

# Sellers

MANUFACTURING CO.

## IMMERSION FIRED BOILERS



## THE SELLERS ADVANTAGE

### 20 YEAR PRESSURE VESSEL WARRANTY

Against cracks and leaks in the pressure vessel and parts caused by thermal shock.

### ABSOLUTELY NO THERMAL SHOCK

Allows cold start to full capacity in under 20 minutes without damage as a result of temperature change.

### INDUSTRY'S LOWEST LIFE CYCLE COST

Quality products and parts offer the lowest ownership cost throughout the life of the boiler.

[DISCOVER MORE INSIDE](#)

## IMMERSION FIRING PRINCIPLE

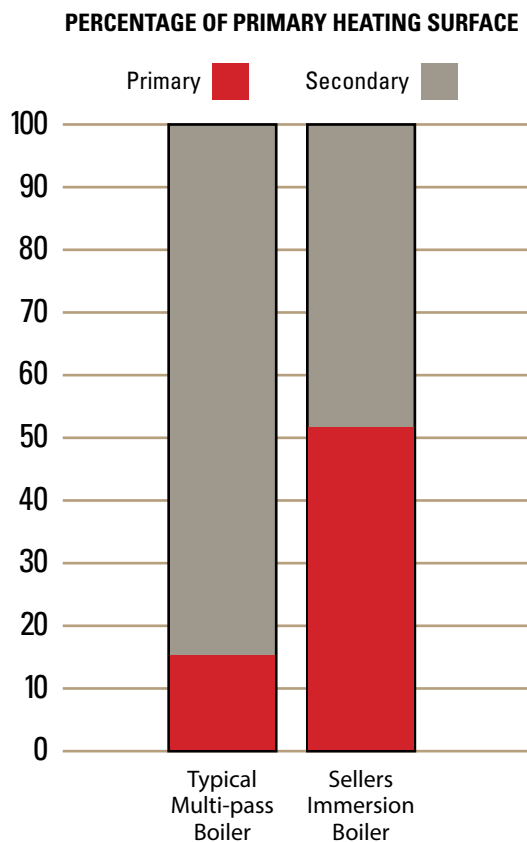
The immersion fired boiler is based on the principle that the most effective heating surface in any boiler is the primary or radiant heating surface. This is the surface on which the fire shines. The primary heating surface absorbs 65% to 70% of the heat radiated by the burner flame in any boiler. The immersion boiler was designed to utilize this principle and maximize primary heating surface.

**IN A SELLERS BOILER, 50% OF THE TOTAL HEATING SURFACE IS PRIMARY AS COMPARED TO 5% TO 14% IN AN ORDINARY BOILER. THIS LARGE PERCENTAGE OF PRIMARY HEATING RESULTS IN BALANCED HEAT TRANSFER AND LONGER LIFE.**

Research performed by the National Academy of Science, Report #44, determined that the amount of primary heating surface is the key to efficiency and long boiler life. Immersion firing gives you more primary heating surface than any other boiler on the market.



**SINCE 1931 SELLERS HAS BUILT THE EXCLUSIVE ONE-PASS FIRING SYSTEM, OFFERING CUSTOMERS HIGH EFFICIENCY OPERATION, LOW LIFE CYCLE COST AND THE INDUSTRIES BEST WARRANTY.**



## THE SELLERS ADVANTAGE

The Immersion fired boiler offers many advantages over other boilers that are on the market today. This unique design has been proven to perform since 1931 and is unlike any other. The design advantages include:

- 20-Year Pressure Vessel Warranty Includes Parts & Labor
- Cold Start to Full Capacity Under 20 Minutes
- Guaranteed High Efficiency Performance
- Low NOx Emission Options Do Not Require Flue Gas Recirculation
- Industries Lowest Life Cycle Cost
- Smallest Fire Tube Boiler Footprint
- U.L. Labeled Packaged Boiler
- Five Year Non Pro-rated Burner Warranty
- Multiple Fuel Options including Natural Gas, Propane & Bio Fuels
- S-Series modulating options include parallel positioning controls

