

Sioux® Solution Heaters

**Strip Your Carbon
Column Up To Five
Times Faster**

- **Economical**
- **Fast**
- **Easy To Install,
Operate &
Maintain**
- **Compact**
- **Designed
Specifically
For The Mining
Industry**

Model S-1



Application

Sioux Corporation's solution heaters are designed for the heap leaching process used in precious metals mining. They are currently being operated in the U.S. and many other countries throughout the world. The rugged, reliable design provides an instant, continuous supply of hot solution which increases stripping speed, therefore lowering overhead and increasing profit.

Sioux Solution Heaters are easy to operate, and will last for many years with little maintenance.

These rugged units come fully equipped with controls and instrumentation. Choose from LP gas, natural gas, or oil-fired models.

Operation

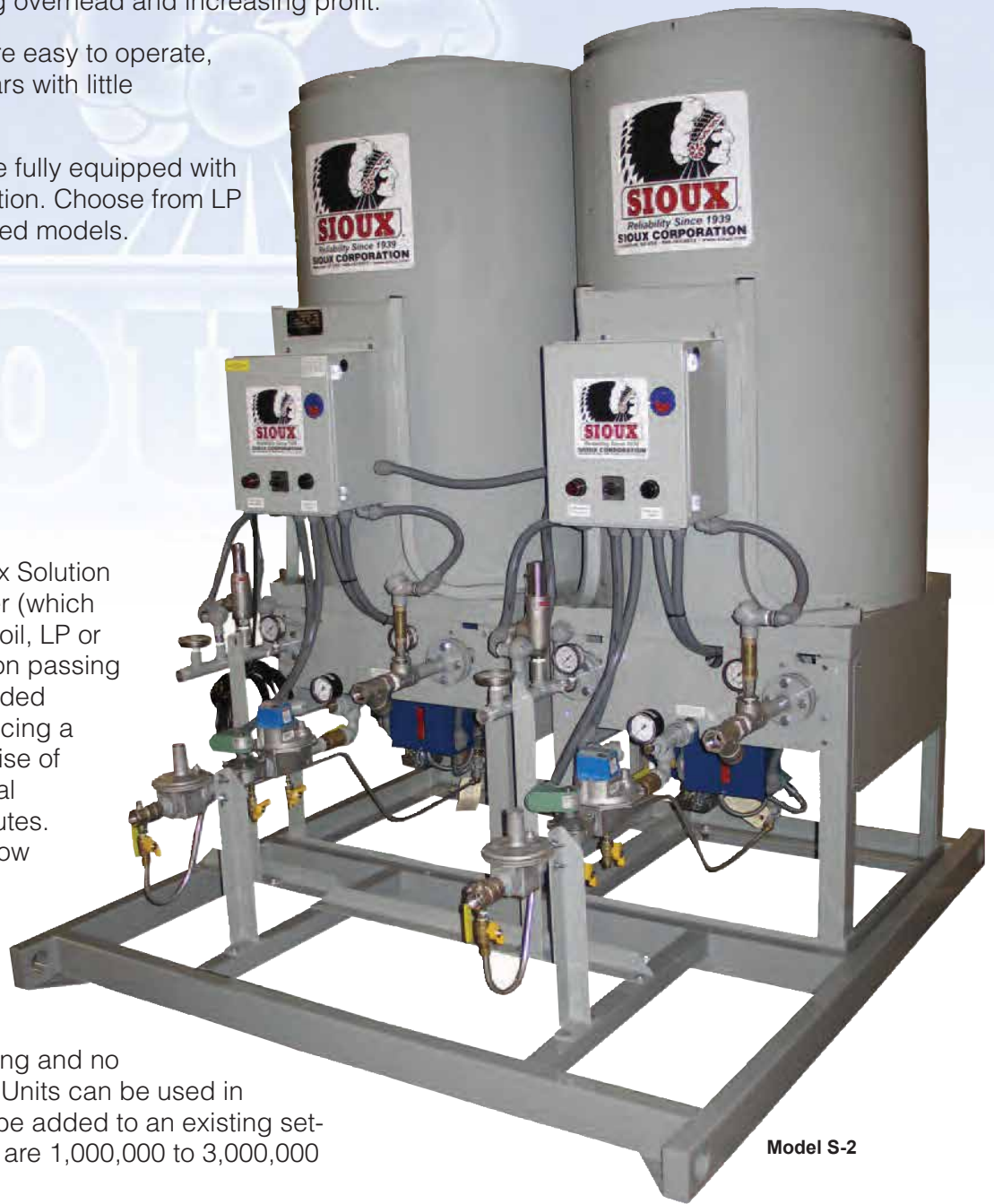
Basic operation of a Sioux Solution Heater is simple: A burner (which is fired by your choice of oil, LP or natural gas), heats solution passing through a heavy-duty welded stainless steel coil, producing a continuous temperature rise of your solution after an initial startup period of 3-5 minutes. Outlet temperature and flow rate can be held at precise levels.

