Eclipse
Immerso-Jet

High Efficiency
Immersion Heating System
Higher Efficiency with Great Performance.

The Eclipse Immerso-Jet burner, or "IJ," fires at high velocities through a small diameter immersion tube. The combustion gases from the burner scrub the inner tube surfaces and produce high heat transfer rates. Two major benefits result:

- **Higher Efficiencies**
  Whereas conventional immersion tube systems are limited in practice to 70% efficiency, the "IJ" can exceed 80%.

- **Smaller Immersion Tubes**
  Immerso-Jet tubes, having smaller diameters, also have smaller bends. As you can see on the next page, the difference between a conventional tube and an "IJ" tube is dramatic.

Ideal for Retrofits.

In conventional immersion heating, every cubic inch of a tank is crammed with a bulky, large diameter tube. Replacing this tube with a compact Immerso-Jet tube can provide substantial advantages:

- **Easier Tube Fabrication**
- **Lower Tube Material Costs**
- **Easier Handling & Installation**
- **Reduced Fuel Costs**
- **Faster Heat-Up**
- **Higher Tank Temperatures**

This feature alone may save you thousands of dollars if you need to switch to new materials that require higher temperatures. The "IJ" can save you the expense of tearing out your old tank and building a larger one.

Perfect for New Tanks.

By combining high efficiency with small diameter tubes, the Immerso-Jet gives you great design flexibility. You can use features of the "IJ" to:

- **Minimize Tank Size**
  Reduce material and fabrication costs, and conserve floor space.

- **Reduce Operating Costs**
  Minimize fuel costs, or increase production.

- **Add Features**
  Immerso-Jet tubes take up less space in a tank, and you can use that space for other purposes. For example, page 4 features a tank designed to clean parts trays as well as parts.

High Velocity Equals High Efficiency

**Conventional Immersion Tube Profile**
- A long, lazy, fuel-rich flame travels down the tube.
- Low velocity causes a "dead gas film" to build up on the inside wall, reducing heat transfer efficiency.
- System efficiencies are limited to 70% because of tube size considerations.

**Eclipse Immerso-Jet Profile**
- Flame is confined to combustion chamber.
- High velocity combustion gases scrub the inner tube surface, minimizing dead gas film.
- System efficiencies in excess of 80% are possible with smaller tube configurations.
Smaller Tubes

Equal Heat in Half the Area!

Immerso-Jet
3" Dia., 30' Long

Conventional
6" Dia., 37' Long

For comparison, we’ve sketched a conventional tube and an Immerso-Jet tube, each designed for 70% efficiency with an input of 1 MM Btu/hr. Clearly, the Immerso-Jet tube is much smaller.

If this were a new tank, you could reduce tank size to fit the “IJ” tube, saving floor space and material costs.

Or, if floor space permits, you could lengthen the Immerso-Jet tube and possibly add another pass in order to achieve efficiencies in excess of 80%.

In either case, the Immerso-Jet gives you great flexibility in designing an immersion system that best meets your performance and space requirements.

Capacity Guide

<table>
<thead>
<tr>
<th>Model</th>
<th>Tube Size</th>
<th>Max. Btu/hr.</th>
<th>Length @ Various Efficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>IJ 2</td>
<td>2&quot;</td>
<td>500,000</td>
<td>19' 25' 32' 40'</td>
</tr>
<tr>
<td>IJ 3</td>
<td>3&quot;</td>
<td>1,000,000</td>
<td>30' 37' 46' 58'</td>
</tr>
<tr>
<td>IJ 4</td>
<td>4&quot;</td>
<td>1,600,000</td>
<td>36' 40' 50' 75'</td>
</tr>
<tr>
<td>IJ 6</td>
<td>6&quot;</td>
<td>3,600,000</td>
<td>57' 70' 87' 108'</td>
</tr>
<tr>
<td>IJ 8</td>
<td>8&quot;</td>
<td>6,000,000</td>
<td>83' 97' 115' 140'</td>
</tr>
</tbody>
</table>
Immerso-Jets for Your Solutions

Retrofit Raises Temperature

This alkali rinse tank is part of a line to prepare metal strip for painting. The entire line was purchased as used equipment, and subsequent calculations showed that the conventional 8" immersion tube installed in the tank could not achieve temperature.

Rather than rebuild the tank, the owner replaced the conventional burner and tube with an Immerso-Jet burner and 4" tube, easily achieving the higher temperature required.

Multi-Use Tank Design

Mannor Industries, a spray wash manufacturer, worked with this parts supplier to design a dual use washer. Parts enter the washer via the blue conveyor, while parts trays can be sent through the washer using the opening to the right of the blue conveyor.

This design was possible due to the compact, space-saving tube of the Immerso-Jet.

System Design to Installation.

Eclipse has been a leading supplier of combustion equipment for more than 80 years. Our comprehensive product line is supported by unsurpassed engineering expertise and experience. From computer-assisted design through installation, we can supply an immersion system specially tailored to meet your needs.

Our worldwide network of engineering, manufacturing and sales facilities assures our customers of product and technical support when and where it's needed. For assistance with your next combustion requirement, contact your local Eclipse sales office.