MMP
MOLTEN METAL PRODUCTS

MORGAN MKV
GAS OR OIL TILTING FURNACE

FURNACE DESCRIPTION

The MK V Gas/Oil Fired Lip Axis Pouring Basin Tilting Furnace provides economy in energy costs, over comparable brick lined furnaces through the use of radiant panel technology and efficient low thermal mass materials in the lining.

The exhaust over the crucible options (SP) are available which further enhances the melting efficiency through charge recuperation.

The conventional side exhaust model limits radiation losses from the metal by the use of a well insulated swing aside cover that can cover the crucible when no charging is required, thus improving efficiency, particularly whilst holding.

The radiant panels and lining give excellent melting performance from the compact gas or oil burner. The gas burner is arranged to tilt with the furnace and therefore can continue firing during the pouring cycle if required. Oil burners however remain static when the furnace is pouring.

The insulation materials used in the furnace lining result in low casing temperatures and provide comfortable and safe working conditions.

RADIANT PANEL ASSEMBLIES

High alumina radiant panels surround the crucible and generally extend to the full depth of the furnace chamber. The self-supporting and interlocking design provides easy removal, should a panel require changing.

These panels efficiently convert gas energy into radiant energy.

CONSTRUCTION

The furnace is constructed from heavy duty steel plate and sections to provide a robust tilting furnace suited to foundry applications.

The body is tilted at the pouring lip axis, by twin hydraulic cylinders using non-flammable fluid. Optionally, the furnace can be supplied with a charging platform.

SIZE RANGE

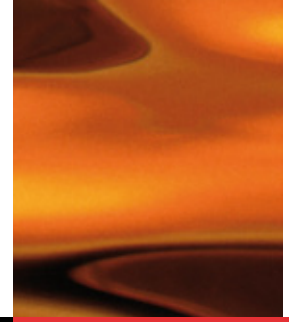
The MK V Gas/Oil Fired Basin Tilting Furnace is available in the size range 213kg - 1500kg aluminium. Differing crucible types / patterns to those shown in the table and for other metals/ alloys, are also available.

FUEL TYPES

The furnace is available for the following gaseous fuels:

Natural Gas:	9000 kcals/M³
Propane:	22000 kcals/M³
Butane:	28000 kcals/M³
Dynamic Pressure:	20 - 35mbar
Note:	Pressures higher than 35mbar will require additional regulation
Electrical Supply:	**400/415v/480v 3 Phase 50/60hz**

- Efficient • Good Crucible Life
- Low Noise Levels • Low Casing Temperatures



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KEY **FEATURES**

ADVANCED DESIGN
The MK V Basin Tilting Furnace is compact, of robust design and comes complete with control panel, interconnecting cables, hydraulic power pack and tilt controls. The furnace is available with burners and linings to suit the melting of metals from zinc through to copper base alloys.

BURNERS
The furnace is equipped with high performance nozzle mix burners. With gas firing the burner tilts with the furnace and has fully modulating temperature control. Oil burners, which remain static during tilting, are direct spark ignited and have high low temperature control. Controls and safeguards conform to European safety standard EN746 and other world standards.

EXHAUST
The furnace is equipped with a side exhaust and an extension which can be attached to the furnace body or on a swing aside assembly option.

CONTROL PANEL
A modern high quality control panel provides the following features:
- Protective circuit breaker, door interlocked.
- Fully approved, flame failure controller
- Programmable time clock
- Fully proportional digital temperature controller
- Policeman lining protection pyrometry
- Crucible and burner operational hour meters
- Gas burner operation display
- Hydraulic pump stop/start controls

HYDRAULIC TILTING
The furnace is tilted at its lip axis by twin enclosed hydraulic cylinders. The tilt speed is preset and is actuated by a manual control lever mounted to the furnace tilting frame. Optional push button controls can be specified. Pressure is supplied from a free - standing hydraulic power pack, ready filled with water glycol and non-flammable fluid. The cylinders are fitted with flow checks to control the descent speed, even in the event of pipe or hose failure.