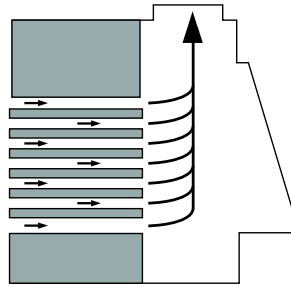
## BUILT TO LAST

### SELLERS ELIMINATES REFRACTORIES

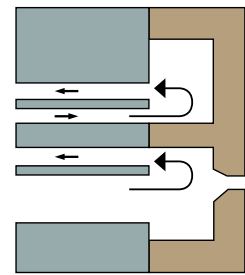
The Sellers immersion firing system is more than efficient. Design simplicity and rugged construction give you a boiler that is built to last.

### THE SELLERS IMMERSION FIRED BOILER DOES NOT CONTAIN REFRACTORY OF ANY KIND.

In many multi-pass boilers, flame and hot gases are directed from pass to pass with special refractory. High temperatures and the stress of constant heating and cooling make for a short service life. Yearly maintenance and periodic replacement becomes a costly and time consuming requirement. These costs are completely eliminated with a Sellers immersion boiler.



**SELLERS BOILER:** Efficient one-pass firing means no refractories and no refractory maintenance.



**MULTI-PASS BOILER:** Complex refractory shapes break down under operating conditions, resulting in frequent and costly repairs.

### SELLERS ELIMINATES THERMAL SHOCK

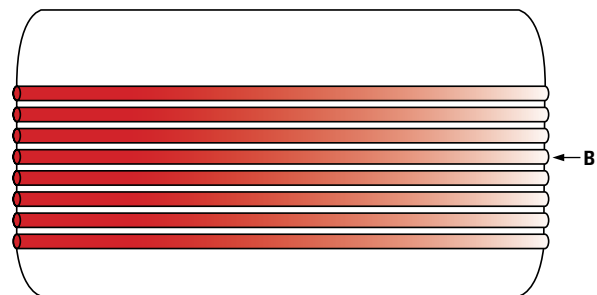
Thermal shock can ruin a boiler. It is caused by the metal components in a boiler expanding or contracting unevenly. This can be caused by low feedwater temperatures, firing a cold boiler or uneven heat transfer rates across the heating surface. The result of thermal shock can be loose tubes, cracked tube ligaments or tube sheets. There are no thermal shock problems with the Sellers boiler. As shown in the graphic below, the single pass design eliminates the tremendous stresses that are associated with very high temperature differentials between the furnace and the successive passes of tubes in an ordinary boiler. Expansion is equal in all tubes, tube sheets are kept cool, and hot spots are eliminated.

**SELLERS IMMERSION BOILER:** Efficient one-pass firing means no thermal stress.

**MULTI-PASS BOILERS:** Increase thermal stress with each pass.



**MULTI-PASS BOILER UNDER THERMAL STRESS**



**SELLERS BOILER: NO THERMAL STRESS**

**THERMAL SHOCK:** In a multi-pass boiler, the different passes of tubes are heated to different temperatures. As a result, tremendous stresses are applied to the tube sheets and tube junctions (A), distorting and fatiguing the steel.

A Sellers immersion boiler heats all tube sheets and junctions evenly. Adequate spacing between the tube bank and the boiler shell (B) allows the tube sheet to flex naturally.

# VERSATILITY

SELLERS MANUFACTURING HAS A SERIES OF IMMERSION BOILER TO FIT ALMOST ANY APPLICATION.



**S** SERIES

## S-SERIES

Includes all the advantages of the Immersion Boiler with a **fully modulating burner package**. For use in variable load and 30 PPM NOx applications.

**M** SERIES



## M-SERIES

Modulating Immersion Boiler with ultra-low NOx capabilities. For use in sub 9 PPM NOx applications.

**X** SERIES



## X-SERIES

On-Off Immersion Boiler package. For use with industrial applications that require full capacity more than 75% of its operating cycle.

**H** SERIES



## H-SERIES

Nonferrous, chemical free 15 PSI Immersion steam boiler. For use in humidification and chemical free applications.

**P** SERIES



## P-SERIES

Immersion plain tube boiler design offers most versatile fuel uses and simple operation with natural gas, propane and methane fuels.