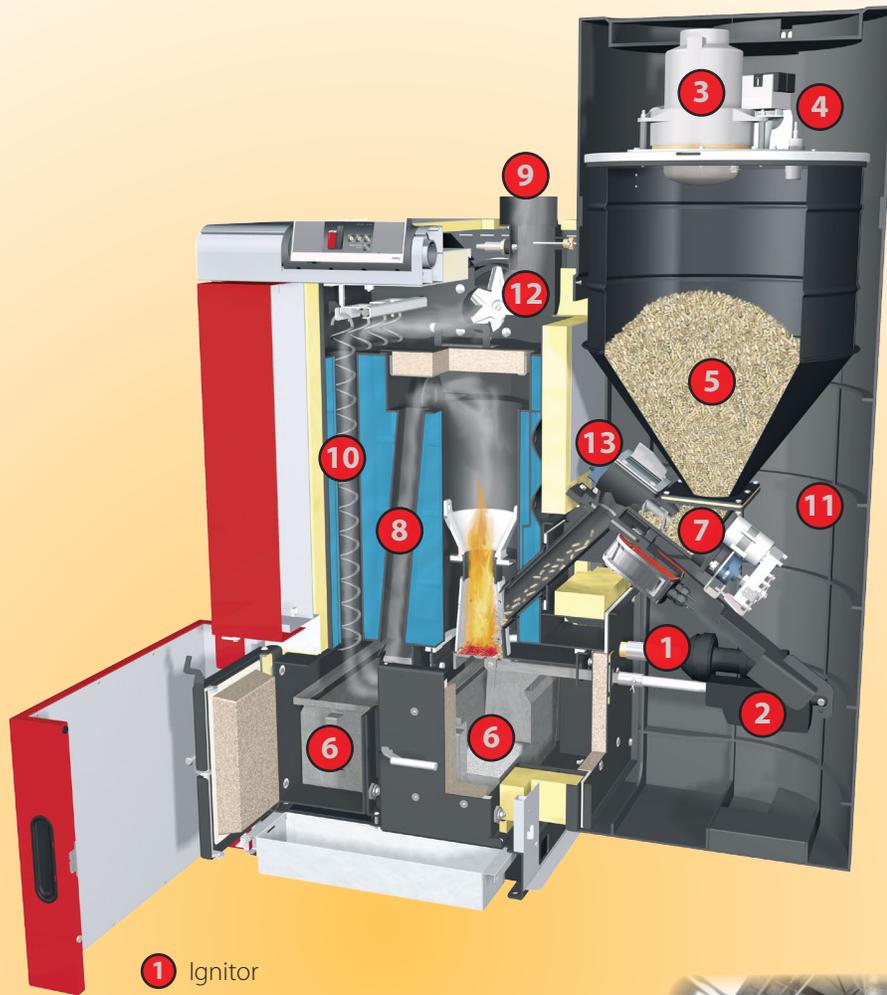


Rotary safety valve

Dimensions are subject to technical alterations.

U.S. Environmental Protection Agency certified to comply with 2015 particulate emission standards-pellets only.

\*24 hour average output is approximately 135KW/hr.



