SNIF™ SHEER R-140HB, P-140HB, P-140i

ALUMINIUM REFINING SYSTEM

SNIF SHEER P-140HB System with optional cover lifter, in maintenance position.

SNIF™ SHEER R-140HB and P-140 Double Nozzle Systems provide a nominal continuous refining rate of 140,000 lbs (63,500 kg) per hour. The system consists of a refining furnace, two (2) SNIF SHEER spinning nozzles, and PLC automated process and furnace heating controls.

R-140HB and P-140 furnaces are divided into two separate and distinct refining chambers, each equipped with a spinning nozzle mounted to the furnace cover. Each chamber is designed to permit optimum process gas bubble saturation throughout the melt to maximize spinning nozzle refining efficiency. An internal baffling system controls the flow of metal, ensuring efficient refining of the molten aluminium as it flows through the refining furnace.

Standard inlet and outlet connections are located on the same end of the furnace, minimizing trough revisions. An optional four port R-140/4HB or P-140/4HB furnace is available that can be installed in-line; in a "U-turn" configuration that reverses metal flow; or in an "L" configuration that changes the metal flow direction by 90 degrees.

"Trough airlocks" installed in the inlet and outlet ports allow metal to flow freely in or out of the furnace, but prevent air infiltration, a cause of excessive dross formation. Technical information describing the advantages of using trough airlocks in SNIF systems is available upon request.

A tap-out drain is provided to empty the furnace for alloy changes or extensive cleaning. A tilting furnace is available as an option.
The SNIF furnace features a self contained hydraulic cover lifter that raises the top to expose the entire surface of the bath for cleaning and servicing. In the closed position, the cover provides an excellent perimeter seal that prevents air infiltration and excess dross generation.

SNIF R-140HB FURNACE
The R-140HB is a specially designed refractory-lined refining furnace. Three furnace walls are constructed of an inner layer of poured-in-place cast refractory and multiple layers of insulating boards. The fourth wall of the furnace contains a graphite heater block with removable electric heating elements. This internal heating system provides continuous temperature control of the metal in the refining furnace.

SNIF P-140HB FURNACE
The P-140HB furnace is identical to the R-140 except that it has a refractory lining cartridge that can be quickly and easily replaced. When the furnace refractory needs to be changed, the old cartridge is simply lifted out and replaced with a new one. The cartridge can be replaced in one or two days, possibly without removing the steel shell from the casting line. The system can be returned to service after a 30-hour pre-heat.

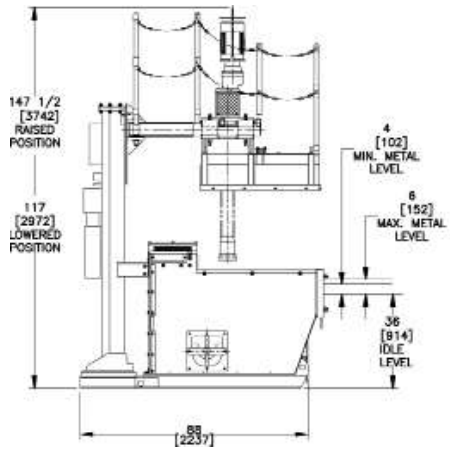
The lining cartridge consists of a dense, hot-face refractory and multiple insulation layers. All refractory is non-wetting and pre-cured. The cartridge is enclosed in foil to prevent moisture absorption while in storage and to minimize contact with the insulation during handling. The cartridge contains a graphite block heating system with removable elements.

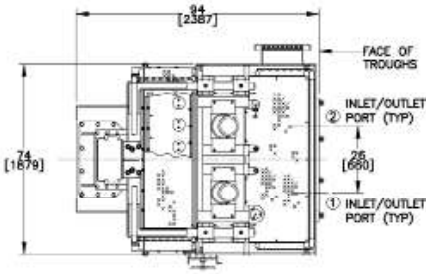
SNIF P-140i (IMMERSION HEATED) FURNACE
The P-140i furnace is similar to the P-140HB system except two (2) ceramic immersion heaters are suspended from the cover (1 installed in each chamber) in place of the graphite heater block.

OPTIONS
R-140HB and P-140HB furnaces can be ordered with the following options:

- 4 port furnace for installation flexibility in the casting pit.
- Hydraulic tilting system to empty the furnace between casts for cleaning or alloy changes.
- Swivel mast that both lifts and rotates the cover.
- Customized controls.

SNIF™ installation dimensions in AutoCAD format are available upon request.





TOTAL ELECTRICAL LOAD (MAXIMUM)*

P-140i (immersion heater)	50 kW – 3 Phase
P-140HB (heater block)	45 kW – 3 Phase
Cover Lifter	2 kW – 3 Phase
* Primary voltage per customer requirements. Refer to installation drawings for electrical interconnection specifications for the equipment provided.	

GAS SUPPLY REQUIREMENTS	ENGLISH	METRIC
Process Gas (Argon recommended)	600 scfh at 70–90 psig (max.)	15.8 Nm^3/hr at 4.9-6.3 kg/cm^2 (max.)
Heater Block Purge Gas (R-140HB and P-140HB only)		
• Argon (recommended)	30 scfh at 50 psig (max.)	0.8 Nm^3/hr at 3.5 kg/cm^2 (max.)
• Nitrogen (alternate)	60 scfh at 50 psig (max.)	1.6 Nm^3/hr at 3.5 kg/cm^2 (max.)
Cover Lift Mast (Plant Air)	60 to 90 psig	4.2 to 6.3 kg/cm^2
Chlorine, if required	30 scfh at 30 psig (max.)	0.8 Nm^3/hr at 2.1 kg/cm^2 (max.)
scfh = standard cubic feet/hour (70°F, 14.696 psia) Nm^3/hr - normal cubic meter/hour (0°C, 1.01325 bar, abs.)		1 Nm^3/hr = 38.0 scfh 1 kg/cm^2 = 14.2 psi

GENERAL SPECIFICATIONS

Refining furnace capability, nominal	140,000 lb/hr	63,500 kg/hr
Furnace power rating		
P-140i (immersion)	40 kW	40 kW
P-140HB (heater block)	36 kW	36 kW
Furnace static capacity		
P-140i (immersion)	3,300 lb	1,500 kg
P-140HB (heater block)	3,100 lb	1,430 kg
Cover lift assembly weight	2,300 lb	1,050 kg
Estimated furnace assembly weight including cover, static metal capacity, cover lift assembly, and spinning nozzle	20,100 lb	8,890 kg

Note: The physical and chemical properties listed represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice.

Product Type: 118

Commodity Code: 16004