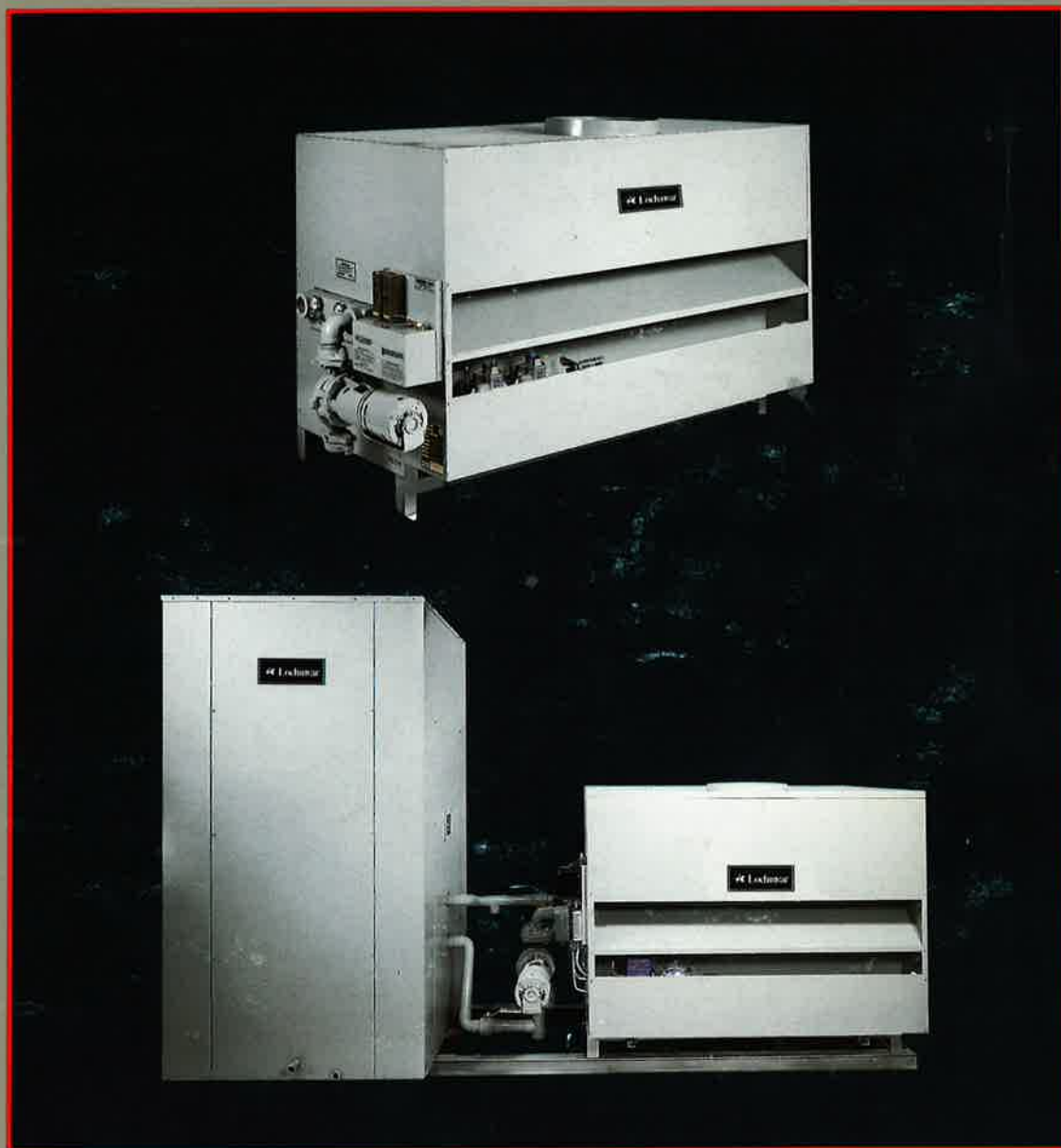


# Copper-Fin<sup>®</sup> Water Heating and Packaged Systems



Water Heater Design (CW865)  
thru CW1210 certified by  
A.G.A. as automatic  
Hot Water Supply Boilers



Water Heater Design  
(CW1540-CW3080) tested by  
Underwriters Laboratories as  
Boilers



All models comply with ASME  
Boiler and Pressure Vessel  
Code, Section IV, 180 psi  
working pressure and  
registered with the National  
Board



*The Ultimate in Quality and Durability*

## Copper-Fin System Design

Copper-Fin and Lock-Temp Storage Tanks provide the designer total flexibility in selecting exactly the right combination of recovery capacity and storage for each application. Generally, water heating systems are divided into three categories based upon storage demands and recovery requirements.