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# P4

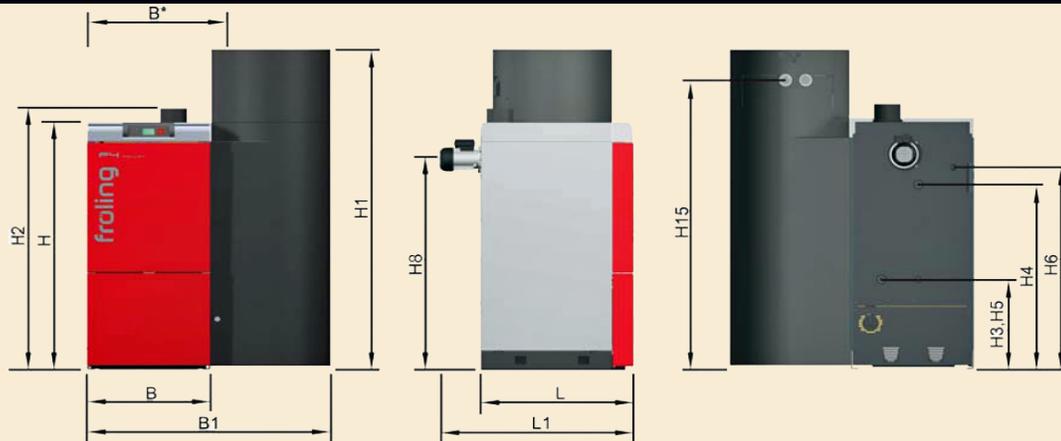
## Wood Pellet Boiler

- For home, business, or institutional use
- Fully Automatic
- Super high efficiency
  - Bulk or bag wood pellet ready
  - Plug & play – no assembly
- EPA Accepted

- 1 Ignitor
- 2 Active Grate Cleaning
- 3 Automatic Fuel Delivery Vacuum
- 4 Fire Safety Dampers
- 5 Day Hopper
- 6 Standard Ash Drawers
- 7 Inclined Fuel Auger
- 8 Three Pass Heat Exchange
- 9 Lambda Control.
- 10 Automatic Heat Exchange Cleaners
- 11 Sound Proofing Cover
- 12 Exhaust Induction Fan
- 13 Viewing Glass



