

Ferrous Melting Systems

Steel Shell Furnaces (SSF)

The Steel Shell furnace is designed to handle the toughest of foundry environments. With its rolled steel shell, heavy-duty shunts and machined termination blocks, the Pillar Steel Shell furnace can withstand many years of punishment. The construction of the Steel Shell furnace addresses all safety concerns and provides total maintenance accessibility.



MK-17 Power Supply



Steel Shell Furnace

Melting System Specifications:

Power Supply: Pillar MK-17
Power Range: 1,250 kW - 3,000 kW
Furnace Capacity: 4,400 lbs - 13,200 lbs

System Includes:

- MK-17 Power Supply with Furnace Selector Contactors
- (2) Steel Shell Furnaces
- Bus Bar
- Lead Adaptors
- Water Cooled Power Leads
- Hydraulic Power Supply
- Hydraulic Valve Station

Options:

- Manually Operated Furnace Lids
- Fume Collection Ring
- Isolation Water Cooling System
- Furnace Weighing Systems Available on 2,000 lb and Larger Furnaces
- Closed Pressurized Water Cooling System (Single and Dual Pump)
- Cooling System available with dry or evaporative cooler
- Melt Monitoring Systems
- Melt-Dek – Prefabricated enclosure and operating platform for the melt system

SX System #	MK-17 Power Supply Rating	Frequency Rating	Steel Shell Furnace (SSF) Size	Cooling System Type	Melt Time Steel at 3,000°F*	Melt Time Iron at 2,700°F*
14	1,250 kW	300 Hz	4,400 lb (2,000 Kg) SSF	Single Pump with Evap Cooler or Dual Pump with Evap Cooler or Dual Pump Station with Dry Cooler	48 minutes	42 minutes
15	1,500 kW	300 Hz	6,600 lb (3,000 Kg) SSF		60 minutes	53 minutes
16	2,000 kW	300 Hz	8,800 lb (4,000 Kg) SSF		60 minutes	52 minutes
17	2,500 kW	300 Hz	11,000 lb (5,000 Kg) SSF		60 minutes	52 minutes
18	3,000 kW	300 Hz	13,200 lb (6,000 Kg) SSF		61 minutes	52 minutes

* Based on nominal furnace size for a second heat utilizing a lid or blanket and a rammed lining with a 10% heel, when lining is hot, charge is dense and bus lead runs proper.

Ferrous Melting Systems

SX-14
SX-15
SX-16
SX-17
SX-18

Steel Shell Furnaces (SSF) — MK-17 Power Supply



- Single control board
- Capacitor bank
- Indicator lights
- Diagnostic indicator board
- Protective thermal switches
- Differential water pressure switch
- Current leakage detector
- Temperature control interface module
- High frequency capacitance to match induction coil
- Top or bottom output bus bar connection available

MK-17 Power Supply

- Fused disconnect switch
- kW, frequency, voltage & leakage current meters
- "ON" & "OFF/RESET" pushbuttons



Steel Shell Furnaces (SSF)

- Rolled steel shell with access ports
- Tubular steel column type stanchions
- Fully captive electromagnetic flux containment system
- Refractory lined furnace lid
- Individual lift and swing hydraulic cylinders for the lid
- High efficiency induction coil
- Upper & lower refractory cooling coils
- Dual hydraulic tilt cylinders
- Hydraulic flow control valves
- Precast solid refractory bottom
- Sectioned precast top insulation ring
- Leak detector probes
- Emergency hoist connection point
- Full coil leak detection system
- Closed captive hood (optional)
- Back tilt (optional)



Hydraulic Power Supply

- Pump, motor, manual motor starter, start/stop buttons, reservoir & filter
- Use of a water/glycol based fluid or suitable synthetic fluid required



Bus Bar

- (2) sets of high efficiency electrical grade copper bus bar for interconnection between power supply & water cooled leads

Ancillary Equipment



Isolation Water Cooling System (ICER)

- Water to Water heat exchanger
- Closed & Pressurized Power Supply Cooling
- Air elimination system
- Expansion tank
- Structural steel frame
- Pump with motor
- Requires customer supplied water source

Closed Pressure Water Cooling System – Single Pump (Dual also available)

- Pump Station with Dry Cooler
- Closed & Pressurized System Cooling
- Air elimination system
- Expansion tank
- Structural steel frame
- Pump with motor
- Internal piping & wiring included
- Electrical & temperature control panel with alarm circuit
- Dry Cooler (liquid to air) complete with fans, coils and enclosure for outdoor mounting
- Automatic pump switchover to standby pump (Dual Pump Station Only)



Dry Cooler

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