Hot solution is available within minutes of startup, and units can be run continuously. No preheating and no recovery time is needed. Units can be used in a new installation or can be added to an existing set-up. Heater output ratings are 1,000,000 to 3,000,000 BTU/hour.

Installation of units is simple. Just install the solution heater to required utilities and you're ready to operate the unit. Units are compact and can be moved if necessary.

Units have few moving parts and the coil holds only 12 gallons of solution, so maintenance is minimal.

Units are modular so you can make a minimal investment to start, and expand your system as your operation grows.



Model S-2

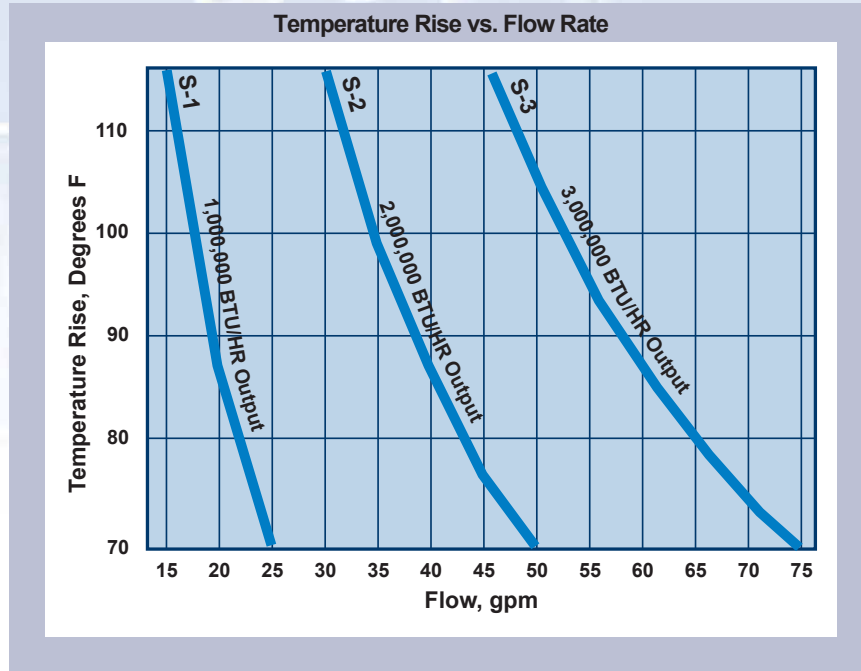
Performance

Use this chart to select Basic Solution Heater size. Locate the gallons per minute of solution, then locate required temperature rise (temperature rise is the difference between the desired output solution temperature and the incoming solution temperature). Select a model that meets or exceeds the BTU/hour figure from the specification chart below.

Performance shown on curve is based on heating water and is conservative.

Recommended maximum discharge temperature is 300°F or all models. Minimum flow is 15 GPM per module. (15 GPM for S-1; 30 GPM for S-2; 45 GPM for S-3).

Performance for Sioux Solution Heaters

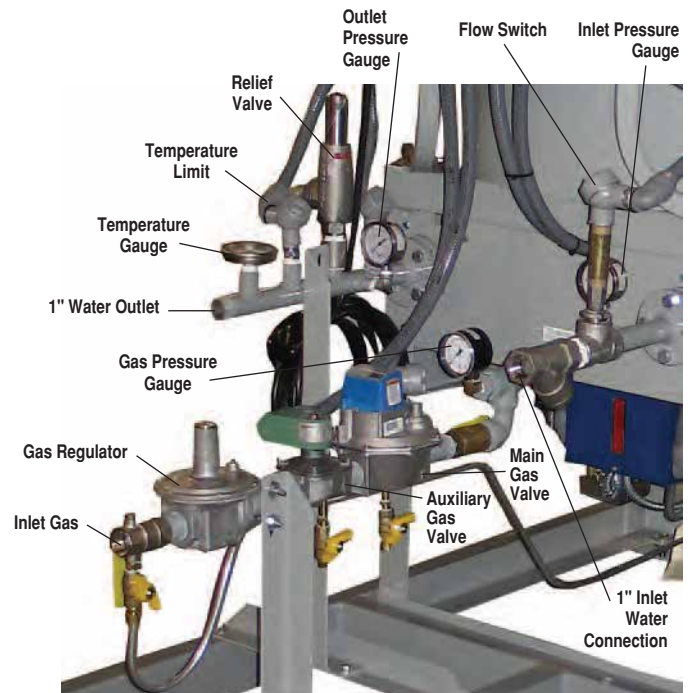


Performance Chart Notes:

1. Solution flow rates vary with pressure. Required pressure at inlet is 50 to 75 PSI.
2. All ratings are based upon operation in an ambient temperature of 70°F (21.1°C) at sea level.
3. Derate 4% per each 1,000 feet altitude above sea level.