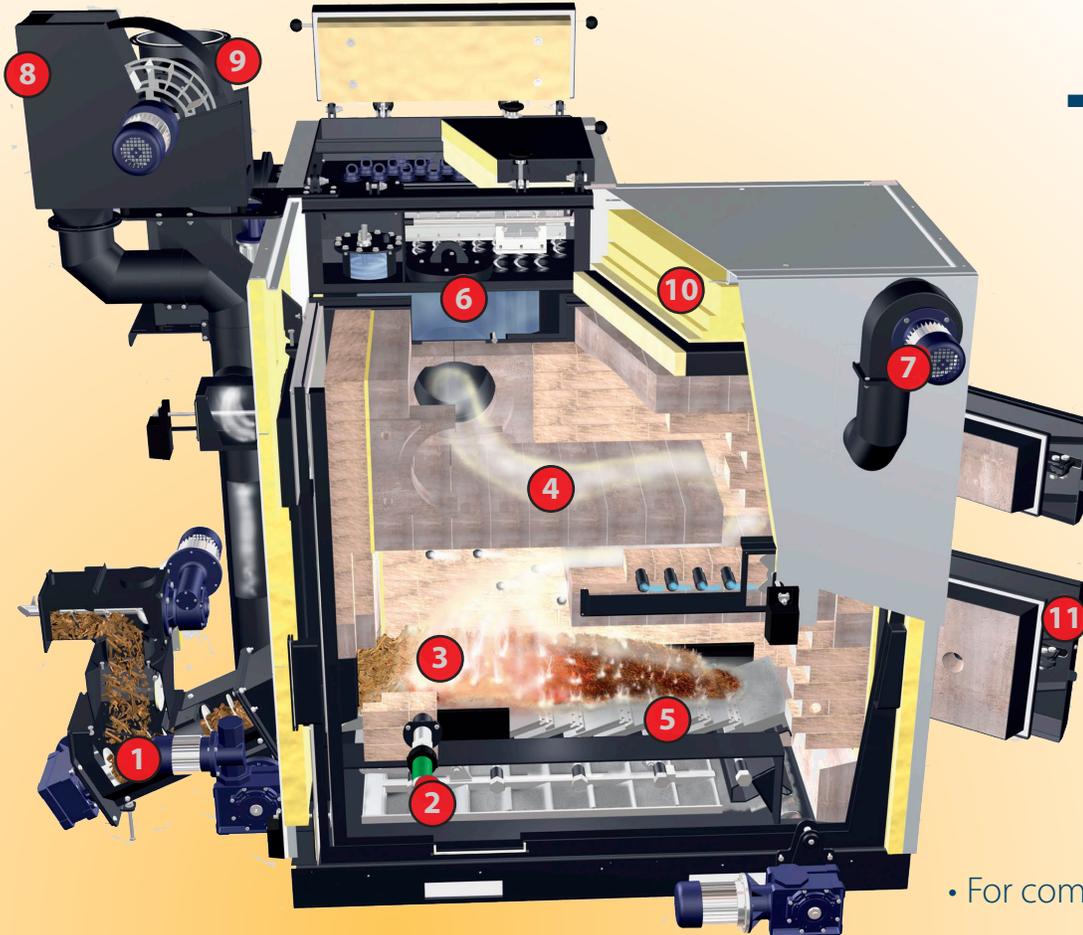
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Dimension Data		Unit	P4 8/15	P4 20/25	P4 32/38	P4 48/60	P4 80/100
L	Length of boiler	inches	29 <sup>1</sup> / <sub>8</sub> "	29 <sup>1</sup> / <sub>8</sub> "	32 <sup>1</sup> / <sub>4</sub> "	35 <sup>1</sup> / <sub>2</sub> "	39 <sup>3</sup> / <sub>8</sub> "
L1	Total length including draft fan	inches	37"	37"	40 <sup>1</sup> / <sub>8</sub> "	43 <sup>1</sup> / <sub>4</sub> "	42 <sup>1</sup> / <sub>8</sub> "
B	Width of boiler	inches	23 <sup>5</sup> / <sub>8</sub> "	30 <sup>3</sup> / <sub>8</sub> "	33 <sup>3</sup> / <sub>4</sub> "	40 <sup>1</sup> / <sub>2</sub> "	48 <sup>5</sup> / <sub>8</sub> "
B*	Width of boiler including support	inches	27 <sup>3</sup> / <sub>4</sub> "	34 <sup>1</sup> / <sub>2</sub> "	38"	50 <sup>1</sup> / <sub>4</sub> "	58 <sup>1</sup> / <sub>4</sub> "
B1	Total width including hopper	inches	46 <sup>5</sup> / <sub>8</sub> "	53 <sup>3</sup> / <sub>8</sub> "	56 <sup>3</sup> / <sub>4</sub> "	70 <sup>1</sup> / <sub>2</sub> "	82"
H	Height of boiler	inches	50 <sup>3</sup> / <sub>8</sub> "	50 <sup>3</sup> / <sub>8</sub> "	56 <sup>3</sup> / <sub>8</sub> "	62 <sup>3</sup> / <sub>8</sub> "	67 <sup>3</sup> / <sub>8</sub> "
H1	Total height including hopper	inches	65 <sup>3</sup> / <sub>8</sub> "	65 <sup>3</sup> / <sub>8</sub> "	74 <sup>7</sup> / <sub>8</sub> "	74 <sup>7</sup> / <sub>8</sub> "	74 <sup>7</sup> / <sub>8</sub> "
H2	Height of flue gas connection	inches	53 <sup>1</sup> / <sub>8</sub> "	53 <sup>1</sup> / <sub>8</sub> "	60 <sup>1</sup> / <sub>4</sub> "	66 <sup>3</sup> / <sub>8</sub> "	70 <sup>1</sup> / <sub>4</sub> "
H3	Height of supply connection	inches	18 <sup>1</sup> / <sub>8</sub> "	18 <sup>1</sup> / <sub>8</sub> "	18 <sup>1</sup> / <sub>8</sub> "	20 <sup>1</sup> / <sub>4</sub> "	20 <sup>1</sup> / <sub>2</sub> "
H4	Height of return connection	inches	37"	37 <sup>1</sup> / <sub>2</sub> "	42 <sup>3</sup> / <sub>4</sub> "	48 <sup>7</sup> / <sub>8</sub> "	53 <sup>1</sup> / <sub>2</sub> "
H5	Height of drain connection	inches	18 <sup>1</sup> / <sub>8</sub> "	18 <sup>1</sup> / <sub>8</sub> "	18 <sup>1</sup> / <sub>8</sub> "	20 <sup>1</sup> / <sub>4</sub> "	20 <sup>1</sup> / <sub>2</sub> "
H6	Height of air vent connection	inches	40 <sup>1</sup> / <sub>2</sub> "	40 <sup>1</sup> / <sub>2</sub> "	45 <sup>1</sup> / <sub>2</sub> "	51 <sup>1</sup> / <sub>2</sub> "	56 <sup>1</sup> / <sub>4</sub> "
H8	Height of induced draft fan connection	inches	43"	43"	47 <sup>7</sup> / <sub>8</sub> "	54 <sup>1</sup> / <sub>8</sub> "	58 <sup>7</sup> / <sub>8</sub> "
H15	Height of vacuum system connection	inches	58 <sup>1</sup> / <sub>4</sub> "	58 <sup>1</sup> / <sub>4</sub> "	67 <sup>3</sup> / <sub>4</sub> "	67 <sup>3</sup> / <sub>4</sub> "	67 <sup>3</sup> / <sub>4</sub> "
A	Flue pipe diameter	inches	5"	5"	6"	6"	8"

