

M 028 / M248

Industrial investment powder

M series Industrial Investments are gypsum plaster bonded investment powders and have been formulated specifically for the lost wax block mould process for casting Aluminium and other non-ferrous metals.

The BLOCK MOULD process used with Industrial Investment is NOT THE SAME as the CERAMIC SHELL process. The different processes are used depending on the requirements of the cast part. Most lost wax foundries casting Aluminium use the ceramic shell process. The wax assembly is repeatedly dipped in a ceramic slurry until a shell is built up around the waxes - depending on the part this can take many hours, the Ceramic shell process is also more expensive to set up. Industrial Investment is a Block Mould material and has the following advantages over shell:

Advantages:

- With Industrial Investment it is easier to cast intricate thin walled castings which are impossible to produce by other casting methods
- There is no need for any ceramic cores because plaster forms its own core during the investing process
- Industrial Investment promotes slow cooling and uniformity of structure and mechanical properties
- Industrial Investment gives a better surface finish than shell
- Industrial Investment gives a close dimensional accuracy and tighter tolerances
- It is easier to break out than shell casting, particularly with delicate parts

Industrial Investment is used in the Block Mould process where the wax assembly is set up in a Steel box and then invested to create a "Block" mould. Industrial Investment can only be used for casting non-ferrous metals because the gypsum plaster mould cannot be raised over 750°C. The Block Mould process is used mainly when the shell process cannot be used i.e. for very thin or intricate parts which cannot be shelled or for parts where the metal properties are improved by the slow uniform cooling. Block Moulds are softer than shell moulds after casting and so more useful for fragile parts which are easily damaged when cleaning off the investment. Industrial Investments contain coarser particles than jewellery investment and can be used for moulds as large as 500kgs. Industrial Investments are used for a wide variety of parts including aerospace, defence, telecommunication and satellite applications. Industrial Investments are particularly effective for wave guides with thin walls and close dimensional tolerances. Industrial Investments are also widely used in rapid prototype applications where the model is made from an SLA or SLS part.

Mixing Instructions

Machine Vacuum Mixing Time	[min]
Weigh out water and powder	0
Add powder to water	0
Mix under vacuum	4
Pour into flasks	2
Vacuum Flasks	2
Total time taken	8

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Technical Information:

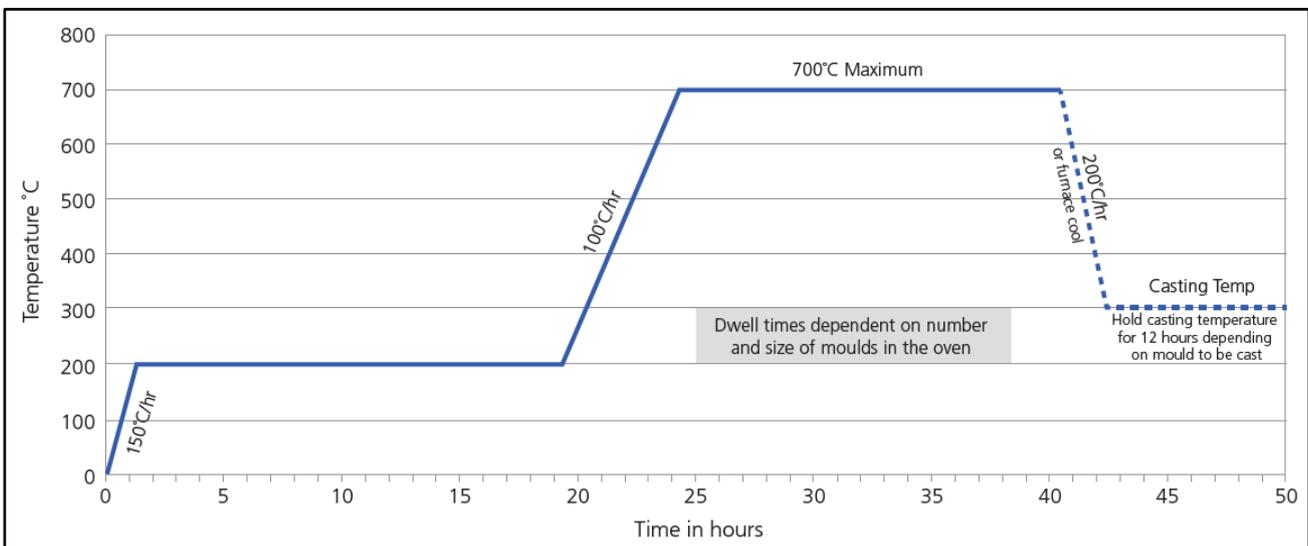
	Type:	M 028	M 248
- Powder : Water Ratio	[kg : l]:	100 : 27	100 : 32
- Work Time at 22°C	[min]:	8	9
- Initial Set Time at 22°C	[min]:	11 – 13	14 - 16
- Setting Strength after 90 minutes	[N]:	200	
- Setting Expansion after 2 Hours	[%]:	1 - 1.2	
- Thermal Expansion at 700°C	[%]:	0.55 - 0.65	

The settings times can be altered to suit individual large customers.

Note: These two products require different water to powder ratios - Please refer to product label on the front of the bag for the water ratio for your product.

Burnout Cycle:

The burnout cycle for Industrial Investment will vary depending on the size of the mould. The larger the mould - the longer the burnout cycle. The burnout cycle below is for a mould weighing about 100kgs.



The above information is correct to the best of our knowledge and careful consideration. We guarantee the faultless and consistent nature of our products, however, we are not liable for further processing results that usually arise beyond our control. Safety Data Sheets are available and can be requested from KBO.

M 028-248 / EN / 1703