

MODULE SYSTEMS

GENERAL

In the layered construction (Blanket, Board and Moist Pak) the anchors are exposed to hot face temperature and are limiting factors for use of ceramic fibre in high temperature applications. To overcome this limitation, modules are used. In modules the holding anchors are inside the lining and are not exposed to high temperatures. Veneer Modules are mortared and not require anchors.

The module anchoring can be internal (preembedded in the module) or external. In both these cases metallic anchors are away from hot face and generally they do not see temperature higher than 800 deg.C.

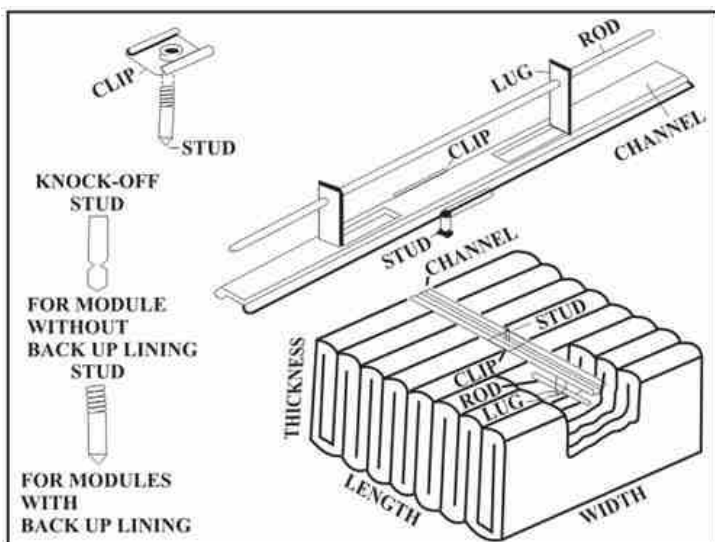
Our module anchoring systems can provide an option of backup blanket lining with hot face modular lining. A backup blanket lining serves as safety lining in an unlikely event of module failure. It also makes it convenient to provide vapour barrier for protection against attack of sulphurous gases on the furnace shell.

Internationally the embedded anchoring is more common and preferred. Unifrax India offers two designs in this category : (1) Cerlock (2) Cermax.

PRODUCT DATA :

For grades, sizes and properties of modules refer to UIL's general product brochure

CERLOCK MODULE :



Cerlock is a sliding type module, made by folded blanket strip, with eight folds. The module comes with proprietary Cerlock anchoring system which is designed for low stress. The anchoring offers a choice of heat resistant S. S. anchoring materials either separately or in combination

Cerlock module provides module movement flexibility in straight line as well as rotational direction. This greatly helped module positioning to give square pattern essential for parquet construction

Advantages :

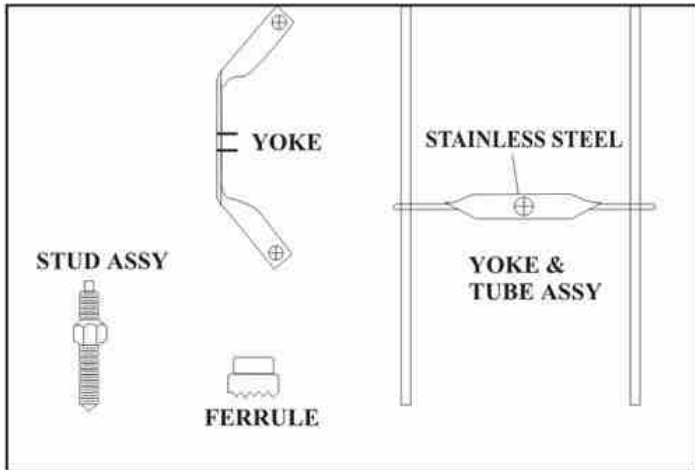
- Cerlock modules offer choice of both parquet as well as straight line design for the module lining.
- Out of the total eight folds of Cerlock module only central folds are held between two vertical lugs, while folds on either side are free to move and expand. Even central folds are free to expand as the two vertical lugs penetrate the module by only 40 mm.
- Two embedded lugs in the module are covered by the blanket folds on the hot face and, hence, can never be exposed to furnace temperature of flames even if gaps open up between module folds due to any localised overheating.
- The Rod goes through all blanket folds. This gives good mechanical strength to modules and no fold can come off or hang loose.
- Stud holding the module is separately welded and one can visually and mechanically check the weld quality which is not possible in case of weld-on type of modules where blind weld is involved.
- All Cerlock anchors are designed for low stress. However, type III and type IV Cerlock anchors have negligible stress and hence can be used at much higher temperatures as compared to other module anchors.

