

Salamander Plumbago - Degassing Tubes

INTRODUCTION

This simple and convenient apparatus has been specially designed to meet the requirements of refiners and foundrymen for nitrogen de-gassing. Although porosity in castings can be avoided if sufficient care and skill is used in the melting and casting operations there still remains a possibility of rejections due to gas. Flushing the molten metal with nitrogen is a simple and cheap way of ensuring that the melt is gas free and can be regarded as a complete insurance against gas porosity. De-gassing with nitrogen is a purely physical process. It has no effect on the composition of the metal, neither does the gas attack the crucible. Metal losses are not incurred, in fact, as the metal is de-gassed before casting, it is possible to melt copper alloys under a charcoal cover so as to reduce metal losses. In the case of aluminium alloys, a flux cover should be used when de-gassing.

Another important advantage of using nitrogen is that metallurgical control of the de-gassing operation is unnecessary. It is impossible to "over de-gas", in fact, a large excess of nitrogen can be passed through the melt without causing any harm.

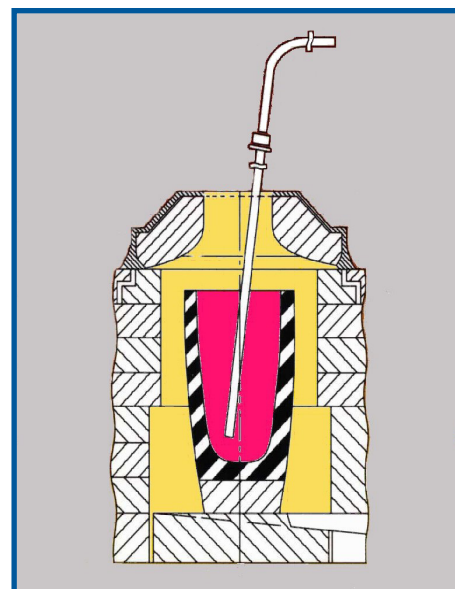
The apparatus required is simple and inexpensive and the cost per tonne of metal processed is extremely low.

METHOD OF OPERATION

1. Pre-heat the Plumbago tube until it is warm and dry.
2. Set the regulator on the Nitrogen cylinder to give a pressure of between 0.4 to 0.7 kg/cm² for Aluminium alloys, and 1.0 to 1.4 kg/cm² for Copper alloys.
3. Open the outlet valve until the gas flow can be felt with the hand at the open end of the Plumbago tube.
4. Insert the tube into the melt and adjust the volume again by means of the outlet valve so as to produce a fairly vigorous rolling action in the metal without any splashing. A rate of about 5 litres per minute will probably be required.

DE-GASSING TIME

This depends on the thoroughness of de-gassing required, the amount of gas to be removed and to some extent upon the size of crucible used. A period of about 2 ½ minutes is suggested as being normally sufficient for lift-out furnaces or small tilters, assuming that the melt is not heavily gassed. For large tilting furnaces 5 – 6 minutes should normally be enough.



ADDITIONAL EQUIPMENT REQUIRED

Regulators and gas plug valves etc. should be purchased from B.O.C. or another reputable supplier.

REF	O.D. mm	I.D. mm	LENGTH mm	THREAD	COMMENTS
VGT394	38	13	457	1.0" BSP	
VGT449	38	13	610	1.0" BSP	
VGT392	51	13	700	1.5" BSP	
VGT461	51	13	914	1.5" BSP	
VGT462	51	13	1220	1.5" BSP	
VGT601	51	13	1829	1.5" BSP	3 HOLES
VGT602	51	13	2438	1.5" BSP	3 HOLES
VGT1000RI	51	13	1000	1.5" BSP	POROUS PLUG
VGT1200RI	51	13	1200	1.5" BSP	POROUS PLUG