



## MORGAN MKV ELECTRICALLY HEATED TRANSPORT LADLE

### LADLE DESCRIPTION

The Morgan Electrically Heated Transport Ladles are designed to safely maintain and transport aluminium alloys at working temperature.

The selected versions can be moved and dispensed by either a crane or a fork lift truck with a rotating fixture.

The ladles have been designed to have a high level of thermal efficiency, hence keeping energy costs low.

Radiation losses from the metal surface are minimised through the use of a well insulated, swing aside cover that can cover the ladle liner when no charging or metal treatment is occurring.

The advanced insulation materials used in the furnace lining also result in low casing temperatures, providing comfortable working conditions.

### BENEFITS

#### Minimises Oxide Formation

Using the ladle to transfer metal from a melting furnace to holding furnaces avoids a need to superheat the metal to account for loss in transportation. The lower operating temperatures reduce the formation of oxides, inclusions, metal loss and gas pick up. Energy is also saved by the avoidance of superheating.

#### Synchronises Production Processes

The Electric Ladle is an efficient, reliable holding vessel that holds buffer liquid metal to avoid production delays involved through lack of synchronisation of the melting and casting processes.

#### Facilitates Metal Treatment

The Electric Ladle allows for efficient metal treatment or filtration to be incorporated into the transfer process.

#### Ready To Use

The Electric Ladle comes supplied with the appropriate ladle liner and stand, factory fitted.

### HEATER ASSEMBLIES

Six high alumina electric resistance heater panels surround the ladle liner and generally extend to the full depth of the heated chamber. The self-supporting and interlocking design provides easy removal, should a panel require changing.

### HIGH EFFICIENCY

The combination of semi-embedded heater panels optimising radiant heat transfer and the use of advanced insulating materials, produces a ladle of high efficiency with comfortable working conditions.



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MOLTEN METAL PRODUCTS



### SIZE RANGE

Morgan Electrically Heated Transport Ladles are available in seven sizes, ranging from 150kg to 700kg of aluminium. Connected power ranges from 21kW through to 36kW. However, higher powered units with 12 heaters are also available, where a melting capability is required.

### ELECTRICITY SUPPLY

The furnace is available for operation with a range of 3 phase voltages, with or without a Neutral.

Supply : 400/415/480v 3 Phase 50/60hz.

- Little or No Temperature Drop During Transport
- Energy Efficient
- Fork Lift or Crane Bewel
- Good Ladle Liner Life

EL 01/12. MMP reserve the right to change specs. at any time and are not responsible for typographical errors



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## MORGAN MKV ELECTRICALLY HEATED TRANSPORT LADLE

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## KEY FEATURES

### ADVANCED DESIGN

The Morgan Electrically Heated Transport Ladle is compact, of robust design and with the exception of the control panel, has no separate stand-alone components. High reliability is obtained by the use of high quality components and well proven semi-embedded heater panel.

### HEATER PANELS

The standard ladle has six, semi-embedded, FeCrAl wire heaters surrounding the ladle liner. Designed with low surface watt loadings and freely radiating coils, the heaters give excellent life. Should a panel fail, it can easily be changed and, if absolutely necessary, in a hot condition without metal removal.

### CONTROL PANEL

A modern high quality control panel provides the following features:

- Protective circuit breaker, door interlocked
- Heavy duty contactor or Thyristor power control\*
- Personnel protection RCD
- Visual and Audible alarm system
- Programmable time clock
- Fully proportional digital temperature controller
- Policeman lining protection pyrometry
- Heater operation LED display

\* Optional at extra cost

### METAL TEMPERATURE CONTROL

The temperature can be sensed from a fixed or a ladle liner pyrometer. The dual display programmable digital controller maintains close control by regulating the power input to the heaters, relative to actual metal temperature and set value.



### PLUGS AND SOCKETS

Power and control to the ladle are connected through specially designed, heavy duty plugs and sockets, that ensure 'off load' connection and disconnection.

A reel back system returns the sockets and umbilical, to a safe position to avoid damage during the moving process.

Interlocks are fitted to give an alarm in the event of movements without disconnection, failure to plug in correctly and if metal enters the ladle heater chamber.

### OUTPUT THERMOCOUPLE FAILURE PROTECTION

Should the metal thermocouple fail, the feature provides a programmed level of output power rather than switch the ladle off. Typically set to 30% of the connected power, it is sufficient to keep the metal within acceptable temperature range until exchange can be facilitated.

### POLICEMAN CONTROL

The furnace is equipped with a 'policeman' control system which is designed to prevent overheating of refractories, heater panels and ladle liner, thus avoiding a reduction in life span.

### PYROMETRY

Two types of metal temperature pyrometry can be specified - metal immersion types for the most accurate control or general purpose control with sensors housed within the ladle liner itself.

### OPTIONAL FEATURES

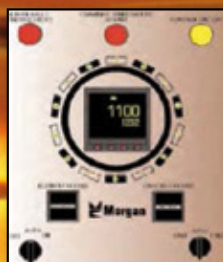
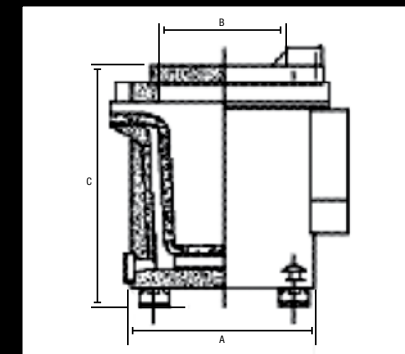
- 'In range' temperature beacons
- Low temperature alarm
- Mimic display
- Crucible and heater hour meters
- Kwh. meter
- Thyristor power control
- Higher powered melting version
- Metal temperature overshoot control

#### PERFORMANCE DATA

	EL150	EL200	EL250	EL300	EL500	EL600	EL700
Maximum power consumption. kW	21	21	21	21	36	36	36
Nominal aluminium capacity Kg.	150	200	250	300	500	600	700
Holding consumption at 720c. kWh (cover closed)	5	5.5	5.5	5.5	7.5	8	8.5

#### SPECIFICATIONS

	EL150	EL200	EL250	EL300	EL500	EL600	EL700
Ladle Dimensions mm	A	1020	1020	1020	1260	1350	1380
	B	450	450	450	450	600	750
	C	770	980	1060	1100	1260	1250
Liner	LX761E	LX760E	LX757E	TPX412E	TPX587E	TPX1600E	TPX1800E
Shipping Net Weight Kg	750	800	850	1000	1500	1600	1700
Gross Weight Kg	900	1000	1050	1250	1750	1850	1950
Volume M3	2.6	2.7	3	3.4	3.6	4.1	5.2



Controls with optional mimic display and hour meters



Electrical Resistance Radiant Panel

Data based on optimum foundry conditions and practices. For typical foundry operations a performance factor of 90% of performance ratings should be assumed. Data for zinc alloys available on request.