

# ELECTRIC RESISTANCE BALE OUT FURNACE MK V HE

✓ **IMPROVES THE THERMAL EFFICIENCY OF THE MELTING PROCESS**

✓ **ACCURATE METAL TEMPERATURE THROUGH AUTOMATIC, PROPORTIONAL, INTEGRAL & DERIVATIVE CONTROL**



The Morgan type HE furnace is constructed using the most efficient low thermal mass materials for the lining and provides the maximum economy in energy costs. The swing-aside cover comes as standard.

▲ Morgan's Electric Resistance Bale Out Furnace.

## FURNACE DESCRIPTION

Superb insulation allows for excellent melting performance at high power efficiencies, consistent with long element panel life. Radiation losses are minimised by use of a well insulated locking swing-aside cover that can be sealed when no baling is needed.

## IMPROVED TEMPERATURE CONTROL

The setting of control points provides maximum accuracy of metal temperature whether melting from cold or holding.

## ENHANCED POWER MANAGEMENT

This feature, when selected by the panel mounted switch, reduces output power by 50% at a preset temperature below the normal operating value.

Output power is therefore limited to half power during holding. Should the temperature fall outside an acceptable limit, for instance due to cold metal addition, full power is re-established to provide rapid recovery. Half and full power switch positions are also provided.

