Pyro-Fold™, Pyro-Stack™, Unibloc®, Z-Blok® Modules

Datasheet Code US: 514-510

Product Description

Pyro-Fold M modules are designed for high-temperature furnace linings that require corrosion barriers, vapor barriers or just a pre-laid stud pattern. Manufactured in three grades of RCF blanket:

- HP (Cerablanket)
- ZR (Cerachem)
- CR (Cerachrome)

The modules are held to the steel casing by stainless steel studs that are pre-welded to the furnace shell. The Pyro-Fold M module uses a 316 SS internal support system that was specially designed to allow for quick and reliable installation over coated shells, backup linings and vapor barriers. Pyro-Fold M modules come pre-compressed with restraint banding and an internal support system. Studs, nuts, and installation tools must be ordered separately.

Pyro-Fold Y modules are manufactured from high-purity RCF blankets in grades HP grade (alumina-silica) and ZR grade (alumina- zirconia-silica)

The Pyro-Fold Y Module utilizes a specially designed 316 SS internal support system and the industry standard Pyro-Bloc stud system. The Pyro-Fold Y module uses the proven center-fire, one-step weld system which eliminates the need for pre-laid stud patterns.

The Pyro-Fold Y Module comes complete with internal support system and stud already in place.

Pyro-Stack modules are offered in either RCF or Polycrystalline Denka blankets that are pre-compressed to a specific density and banded. Pyro-Stack modules are cut blanket segments stacked edge-grain rather than continuous folded. These modules come with the same internal hardware as traditionally offered in the Pyro-Bloc Y and M modules.

Unibloc modules are available in RCF blanket grades:

- HP (Cerablanket)
- ZR (Cerachem)
- CR (Cerachrome)

Unibloc Modules are extremely versatile because they can be installed with or without a pre-laid stud pattern using a number of positive mechanical attachment systems. The most typical practice is to impale the Unibloc Module directly onto a Uniloc anchor which is then either stick welded or bolted directly to the furnace shell. Anchors must be ordered separately.

Z-Blok II modules are produced from RCF blanket grades:

- HP (Cerablanket)
- ZR (Cerachem)
- CR (Cerachrome)

Z-Blok II is a folded ceramic fiber blanket module used in lining industrial furnaces. Z-Blok II has a C-Channel that runs parallel to the module folds. This C-Channel is typically attached to the steel casing with a welded stud and nut. A variety of additional attachment options are available.

Features

- Adaptable to coated casings, backup blanket
- Variety of attachment systems
- Extremely fast, efficient installation
- Installed with or without pre-laid stud pattern
- Protected anchor components

Applications

- Iron and Steel furnace applications
- Petrochemical furnace and boiler applications
- Ceramic and Glass kiln and furnace
- Power Generation boiler applications
- Investment Casting applications

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Physical Propertires	HP Grade	ZR Grade	CR Grade	Denka
Color	white	white	blue/green	white
Continuous Use Limit, °F (°C)	2200 (1204)	2450 (1343)	2500 (1371)	2912 (1600)
Classification Temperature Rating, °F (°C)	2400 (1316)	2600 (1427)	2600 (1427)	2912 (1600)
Density, pcf (kg/m^3)	8, 9.3, 10.7 (128, 149, 171)	8, 9.3, 10.7 (128, 149, 171)	9.3, 10.7 (149, 171)	8, 9.3 (128, 149)
Chemical Analysis, % weight basis after firing				
Alumina, Al_2O_3	46	35	43	80
Silica, SiO_2	54	50	54	20
Zirconia, ZrO_2	-	15	-	-
Chromia, Cr_2O_3	-	-	3	-
Other	trace	trace	Trace	trace
Thermal Conductivity, BTU•in./hr•ft^2•°F (W/m•k), ASTM C 201				
Measured density, pcf (kg/m^3)	9.3 (149)			
Mean temperature @ 500°F (260°C)	0.52 (0.07)			0.74 (0.11)
@ 1000°F (538°C)	1.00 (0.14)			1.31 (0.19)
@ 1500°F (816°C)	1.66 (0.24)			2.36 (0.34)
@ 2000°F (1093°C)	2.45 (0.35)			3.66 (0.53)
@ 2500°F (1371°C)	-			5.05 (0.73)
@ 2700°F (1482°C)	-			5.61 (0.81)
Standard Size Availability				
Thickness, in (mm)	4 – 12 (102 - 305)			
Length x Width, in (mm)	12 x 12 (305 x 305)			

Installation
The use limits of Unibloc, Pyro-Fold, and Z-Blok Modules should be used only as a guide when considering modular lining installations. For assistance in adapting these guidelines and recommendations concerning the type of fiber material to fabricate modules to meet your specific furnace lining requirements, call your nearest Morgan Advanced Materials representative.

Pyro-Fold Y Module Installation
Pyro-Fold Y Modules are installed by the instant action of our industry standard Pyro-Bloc stud and stud gun. In one easy step the module is positioned against the furnace shell, securely welded*, and tightened into place in less than three seconds. This unique process self-checks and quality tests each and every weld for absolute integrity. The Pyro-Fold Y Module installation procedure eliminates the need for a time consuming stud layout and pre-welding of anchors or brackets. The Pyro-Fold Y Module is easy to cut and fit in the field for special shape requirements.

*Independent test results on the strength of the Pyro-Bloc stud are available upon request.
The values given herein are typical average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Morgan Advanced Materials office to obtain current information.