### Semi-Instantaneous

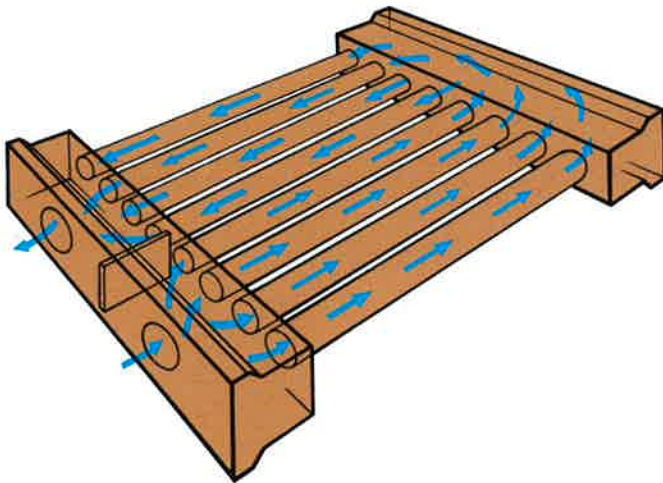
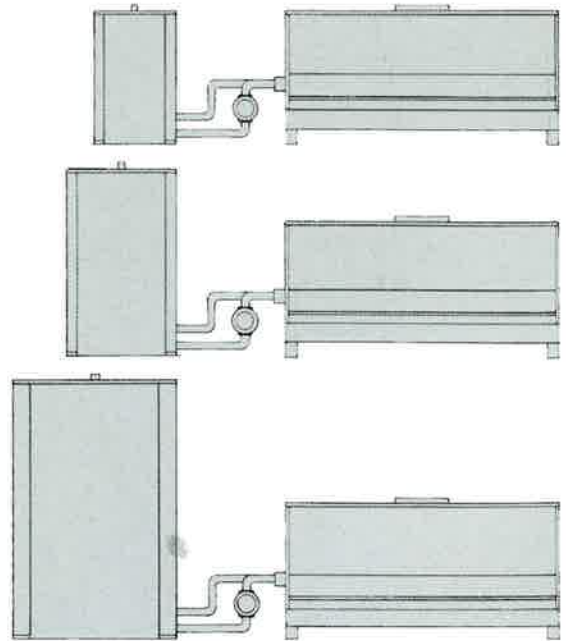
Where hot water demand remains fairly constant and very little storage is required. A Lock-Temp® Storage Tank with a capacity as small as 80 gallons may be used with any size Cooper-Fin to complete this type of system. The water heater recovery capacity is matched to the maximum hot water demand factor. Typical applications would include restaurants, car washes, industrial processing, etc.

### Balanced Load

(Recovery/Storage) In this application, hot water demand will vary from about 15 minutes to 2 hours, with recovery requirements from one to two hours. Schools, apartments, motels, hospitals, and nursing homes are typical of this type requirement.

### Large Storage

In some cases, the demand for hot water may be very heavy for a short period of time, but with long periods of time where little or no hot water is required. Here a large storage tank may be used to provide the short, heavy demand for hot water, with a small water heater sized to provide the tank recovery over an extended period of time. Factories, laundries, athletic facilities, etc., are often typical of this type application.

