

## Pyro-Bloc<sup>®</sup> Burner Bloc Module



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SDS Code 201, 252

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### Features

- Replaces dense castable burner blocks
- Lightweight
- Excellent insulator/thermal shock resistant
- High mechanical abuse resistance
- Variety of sizes/attachment systems
- Low heat storage
- Cost effective

### Product Description

Pyro-Bloc and folded module systems have been replacing insulating firebrick linings inside fired Ethylene Dichloride, Vinyl Chloride Monomer, ethylene heaters and reformers with great success for years. End users, questioning the temperature and mechanical abuse resistance around the critical burner area, were reluctant to use fiber burner blocks in place of dense refractory burner blocks. This caused major design difficulties in the support of these dense blocks and the interface between the dense block and the surrounding fiber. Additionally, using the dense blocks to cover up to 20% of the wall area negates the main reasons for using fiber - excellent thermal conductivity (heat/fuel savings) and excellent thermal shock resistance (faster startups and shutdowns). These problems are resolved with the development and use of Pyro-Bloc Burner Blocs.

The Pyro-Bloc Burner Bloc starts with 15 pcf (240 kg/m<sup>3</sup>) monolithic Pyro-Log. The Pyro-Log is turned edge-grain to attain its maximum mechanical abuse resistance. A vacuum-formed sleeve, designed to the specific burner requirements, is mounted in the center of the module to improve high temperature velocity resistance.

### Applications

- EDC (Ethylene Dichloride) linings
- VCM (Vinyl Chloride Monomer) linings
- Ethylene heaters and reformers

A cordierite pilot tube is also available upon request. The Pyro-Bloc Burner Bloc utilizes 316SS internal hardware and can be attached to the furnace shell using one of several available attachment schemes. The Burner Bloc is typically wrapped with a layer of appropriate temperature grade ceramic fiber blanket and encased in cardboard for easier handling. Each Burner Bloc is specifically designed to match existing size, temperature and furnace casing requirements. The end result of the Burner Bloc is a lightweight, cost effective, thermally efficient, thermal shock resistant burner block that has proven to give excellent service life in the tough flat flame burner block application.

## Pyro-Bloc<sup>®</sup> Burner Bloc Module



Physical Properties	Burner Bloc	Vacuum Form Sleeve
Color	white	varies by temperature grade
Density, pcf (kg/m <sup>3</sup> )	15 (240)	12 - 28 (192 - 448)
Thickness, in. (mm) (standard)	6 - 12 (152 - 305)	varies by design
Maximum temp. rating, °F (°C)	2600 (1427)	2400 - 3000 (1315 - 1649)
Melting point, °F (°C)	3200 (1760)	-

Thermal Conductivity, BTU·in./hr·ft <sup>2</sup> ·°F (W/m·K), ASTM C 201	Burner Bloc
Mean temperature	
@ 500°F (260°C)	0.49 (0.07)
@ 1000°F (538°C)	0.84 (0.12)
@ 1500°F (816°C)	1.43 (0.21)
@ 2000°F (1093°C)	2.19 (0.32)

### Typical Attachment Systems

M Module	Used in conjunction with Pyro-Bloc M module linings, utilizing pre-laid studs. Studs and nuts are purchased separately.
T-Bar	Pre-laid system that connects into the support tubes between the module. Studs, nuts and yokes are purchased separately.
Y Module	Industry standard with internal support system that welds the stud, tightens the nut and torque tests the weld all in one step.
Eye-Bolt	Attaches to the yoke and extends through the casing and allows a flexible bolt-through system. Nuts and washers are purchased separately.
Bolt-Through	Bolts through a standard M Module yoke for positive attachment. Bolt and nut are purchased separately.

### Installation

There are a number of factors which must be considered when designing a Pyro-Bloc Module lining. The use limits of Pyro-Bloc Modules should be used only as a guide when considering lining installation and design. For assistance please call your nearest Morgan Advanced Materials representative.

\*Studs, nuts and installation tools must be purchased separately.

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.