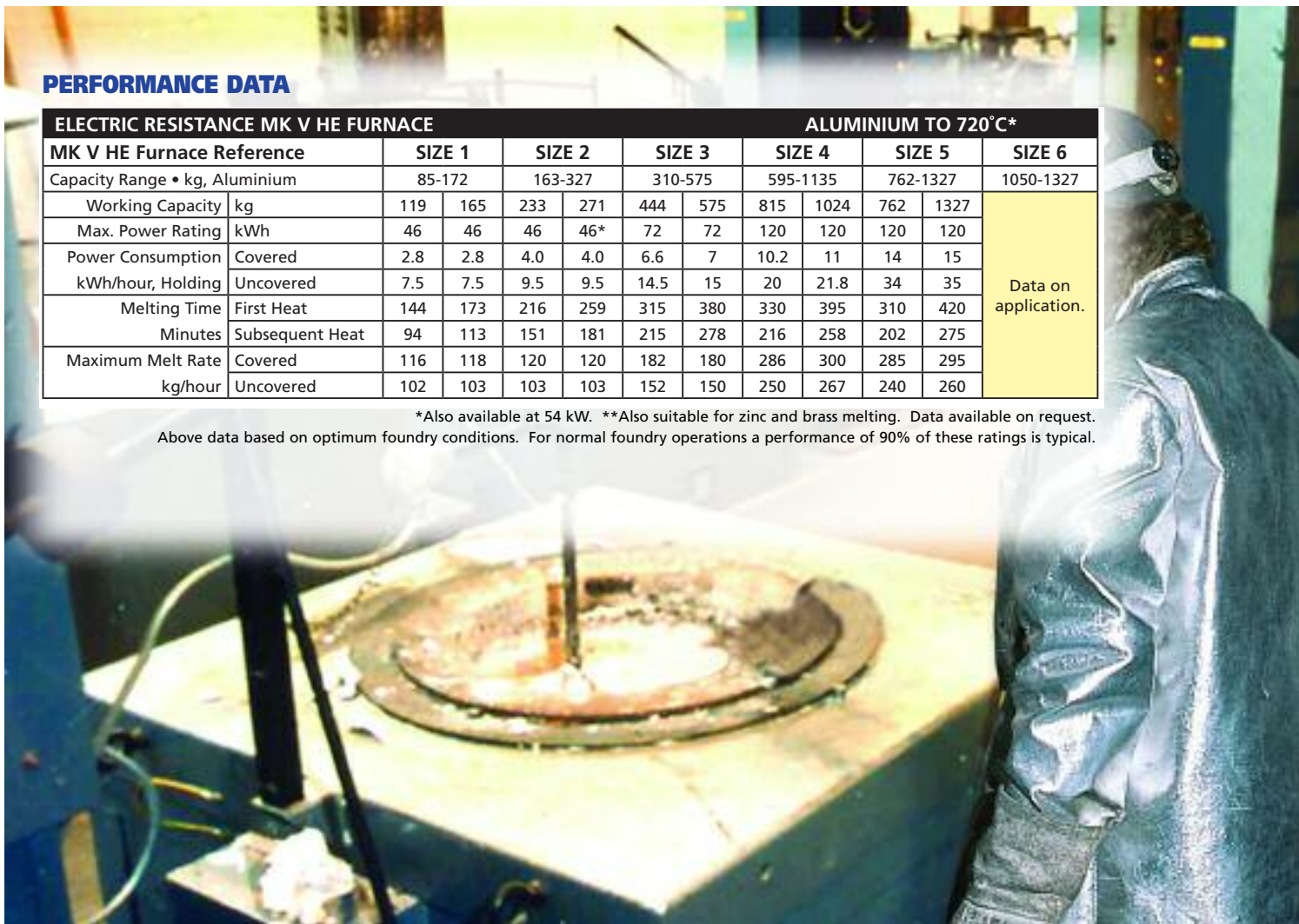
## SIZE RANGE

The Morgan Electric Resistance Bale-Out Furnace Type HE Mk V is available in the size range 85–1327 kg aluminium. High temperature versions available up to 1050°C with capacities 260–1400 kg brass.

## PERFORMANCE DATA

ELECTRIC RESISTANCE MK V HE FURNACE		ALUMINIUM TO 720°C*										
MK V HE Furnace Reference		SIZE 1		SIZE 2		SIZE 3		SIZE 4		SIZE 5		SIZE 6
Capacity Range • kg, Aluminium		85-172		163-327		310-575		595-1135		762-1327		1050-1327
Working Capacity	kg	119	165	233	271	444	575	815	1024	762	1327	Data on application.
Max. Power Rating	kWh	46	46	46	46*	72	72	120	120	120	120	
Power Consumption	Covered	2.8	2.8	4.0	4.0	6.6	7	10.2	11	14	15	
	kWh/hour, Holding	Uncovered	7.5	7.5	9.5	9.5	14.5	15	20	21.8	34	
Melting Time	First Heat	144	173	216	259	315	380	330	395	310	420	
	Minutes	Subsequent Heat	94	113	151	181	215	278	216	258	202	
Maximum Melt Rate	Covered	116	118	120	120	182	180	286	300	285	295	
	kg/hour	Uncovered	102	103	103	103	152	150	250	267	240	

\*Also available at 54 kW. \*\*Also suitable for zinc and brass melting. Data available on request. Above data based on optimum foundry conditions. For normal foundry operations a performance of 90% of these ratings is typical.



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## KEY FEATURES

### HEATER ASSEMBLIES

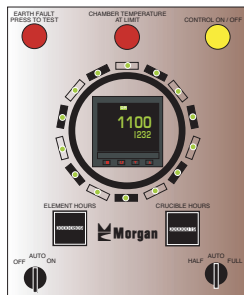
Twelve refractory heater panels are arranged around the crucible and extend to the full depth of the furnace chamber. Typical power loadings of only 3-4 watts/sq cm ensure long life, while the self-supporting design facilitates ease of removal. Multi-strand element tails and cool stud terminals enable element changes to be made in less than 10 minutes without removing the crucible.

### CONTROL PANEL

- Circuit breaker for isolation and protection
- Earth leakage detection for operational safety and personnel protection
- Crucible and heater hour meters
- Programmable time clock switching
- Mimic display for rapid diagnostics

The furnace heaters are depicted on a diagram and ultra bright LEDs are lit when any electric panel is drawing the required current. Metal temperature control may be either from a floating or fixed pyrometer.

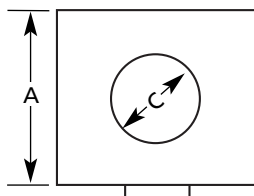
The programmable controller will maintain the metal temperature within very close limits by automatic adjustment to heat input, whether melting or holding. The digital display shows both the required and current metal temperature.