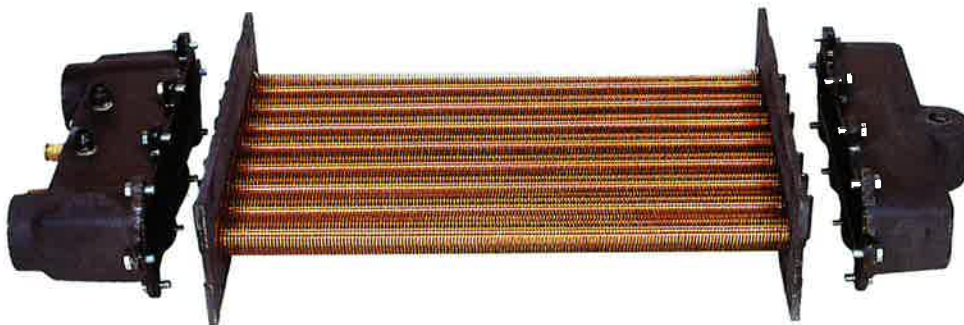


### The Copper-Fin Heat Exchanger

At the heart of each **Copper-Fin** is a very efficient Fin-Tube heat exchanger with integral fins spaced at 7 fins per inch and providing a heat transfer ratio of 9 times greater than plain copper tubes.

The Copper-Fin heat exchanger has water flow characteristics to generate a tube "scouring" action that keeps all water backed surfaces clean and free of mineral buildup. The straight line, two pass heat exchanger principle, along with Lochinvar's patented flow equalizing lugs cast integrally with the header, provide equal flow to all tubes, assuring maximum efficiency of heat transfer over the life of the water heater. Fast response to load demands is assured!

This important scouring action naturally means greater cost savings for owners of Lochinvar Copper-Fin Heaters. Tubes are always able to transfer heat at peak efficiency. Every surface within the water containing section is of a non-ferrous material. Straight copper tubes—finned on the outside for maximum heat transfer—and nu-glass coated cast iron header inspection covers make up an entirely rust-proof unit. It's easy to see why every Copper-Fin carries a 5 year limited warranty.



### Easy Access For Inspection

On all models, bolted header inspection covers may be removed for field inspection of tube interiors. The entire heat exchanger, which is merely resting on steel framing, may be easily removed through the top of the heater. Nu-glass coated headers are warranted for the life of the heater.

### Copper-Fin Tube—Cut-Away View



Solid copper material eliminates worry about rust and corrosion.

Copper-Fin tube fins are extruded from the tubing itself insuring maximum heat transfer efficiency.



## Copper-Fin Features

**TEMPERATURE AND PRESSURE RELIEF VALVE**—ASME rated and approved in excess of water heater output.

**INSULATION**—3½ inch layer of fiberglass surrounds combustion chamber, heat exchanger and flue collector to assure minimum heat loss and cool outer jacket.

**HEAT BAFFLES**—"V" shaped baffles drive heat deep into copper fins to assure peak efficiency.

### FLUE-GAS COLLECTOR

Heavy gauge galvanized steel flue collector is positioned over the heat exchanger to collect and direct combustion products to the vent.

### NU-GLASS COATED CAST IRON HEADERS

Tubes terminate at each end into strong, rust-proof cast iron headers.

### HEADER INSPECTION COVERS

Durable, coated cast iron covers bolt to header for quick access to entire wet section of heater.

### OUTER JACKET

Jacket is fabricated from heavy 16 gauge galvanized steel, completely enclosing the gas train and burner assembly for maximum protection. Entire unit is protected with a durable acrylic enamel finish.

**ATMOSPHERIC BURNERS**—For simplicity and durability. Aluminized steel ribbon type for peak efficiency and quiet operation.

### COPPER-FIN TUBES

Integrally finned pure copper tubes with fin spacing 7 fins per inch, providing 9 to 1 heat transfer ratio over plain copper tubes.

### \*BUILT-IN DRAFT DIVERTER

Provides lower "headroom" requirements. Permits installation in confined spaces where many other types of boilers will not fit.

### INSO-BLOCK COMBUSTION CHAMBER

Assembled in 3" thick modular sections. Spall resistant, cast refractory for high temperature resistance. Interlocked, insuring a tight leak-proof combustion chamber.

**GAS CONTROLS**—Slow opening diaphragm gas valve and pressure regulator. Optional gas trains are available to meet I.R.T., F.M. and other specifications.

