

United Group, Inc. Model AS-990 Aluminum Sweat Furnace

Complete for operation on either natural gas, propane, or #2 fuel oil, including the following features and accessories:

Primary sweating chamber with 78" X 78" contoured hearth.

Power operated, guillotine style primary door with 78" X 36" actual opening.

Power operated, 30" X 36" guillotine door for contaminant rake-out.

Two (2) 1,500,000 BTU velocity-type burners in primary sweating chamber.

Holding chamber for molten metal with 6,000 lb. capacity.

One (1) 1,500,000 BTU velocity-type burner in holding chamber.

Solid-state, automatic temperature controllers for primary and holding chambers.

Special automatic furnace draft control system.

Thermal afterburner equipped with one (1) 1,500,000 BTUH burner.

Factory piped and wired with prewired control cabinet.

Four (4) four foot refractory-lined stack sections with outside diameter of 36", providing an installed stack height of 32' above grade.

One (1) 6' X 6' loading table on V-groove wheels.

Six (6) 1,000 lb. molds on V-groove wheels.

Two (2) cast iron drain plugs with tee handle wrench.

Forty-eight (48) high temperature tapping cones.

One (1) cast iron sample button mold.

One (1) set of safety apparel to be worn while pouring molten metal.

Shipping weight approximately 80,000 lbs.

Price includes the following services provided by United Group, Inc. personnel:

1. Preparation of construction and operation permit applications for state air pollution control authorities.
2. Factory personnel provided for start-up, field testing, refractory curing and operational instruction.

Prices and specifications subject to change without notice.

AS-990

The AS-990 is considered the work horse of the industry, and offers more features and productivity for the price than any other furnace. The AS-990 requires a lot of material to keep it busy, and it will need 2 men to operate the furnace to its full potential. It is standard with 6000 lbs. of holding capacity; however, due to its faster melt rate, it is also available with 8000 lbs., 10,000 lbs., and 12,000 lbs. holding capacity.

BURNERS: The AS-990 uses two (2) 1,500,000 BTU/HR burners in the primary sweat chamber, and one (1) 1,500,000 BTU/HR burner in the holding chamber, and one (1) 1,500,000 BTU/HR burner in the afterburner. All burners have electronic flame safety, and are the individual packaged type, each with its own blower.

There are three (3) indicating temperature controller in the primary chamber, one in the holder, and one in the afterburner.

PRODUCTION: The furnace comes with six (6) 1000 lb. sow molds as standard equipment. Typical production figures for the AS-990 when running different materials is given below:

Transmissions 25% recovery	15,000 lbs. input/shift
Breakage 50% recovery	16,000 lbs. input/shift
Irony Aluminum 65% recovery	17,000 lbs. input/shift
Clean Aluminum 90% recovery	18,000 lbs. input/shift

NOTE: Production figures are only as good as the operator efficiency, and can vary from one operator to another. The stated production estimates are not guaranteed inputs, but are averaged rates given by customers currently operating this unit. Production will be enhanced by charging clean metal into the holding chamber.

FUEL CONSUMPTION: The maximum burner input capacity is 6,000,000 BTU/HR. The average hourly usage is estimated at 4,200,000 BTU/HR. To translate this into various fuels:

(1) Natural gas @ 1000 BTU per cubic foot.

$$\frac{4,200,000 \text{ BTU/HR}}{1,000 \text{ BTU/CF}} = 4200 \text{ CFM}$$

(2) Propane (LP) @ 90,000 BTU per gallon.

$$\frac{4,200,000 \text{ BTU/HR}}{90,000 \text{ BTU/Gal}} = 46.67 \text{ GPH}$$

(3) #2 Fuel Oil @ 140,000 BTU per gallon.

$$\frac{4,200,000 \text{ BTU/HR}}{140,000 \text{ BTU/Gal}} = 30 \text{ GPH}$$

FUEL COST: To determine the hourly cost of operation, we must know the cost of the fuel being used, and the number of hours of operation per day. The AS-990 aluminum sweat furnaces are figured as follows:

One shift = 10 hours average fuel consumption for 8 hours operation.

Two shifts = 18 hours average fuel consumption for 16 hours operation.

Three shifts = 24 hours average fuel consumption for 24 hours operation.

Example: AS-990 furnace operating 8 hours per day on natural gas:

$$4200 \text{ CFH} \times 10 = 42,000 \text{ CF/Day gas use.}$$

Customer pays \$4.50 per MCF for gas

$$\frac{42,000 \text{ CF/Day}}{1,000} = 42 \text{ MCF/Day}$$

$$42 \text{ MCF/Day} \times \$4.50 \text{ MCF/Gas} = \underline{\underline{\$189.00 \text{ per Day/Gas}}}$$

UTILITIES: Following is the electrical and fuel services required for hooking up the AS-990 furnace, depending on the fuel and power available:

Natural Gas = 6500 CFH @ 5 PSIG
Propane Gas = 2600 CFH @ 5 PSIG
#2 Fuel Oil = 46 GPH @ 5 PSIG

Electrical = 230 / 3 / 60 - 50 Amp circuits
= 460 / 3 / 60 - 25 Amp circuits