Technical Data	Unit	P4 8/15	P4 20/25	P4 32/38	P4 48/60	P4 80/100
Nominal heat output	BTU/hr	35,800/ 50,800	68,200/ 85,300	109,000/ 129,650	163,780/ 200,000	273,000/ 341,000
Electrical connection		240V / 60Hz / fused 15A				
Electrical power consumption	W	96-123	110	110	120	120
Boiler Weight	lbs	783	959	1168	1676	2425
Hopper (gross volume, approx.)	gals	24	24	37	54	54
Water capacity	gals	18.5	21	33	45	74
Minimum return temperature	°F	Not applicable due to internal thermal protection				140
Maximum boiler temperature setting	°F	176	176	176	176	194
Permitted Fuel		Wood pellets Ø ¼" (6mm) PFI Premium Grade				





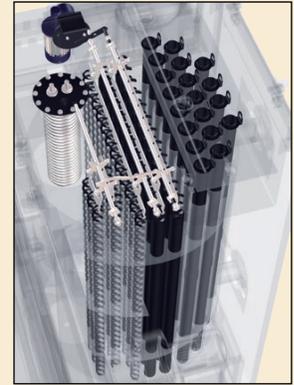
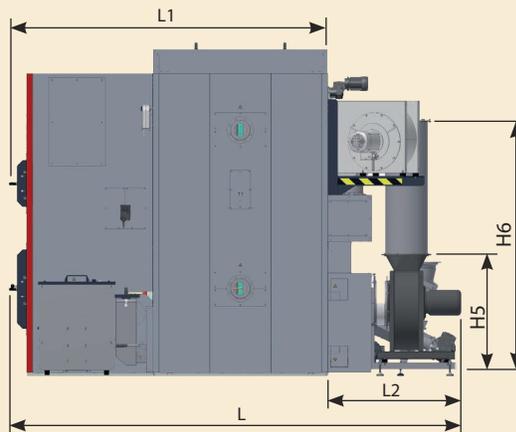
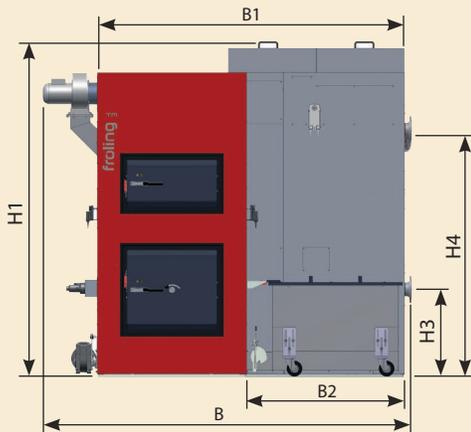
froling   
**TM 500**  
**Turbomat**

Wood Chip  
or  
Pellet Boiler

- Easy to service
- ASME stamped pressure vessel
- Fully automatic
- Lambda control
- Underpressure control
- For commercial or industrial use