OUTPUT THERMOCOUPLE FAILURE PROTECTION
If the metal thermocouple fails, the feature provides a programmed level of output power, rather than switch the furnace off. Typically set to 10% the proportioned burner power is sufficient to keep the metal within acceptable temperature range until exchange can facilitated.

This standard feature is not used on the high temperature versions.

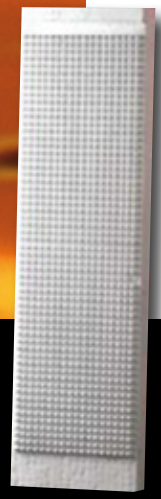
POLICEMAN CONTROL
The furnace is equipped with a 'policeman' control system which is designed to prevent overheating of refractories, radiant panels and crucible, thus avoiding a reduction in life span. Again, this feature is not needed or used on the high temperature version.

PYROMETRY
A variety of metal temperature pyrometry can be specified.

This includes floating or fixed immersion types and for holding applications, crucible wall or pocket versions.

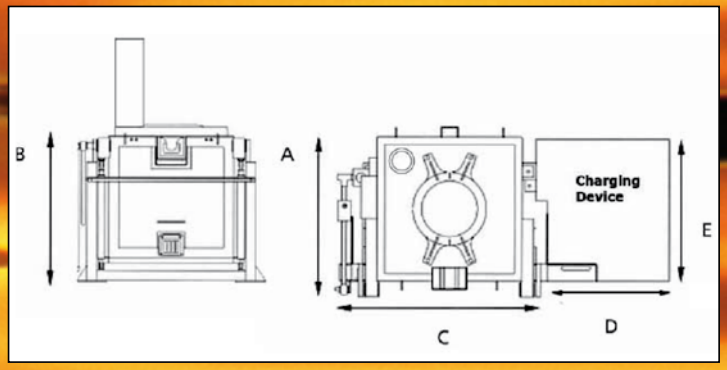
METAL TEMPERATURE CONTROL
The temperature can be sensed from a fixed or, optionally, a floating pyrometer. The dual display programmable digital controller maintains close control by regulating the heat input to the burner, relative to actual metal temperature and set value. On high temperature versions, a dip sampling system is used.

Control Panel


Radiant Panel

MkV GAS FIRED BASIN TILTING FURNACE		TYPE SP.	AIR TEMP. 20C .	ALUMINIUM TO 720c				
Furnace Size Reference		BT 500	BT 700	BT 1300	BT 1500	BT 1700	BT 1800	BT 3300
Capacity Kg Aluminium		213	315	550	600	700	930	1500
Power	kWh	260	280	454	460	470	480	650
Consumption Subsequent Heat	kWh	260	372	635	720	840	1115	1800
Melt Time (Mins)	1st Heat	80	105	115	130	150	190	225
	Subsequent Heats	60	80	84	93	107	140	166
Gas requirement @20 - 35mBar M³/Hour		26	28	46	46	47	48	65
Specific energy consumption, subsequent heats, 0.9kWh/kg. *Variances subject to crucible pattern.								

For side exhaust versions use a factor of 1.25. 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



Model		BT500	BT700	BT1300	BT1500	BT1700	BT1800	BT3300
Crucible		TBN387	TBN412	TBN587	TBN690	TBN750	TBN1100	BU1800ALU
Capacity Kg Al.		213	315	550	600	700	930	1500
Furnace Dimensions (mm)	A	1480	1480	1780	1780	1815	1815	2100
	B	1560	1560	1630	1630	1850	1850	2250
	C	2310	2310	2500	2500	2500	2500	3000
	D	1370	1370	1410	1410	1650	1650	1800
	E	1460	1460	1460	1460	1460	1460	2000
Shipping (approx) Net Weight Kg		3500	3800	4200	4200	4500	4500	8000
Gross Weight Kg		3700	4000	4500	4500	4800	4800	8500
Volume M3		5.4	5.5	7.3	7.3	8	8	15

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