



## Installation Guidelines Pneumatic Rig Method

### Before the Installation:

- When using a 2 taper system, try and work with a ratio as close as possible to 1:1. Order brick shapes accordingly, with an over-allowance to accommodate for changes from the theoretical build ratio.
- Make sure the kiln shell is clean – remove any scale or old lining debris.
- Mark perpendicular lines, at least every 5 metres, as a guide to make sure the new lining is installed properly.
- Mark the positions of the new lining qualities.
- Choose/ make decisions on whether you want a bonded or in-line build, expansion allowance and mortared sections.

### During the Installation:

- Make sure the lining is being built perpendicular – refer to the guidelines marked on the shell.
- When using a 2 taper system build to the practical not the theoretical ratio.
- Make sure all the bricks are in contact with and held firmly against the kiln shell.
- Use a suitable mortar for alignment correction or “tipping” of the lining.
- Remove any broken or damaged bricks.

### Closing of the rings – a critical area:

- Use the correct jacking pressure, normally a maximum of 50% of the material CCS value [25 to 35 MPa].
- Use a minimum number of key bricks of a matching or superior quality.
- Disperse any key bricks over the closure arch – do not install them all together.
- Use a minimum number of key plates – normally 3 per ring is the maximum allowed.
- Use only 1 shim plate per brick joint [2 or 3mm thickness].
- Do not install a shim key plate next to a small key brick.
- If possible it is preferred that a shim driver is used rather than a large hammer as this is less likely to damage the lining.
- Again disperse any shim plates required over the arch. You don't have to use a shim plate if the lining is sufficiently tight with bricks alone!
- Again any broken or damaged bricks should be removed.