Typical Installation Procedure :

- Clean the shell with wire brush.
- Do marking of anchor positions as per the drawing. Use chalk line for marking. Put a punch mark on all stud locations.
- Grind the shell at places where studs are to be welded.
- Weld the studs with the help of stud welding gun or manually with the help of electrodes. Visually check all stud welds for all round uniformity and also knock each stud with a hammer to check the quality of welds. The knocked sound should be same as that when the shell is knocked with the hammer.
- Paint the inner shell plates as recommended protecting the stud threads.
- If design calls for backup then install the same and screw on clips over the studs, If no backup blanket is to be provided knock off the unthreaded portion of stud with hammer and screw on a clip over the stud.

- Apply dilute mortar bumer blocks and peepdoor blocks And wrap U folds around them
- Start installing modules in the order given in the drawing. Slide module channels into clips so that a good, rectangular patten is maintained. Align all sides exactly. Install U folds as shown on the drawing.
- Check and adjust to see that the modules are square and in alignment. If some gaps exist, pack with U folds or strips as the case may be. Cut out and remove module bands and cardboard.
- Pound the lining from hot face with the help of a 4" x 4" x 24" piece of lumber or a flat plate to fill up all gaps internally and give uniform apperance.

CERMAX MODULE



Cermax modules are compressed Durablanket folds with specially designed internal anchoring system which gives choice of attaching the module to the shell by welding, bolting, or self tapping screw method. CERMAX hardware system consist of stainless steel yode and two stainless steel tubes which are inserted into the module during manufacture.

Advantages

- With this anchoring system, maintenance of lining is easy and quick as even one damaged module can be replaced without disturbing neighbouring lining.
- Cermax modules are suitable for parquet as well as straight line (Soldier pattern) design.
- All module folds are free to expand.
- Anchor tubes penetrate all moudle folds.

Typical installation procedure :

- Initial installation procedure regarding surface cleaning marking is same as Cerlock module.
- Weld the module stud at its location as per drawing. Check weld quality.
- Insert the module anchor yoke on the stud and tighten the nut over the stud through the plastic tube.
- Remove plastic tubes with the help of a plier and pres the module folds to close the gap. Other aspects are same as for Cerlock modules.

OTHER MODULES FOR SPECIFIC APPLICATIONS:

For information on the following Modules Systems contact Unifrax India Ltd., Mumbai

- CER STUD AND TYNE
- MONOLANE
- PRISMO

VENEER MODULES

In some cases, it is impractical or uneconomical to justify remove of the existing lining which is still intact. However, higher cost of fuel no more permits high heat losses through shell. In such cases, veneering over existing refractories, with veneer modules, substantially reduces the heat los, Where existing linings are still in sound or easily repairable condition, veneering with modules can provide a valuable fuel saving at less cost and in less time than relining the furnace. More-over reduction in temperture on the parent refractory lining increases their life.

Veneer modules are designed to be mortared on the hard refractories or IFB, of existing or new furnaces to provide additional insulation. They are applied by mortaring to the existing refractory surface with a specially designed refractory adhesive. Fiberfrax Veneer Mortar.

Standard Fiberfrax Veneer Modules are made from compressed Durablanket strips which are oriented to provide the advantages of an edge grain configuration. The needed Durablanket given modules excellent stability and intergrity.

Note : Please insist upon a copy of veneering procedure while ordering veneer moudles.

Information contained in this publication is for illustrative purposes only and is not intended to create any contractual obligation.

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