Standard Features

The heavy-duty construction of the Sioux Solution Heater features an all-welded 3/16" Angle Iron and 3" Channel Steel frame and stainless steel wetted parts. Paint is baked-on alkyd primer with grey finish coat, free of heavy metals. Heating coil is 1-1/4" O.D., type 304 stainless steel, vertically-mounted, electrically-welded. Connections are flanged for easy maintenance. Type 304 stainless steel socket weld fittings, controls and relief valve. Burner (oil, LP or natural gas) includes flame monitoring safety ignition system. Additional safety features include high temperature limit switch, low flow limit switch, bi-metal thermometer, and stainless steel relief valve.



Options and Accessories

Draft Diverter/Damper Exhaust Assembly—Draft diverter equalizes stack pressure, while damper (motorized) restricts cold air from coming down stack, which may freeze liquid in the heating coil. Motorized version is 115-volt electrically-operated. Stack opening is 12" diameter and the assembly is 48" high. **(NOTE:** When using a motorized draft diverter/damper, each 1,000,000 BTU/hour section requires one draft diverter/damper assembly; 2,000,000 BTU/hour section requires two assemblies; 3,000,000 BTU/hour section requires three assemblies.)

SA00153 Motorized Damper, 115 volt electrically operated.
SA00154 Motorized Draft Diverter/Damper – 115 volt, electrically-operated.

Inlet/Outlet Isolation Valve—Inlet and discharge valves are needed if operator wants to shut off solution flow at an individual unit, for maintenance or repair, instead of shutting down complete system. The discharge valve can also be used for throttling flow.

FT01295 1" ball valve

Rain Cap—Helps keep rain water out of burner. One 12" diameter rain cap required for each 1,000,000 BTU/hour section.

AC00696 Rain Cap

Alternative Electricals—Electrical voltage, frequency or phase other than standard; any voltage is available – consult factory.

Specification Chart

Model	Nominal BTU/Hour (in millions)	Continuous Current, (Amps)			Number of Burner Systems in the complete heater		Number of Solution Connections	Electricals	Approximate Unit Dimensions (L" x W" x H")		Approximate Unit Weight (lbs.)		Approximate Shipping Weight (lbs.)	
		Oil, 115v.	Oil, 230 v.	Gas	Oil	Gas			Oil	Gas	Oil	Gas		
S-1	1M	5.0	2.5	1.0	1	1 (A)	1 (B)	(C)	60 x 37 x 77	60 x 37 x 71	1,000	960	1,030	1,010
S-2	2M	10.00	5.0	1.0	2	2 (A)	2 (B)	(C)	60 x 72 x 77	60 x 72 x 71	1,700	1,800	1,800	1,900
S-3	3M	15.00	7.5	1.0	3	3 (A)	3 (B)	(C)	60 x 104 x 77	60 x 104 x 71	2,500	2,700	2,780	2,960

A. Gas inlet connection is 1-1/2" diameter pipe. B. Inlet water connection is 1-1/2" diameter pipe. C. Standard electricals are 115/1/60 or 230/1/60.

GENERAL INSTALLATION GUIDELINES:

- Oil-fired units:
 - Approximate fuel consumption: 7.3 GPH (at 150 PSI with No. 1 fuel oil) per 1,000,000 BTU/hour burner.
 - Preferred fuel is No. 1 fuel oil or good grade kerosene. No. 2 fuel oil may be used, but may cause coil to become coated with carbon/soot.
- Gas-fired units:
 - Approximate fuel consumption (when fired in accordance with gas pressure requirements) below:
 - Natural gas-fired units: Estimated 1,400 CFH per 1,000,000 BTU/hour burner (reducing fuel consumption will increase efficiency).
 - LP gas-fired units: Estimated 15.58 GPH or 66 lbs./hour per 1,000,000 BTU/hour burner.
 - Gas pressure requirements:
 - Natural gas-fired units: 7-9" water column pressure at burner (0.25 to 0.33 PSI).
 - LP gas-fired units:
 - 11-13" water column pressure at burner (0.40-0.47 PSI).
 - One 1,000-gallon LP fuel tank is required for each 1,000,000 BTU/hour burner.
 - Consult your local gas supplier for capabilities and requirements of your local service.

Note: Units are designed to be operated indoors, above 45°F.

For information, please contact:



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Application Specific Equipment



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