**STRESS FREE, STEEL FRAME CONSTRUCTION**—Entire heat exchanger, including copper-fin tubes, headers and inspection covers "free float" on thick welded angle iron frame. This free-floating design absorbs thermal-expansion without damage to the heat exchanger, structural supports, or refractory.

### Stress-Free Steel Frame Construction

The unique steel frame construction of Copper-Fin provides complete thermal shock protection. The entire heat exchanger section rests on heavy steel frame supports and is free to expand and contract without transferring thermal stresses to other heater components. The Copper-Fin steel frame concept provides an element of strength and rigidity not found in competing brands.



## Meets ASHRAE Energy Efficiency Standards

### Features:

- Direct-Fired "Fin-Tube" Water Heating for Maximum Efficiency and Fast Response to Load Demands.
- Design Protects Against Thermal Shock
- Impervious to Corrosion and Rust (Wet Section)
- Scale Free Operation for Optimum Heat Transfer
- Five Year Limited Warranty
- Built in Draft Diverter — Compact Design — Requires Less Headroom
- Easy Access for Inspection and Service
- Quiet Burner Operation
- Provides Combustion Efficiency in Excess of 80%.
- Certified for 180°F Operation
- Complete Range of Firing Control and Safety Systems Including F.M., I.R.I., I.R.M., etc.
- **Pump Mounted Models** — factory mounted and wired. Specify "PM" in model number (CW940PM).
- Solid State Intermittent Pump Controller (Optional)
- Cupro-Nickel Heat Exchanger (optional)
- Alternate Control Location and/or Water Connections (optional)
- Flow Switch is standard equipment on CW1540-CW3080.

## Dimensions and Specifications

MODEL	B.T.U. Input	Recovery G.P.H.	PUMP CAPACITY Min. Up to 25 Grains Hardness										C			Ship	Ship
	Natural Gas	100° Rise*	Pipe Size	GPM	Ft. Hd.	HP	Gas	H	W †	L1	L2	V	A	B	Gas Inlet	Weight (CW)	Weight (PM)
							Conn. Size			Length (CW)	Length (PM)						
CW665	665,000	638	2	55	10	¼	1	47	35½	53	59½	12	45½	26½	14	747	810
CW760	760,000	730	2	55	10	¼	1	47	35½	58	64½	14	50½	26½	14	834	897
CW940	940,000	902	2	55	10	¼	1	47	35½	68	74½	14	60½	26½	14	935	1001
CW1210	1,206,400	1158	2	55	10	¼	1¼	47	35½	83	89½	16	75½	26½	14	1133	1164
CW1540	1,540,000	1479	3	90	9	⅓	1½	67%	57	72¼	89	18	65%	35½	11	1649	1697
CW1700	1,694,000	1627	3	90	9	⅓	2	67%	57	77½	94	20	70%	35½	11	1904	1901
CW2000	2,002,000	1923	3	90	9	⅓	2	67%	57	88	104½	20	81%	35½	11	2066	2095
CW2310	2,310,000	2218	3	90	9	⅓	2	67%	57	98½	115	2-16	91%	35½	11	2200	2234
CW2620	2,618,000	2514	3	90	9	⅓	2	67%	57	109	125½	2-18	102%	35½	11	2495	2517
CW3080	3,080,000	2958	3	90	9	⅓	2	67%	57	124¾	141	2-18	117%	35½	11	2713	2698

NOTES: 1. Heater must be provided with a continuous running pump where Lochinvar Intermittent Pump Controller Option is furnished.  
 2. Piping in heater loop (heater to tank) must be minimum diameter pipe size as listed in pump selection sheet.  
 3. For LP, gas models, reduce input and recovery 12%.  
 4. Capacity ratings are actual heater performance at 80% combustion efficiency.  
 5. Pump capacity is based on heater to tank circulating loop of not more than 45 feet of straight pipe plus 6-90° elbows, 2 unions, 2 ball valves and 1 cold water supply tee, (PM only).

† Dimensions are for models equipped with standard firing control systems.

CW - Basic Unit Without Pump  
 PM - Pump Mounted