### TEMPERATURE DEPRESSION

This energy conservation feature enables a lower holding temperature to be automatically selected during periods of non use.

A dedicated real-time/date clock can be programmed to select reduced temperature and to return to operational temperature when required. Similarly, the real-time clock can be programmed to start up and shut down the furnace at preset times and dates.



### OUTPUT LIMITED

#### THERMOCOUPLE FAILURE PROTECTION

If the thermocouple sensor fails, this feature provides a programmed level of output power. Typically set to 10-30%, the time proportioning power control provides sufficient heat output power to maintain an aluminium charge within an acceptable temperature range.

### IMPROVED TOP COVER INSULATION

The addition of a microporous insulation with exceptional insulating properties to the furnace cover reduces surface temperature, thereby improving working conditions, heat loss and safety.

### POLICEMAN CONTROL

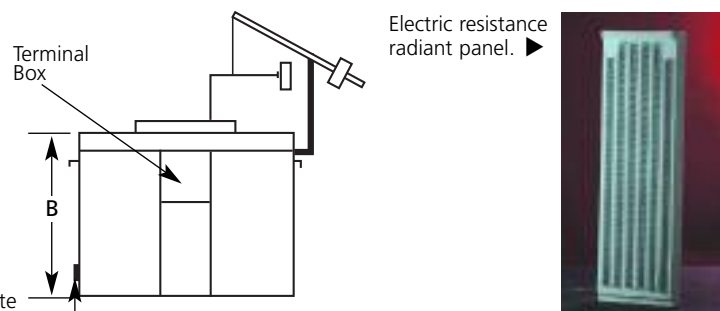
The furnace is equipped with a "policeman" control. This feature trips out the power to the element panels above a set temperature ensuring that under no circumstances will they over-heat, thus preventing reduction in their life span.

### PYROMETRY

A variety of metal temperature pyrometry can be specified. This includes floating or fixed immersion types and thermocouples housed within the crucible for holding applications.

### OPTIONS AVAILABLE

Spilt metal detection, low metal temperature alarm, in-range indicating beacons, thyristor power control, pneumatic swing-aside cover, metal temperature overshoot control and kilowatt hour meter



## SPECIFICATIONS

\*increased furnace height.

	SIZE 1 Capacity Range kg AL 85-172		SIZE 2 Capacity Range kg AL 163-327		SIZE 3 Capacity Range kg AL 310-575		SIZE 4 Capacity Range kg AL 595-1135		SIZE 5 Capacity Range kg AL 760-1300		SIZE 6 Capacity Range kg AL 1043-1327	
	Pattern	kg	Pattern	kg	Pattern	kg	Pattern	kg	Pattern	kg	Pattern	kg
<b>CAPACITY BY CRUCIBLE</b>	BX166/BU100	85	BX202/BU210	163	BX1264	310	BX850	595	52100-30	760	60760	1043
	BX167/BU125	103	BX302/BU250	233	BX847/BN500	441	BX851	815	52100-33	860	60813	1100
	BX168/BU150	119	BX401/BU300	271	BX247/BU500	444	BX852/BN1100	1024	52100-37	1100	60990	1327
	BX169/BU175	144							52770-46	1300		
	BX171/BU200	165	BX402/BU350*	327	BX263/BU600*	575	BX853*	1135				
	BX177/BU202	172										
<b>FURNACE DIMENSIONS (mm)</b>	<b>A</b>	1190	1190		1420		1516		1651		1830	
	<b>B</b>	900	900	980*	1130	1270*	1330	1520*	1125	1395	1125	1372
	<b>C</b>	433	510		660		735		864		915	
<b>SHIPPING (approximate)</b>												
<b>NETT WEIGHT</b>	<b>kg</b>	900	900		1300		2500		Available upon request.		Available upon request.	
<b>GROSS WEIGHT</b>	<b>kg</b>	1100	1100		1500		2750					
<b>VOLUME</b>	<b>m<sup>3</sup></b>	3.70	3.70		5.35		10.00					



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