

Rotalock Anchor Systems











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Purpose

- 1. Highlight potential issues with conventional anchor systems
- 2. Explain the current Antec Rotalock Anchor System
- 3. Summarise the benefits of the existing system
- 4. New Rotalock concept



Potential Issues with Standard Anchors

Stainless steel "V" anchors which are rigidly fixed to the furnace wall become stressed by movement of the furnace, which can cause early anchor failure.

Differential expansion of the furnace casing and the lining may cause excessive stress resulting in early lining failure and shorter furnace life.

Dangerous forest of pre-welded anchors means an increased safety risk to those people moving about in the furnace or kiln, either prior to and or during installation.





Rotalock Anchors... a better solution

Standard Rotalock System (Single Layer Linings)



Benefits:

- The Rotalock system was developed to tackle the issue of lining movement relative to the shell.
- Whilst the RBS base is firmly and securely welded to the furnace shell, the top RVC Vee anchor has the capacity to move.
- Therefore the Rotalock system has flexibility and can move to help reduce stress in both the anchor and the refractory.
- As a result the tendency for the lining to crack can be reduced and reduction in anchor breakage.
- The only item that is welded to the furnace shell is the RBS base which is only approximately 30mm high and therefore does not suffer distortion or bending from traffic in the kilns. It is easy to clean rubble out prior to refractory installation and they have a much better safety feature due to their small size.
- There is the possibility that the RBS base can be reused when relining the kiln, therefore a considerable saving in time and expense for repairs. In this event, anchors do not need to be ground off and re welded.



Extended Rotalock System (Dual Layer Linings)



- The Extended Base rotalock system has all the advantages of the Standard rotalock system plus the following important advantages.
 - When installing the backup insulating refractory, the extended base (RBE) is the only part of the rotalock anchor system used. The RVC anchor is only installed after the insulation is completed and when the hot face refractory is to be installed.
 Without the hot face anchorage in place it significantly simplifies installation of the backup lining, giving better control.
 - The rotalock base height gives good height gauge for lining thickness control and it is easier to trim back excess thickness of insulating lining between the short base pieces extending through the back up lining.
- When repairing dual layer linings anchored with Extended Base Rotalocks, it is possible to replace the hot face refractory and not remove the insulation back up. Because the rotalock system is separable, the RVC Vee anchor can be readily replaced whilst leaving the RBE base intact. When this applies the time saving and cost saving is of major consideration and summarised as follows.
 - Insulation not needed to be replaced saving on demolition cost, new insulating refractory supply and reinstallation costs.
 - Anchors do not have to be ground off the shell.
 - Anchors are not needed to be re welded to the shell.
 - The repair of the hot face can generally be carried out by the one trade not requiring welding.



Rotalock Anchors... New Concept

Rotalock Mark 3 is a modified version of the Antec Rotalock System.

- A repositioned slot, provides additional cross sectional area and increased strength in the base.
- Larger radius in the base of the wire anchor allows quick and easy location of the anchor in the base.
- A specially designed cap holds the anchor firmly in place during installation. Once the lining is heated, the PE cap melts away providing expansion allowance for the base and additional room for the floating wire anchor to move if needed in service.



Summary

- The Rotalock Anchor system has provided asset owners with a reliable anchorage system, leading to increased service campaigns exceeding 5 years in some cases.
- Significant savings have been realised in material usage and installation time.



Contact Information

For more information on Rotalock Anchor Systems and how Antec can assist your company please contact:

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