- 1** Trapezoidal stoker duct reduces power consumption and ensures flexibility for varying fuel sizes. The industry standard drive gear unit is durable and mechanically isolated from the feed channel. This prevents the screw movements from affecting the gear unit.
- 2** Second ignitor (optional) for heating material that is hard to light.
- 3** High temperature combustion chamber with 4-layers (firebrick/1st layer of insulation/ air jacket/ 2nd layer of insulation) made of premium, heat resistant fireclay components for optimal combustion, even with low grade fuel (e.g. high moisture level, etc).
- 4** High-temperature post combustion zone with hot fireclay lining prolongs combustion. This increases efficiency even further, particularly with inferior fuels.
- 5** Moving grate for a reliable and stable combustion process with ongoing removal of combustion residue. The innovative primary air zone separation system produces exceptional combustion results.
- 6** Vertical, patented 4-pass heat exchanger with integrated suction cyclone unit for dust separation plus an Efficiency Optimization System (EOS) with automatic cleaning of the heat exchanger tubes.
- 7** Case cooling of the combustion chamber minimizes radiant heat. The captured heat is specifically used to preheat the combustion air.
- 8** Flue gas recirculation FGR (optional) optimizes burning (output, emissions, etc) with particularly demanding fuels, (e.g. pellets, shavings, etc).
- 9** Speed-regulated and function monitored induced draft fan together with the under-pressure controller ensure that the system continuously adapts to changes in fuel and the chimney conditions.
- 10** Multi-layer thermal insulation guarantees minimum radiant heat losses.
- 11** Large, solid combustion chamber doors ensure ease of access for maintenance.

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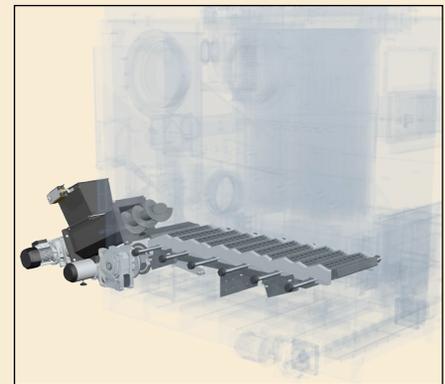


Upright Heat Exchanger

### Dimension Data

### Unit

H1	Total height	inches	107 1/16
H3	Height of return connection	inches	27 15/16
H4	Height, supply connection	inches	78 3/4
H5	Height of flue connection without FGR	inches	38 3/4
H6	Height of flue connection with FGR	inches	81 11/16
B	Total width of the system	inches	117 11/16
B1	Width of boiler	inches	98 7/16
B2	Width of heat exchanger	inches	50 3/8
L	Total length	inches	144 1/8
L1	Length of boiler	inches	102 3/8
L2	Length of stoker arm	inches	41 3/4



Moving Conveyor Grate

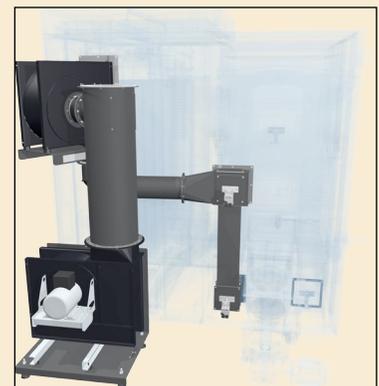
### Technical Data

### Unit

### 400

### 500

Nominal heat output	BTU/hr	1,365,000	1,706,000*
Electrical connection		408 V 60Hz	
Flue gas pipe diameter	inches	14	14
Diameter of stoker screw	inches	7 7/8	7 7/8
Total weight incl. fittings	pounds	18,519	18,519
Water capacity	gallons	198	198
Maximum operating temp.	°F	194	194
Minimum return temp.	°F	149	149
Maximum operating pressure	PSI	60	60
Flue gas temp. at nominal load	°F	284	284
Permitted fuel	Wood pellets	Ø 1/4" (6mm) PFI Premium Grade	
	Wood chips	Moisture Content: (20-40%) Particle size: 1/8" ≤ to ≥ 1 3/4"	



Flue Gas Recirculation



Many Fuel Delivery Options

Dimensions are subject to technical alterations.

\* Rated outout with 30% wood chip moisture content