



ANH Refractories Europe Ltd

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Mixing & Using Instructions

GREENPAK 90 P

General

Material should be stored in a dry place. For best results, material should be maintained at 10 - 21°C prior to installation.

This product is supplied ready to use, sliced into slabs and packed in 25 Kg cardboard cartons.

Installation

This product is best placed using a proprietary type pneumatic ramming hammer. To start ramming lay one slab thickness over the area you plan to ram. The direction of the rammer should always be parallel to the hot face (see fig. 1). As slabs are placed, stagger the joint of each succeeding course. The entire mass should be rammed two or three times to ensure integrity and eliminate the tendency to laminate.

When seating ceramic anchors, tap the anchor into the mouldable refractory, using a leather or rubber mallet. This is to ensure that there are no voids between the ceramic anchor and surrounding refractory.

After ramming is complete the hot face of the plastic should be trimmed off with a trowel so that the roughened surface dries out easily.

Formwork should be used for ramming roofs, bullnoses, arches and around ports so that the plastic / mouldable can be fully consolidated into the required shape.



Fig 1



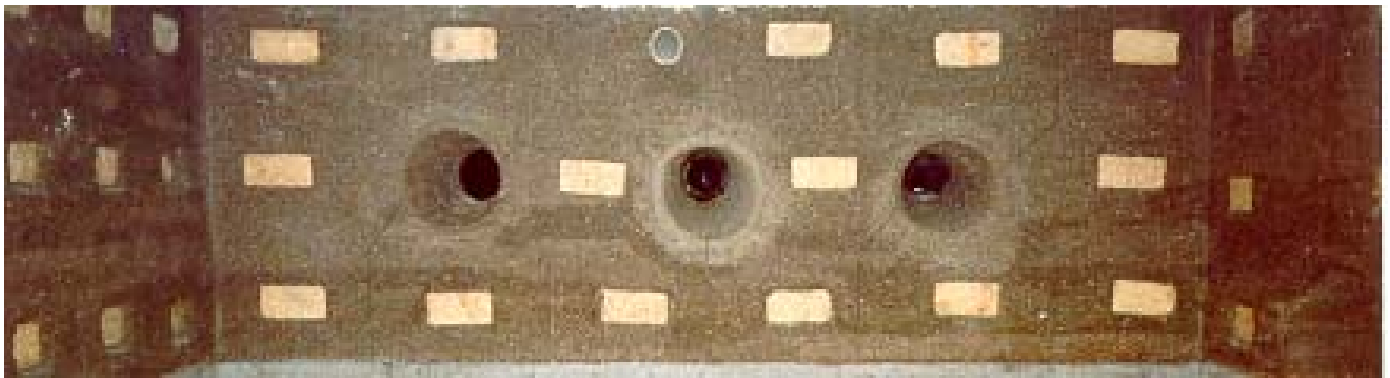
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To minimise and control cracking on large installations, contraction cuts should be made in the refractory. Contraction cuts should be located both horizontally and vertically between anchor pitches at 1 metre intervals. These joints should be scored using a trowel to a depth of 50 mm or $\frac{1}{3}$ the hot face lining thickness.

On completion of the installation, vent the finished plastic with a 3 mm welding rod at 200 to 300 mm centres. These holes should penetrate to about two thirds the thickness of the mouldable lining, and are installed to allow moisture to escape during initial heat up.

Prolonged air drying has a tendency to produce more cracks and it is desirable to begin heat up as soon as possible after completing ramming



Completed Installation

Dryout Schedule

There is no set time for these products, it is preferable to begin thermal dryout as soon as they are installed. Until these products are heated up, there is no significant bond formation. Phosphate bonded plastics are hygroscopic and will absorb additional moisture from the atmosphere if they are not dried out promptly, this will cause them to slump.

When heating plastics and mouldables, it is important that the temperature is held steady or slowly increased and not allowed to drop before the entire burning cycle is completed. If allowed to cool, wet pockets will form in the plastic and cause cracking or sheeting of the hot face on reheating.



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Typical dryout for a single layer 230mm lining

Ambient to 120°C	25°C / hour
Hold at 120°C for 4 hours	
120°C to 540°C	25°C / hour
Hold at 540°C for 8 hours	
540°C to operating temperature	25°C / hour

After this dryout, furnace is ready to be put into immediate operation, however if the unit is to be shut down, hold at operating temperature 24 hours before cooling.

Heating and cooling refractory structures can be a complex procedure and where possible should be delegated to experts. Where this is done by the client they are themselves contractually responsible, this advice is given in good faith for guidance only.

Please note that the position of the control thermocouples for the heating and holding phase is important, and can be critical. Advice can be given in good faith on request

