

HIGH PRESSURE BOILER SELECTION FOR THE PRODUCTION OF MAPLE PRODUCTS

Maple producers contemplating the use of high pressure steam should carefully plant their steam system with the assistance of qualified persons. Proper boiler selection to meet the system requirements is an important step in the success of any steam system.

POWER BOILER

As defined by Section 1 of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Code, a power boiler is one in which steam or other vapour is generated at a pressure of more than 15 per square inch (psi) for use external to itself.

HIGH PRESSURE STEAM

High pressure steam is steam pressure over 15 pounds per square inch. Consequently, power boilers are high pressure steam boilers.

BOILER RATING

When selecting a boiler it is important to know and understand the boiler rating. It is the heating capacity of a boiler expressed in boiler horsepower, BTU's per hour, or pounds of steam per hour.

The easy way to get \$100 per gallon for your syrup.

This 10-minute instructional video shows how easy it is to make maple candy and maple cream.

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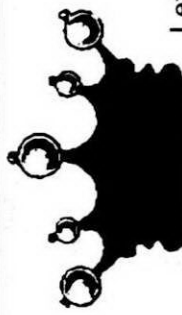
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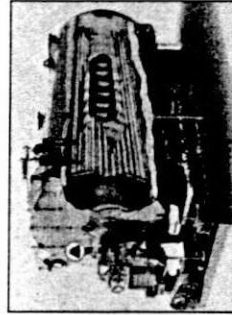
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The commercial rating of a boiler is the standard adopted by the American Society of Mechanical Engineers and is known as the ASME standard.

PACKAGE BOILER

Boilers that are pre-assembled and tested at the factory before shipping. Modern package boilers are self-contained units of welded construction. They may be either firetube or watertube.



Pictured above from left to right: External View of Firetube Boiler, Internal View of Firetube Boiler and Operational Scotch Marine Type Firetube Boiler.

Firetube:

- The combustion gases and heat pass through the boiler tubes that are surrounded by water and/or steam.
- Modern welded scotch marine type package boilers are popular with maple producers.
- They are easy to service and boiler tubes are readily available.

Watertube:

- The steam and/or water is in the tubes and the combustion gasses pass around the tubes.
- Bent or flexible watertube package boilers are also used with success in the maple industry.

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• Proper water treatment is important. Tube replacement is specific to each model and can be expensive.

SOME PERFORMANCE FACTORS TO CONSIDER

WHEN SELECTING A BOILER

1. Type of fuel — corn, wood, oil, gas.
2. Number of flue gas passes.
3. Boiler horsepower.
4. Boiler efficiency — modern welded steam boilers operate at 80% efficiency.
5. Details concerning the Integral Boiler/Burner package when oil or gas is used.

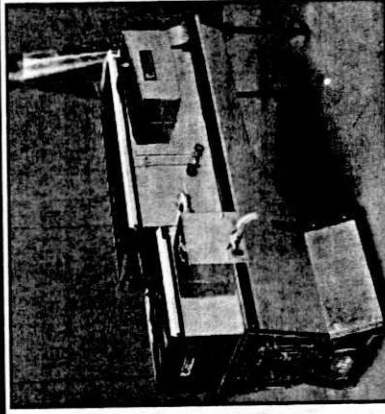
SOME TIPS ON BOILER SELECTION FOR MAPLE SYRUP PRODUCERS

1. Get advice from qualified persons before buying a boiler.
2. Don't buy a boiler that will not pass inspection.
3. Give preference to newer welded boilers.
4. Buy a highly efficient boiler.
5. The pressure class of boilers most desirable for maple production is those built and tested for 150 psi — maximum allowable working pressure.
6. Buy a welded automatic firetube or watertube package boiler for greatest convenience, safety and use of operation.

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7. Plan your steam system before buying a boiler.
8. Know what the steam requirement is before buying a boiler.

BOILER SAFETY FEATURES



The above pictures show a Safety Relief Valve, a Steam Gauge and a Water Column in that order.

TECHNICAL REPORTS AVAILABLE

The following reports providing information on the use of high pressure steam in the maple industry are now available.

1. The Use of High Pressure Steam in the Production of Maple Products.
2. Safety in the Use of High Pressure Steam in the Production of Maple Products.
3. High Pressure Boiler Selection for the Production of Maple Products.



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This research was supported by:

- North American Maple Syrup Council
- Ontario Maple Syrup Producers' Association
- Eastern Ontario Model Forest Group
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