

Thermal Ceramics



Fire Protection Systems

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FastWrap+ Commercial Kitchen Grease Duct Air Ventilation Duct

Product Data and Installation Guide



NFPA 96 IMC

1. Product Description - New and Improved FastWrap+

Thermal Ceramics new and improved FireMaster FastWrap+ is a one-layer, totally foil-encapsulated, non-combustible 2000°F (1093°C) rated, low biopersistence, flexible fireproofing wrap specifically tested to provide a 1 or 2 hour fire rated enclosure for horizontal and vertical commercial kitchen grease and air ventilation ducts. The core blanket chemistry is alkaline-earth silicate wool free of binders and lubricants. FastWrap+ is classified by Omega Point Laboratories and Underwriter's Laboratories Listing and Follow-up Service Program to ensure uniform thickness and density specifications, thus providing consistency in end physical properties for required fire ratings. FastWrap+ is a proven performance alternative through extensive testing to 1 or 2 hour fire-resistance rated shaft enclosures. With its excellent insulating capability of withstanding fire condition temperatures up to 2000°F (1093°C), it protects combustible constructions at zero clearance at the overlap or collar and a reduced clearance of 1½" between overlaps or collars for commercial kitchen grease ducts in tight congested areas. When the duct penetrates fire rated walls and floors, Tremco Fyre-Sil silicone firestop sealant used in combination with FastWrap+ provides an alternate means of protection to rigid shafts by maintaining the integrity of the 1 or 2 hour fire rated wall and floor assembly.

Product Features

- One-layer system with 3 optional installation techniques
- Low biopersistent insulation blanket
- Does not contain low temperature fiberglass or mineral wool
- Shaft alternative to rigid board systems
- Zero clearance to combustibles protection at the overlap or collar and reduced clearance of 1½" between overlaps or collars
- Lightweight, flexible wrap saves labor
- Passive fire proof material does not shrink, become brittle, or lose fire fighting capabilities with age
- Totally foil encapsulated system protects against material degradation, and potential fire hazards
- Product markings on foil ensure proper material identification for easy inspections
- Wide variety of through-penetration systems

2. Applications

- 1 or 2 Hour Commercial Kitchen Grease Duct Enclosure
- 1 or 2 Hour Air Ventilation Duct Enclosure

3. Physical Characteristics

FireMaster Product	Unit	Size	Units/Ctn.	Wt./Ctn.
FastWrap+	Roll	1½" x 24" x 25' (38.1 mm x 610 mm x 7.6 m)	1	37.5 lbs. (17 kg)
FastWrap+	Roll	1½" x 48" x 25' (38.1 mm x 1.2 m x 7.6 m)	1	75 lbs. (34 kg)
FastWrap+ Collar	Roll	1½" x 6" x 25' (38.1 mm x 152 mm x 7.6 m)	4	53 lbs. (24 kg)
Color	White blanket with silver foil encapsulation			



4. Specifications

This specification guide covers the application of Thermal Ceramics FireMaster FastWrap+ and Tremco Fyre-Sil silicone firestop sealant.

Application	Fire Resistive Rating	Enclosure System	Through Penetration System
Grease Ducts	1 or 2 hours	1 layer FastWrap+, 3" (75 mm) perimeter and longitudinal overlap, GD 544 F, UL G-14	OPL FS 587F UL C-AJ-7098
Air Ducts	2 hours	1 layer FastWrap+, 3" (75 mm) perimeter and longitudinal overlap, UL V-19	C-AJ-7095

5. Performance

A. Thermal Ceramics FireMaster FastWrap+

Flammability (ASTM # 84/UL 723)		
Foil:	Flame spread	5
	Smoke developed	10
Blanket:	Flame spread	0
	Smoke developed	0
Thermal Resistance	R value per ASTM C 518 4.15 per inch at 70°F (21°C)	

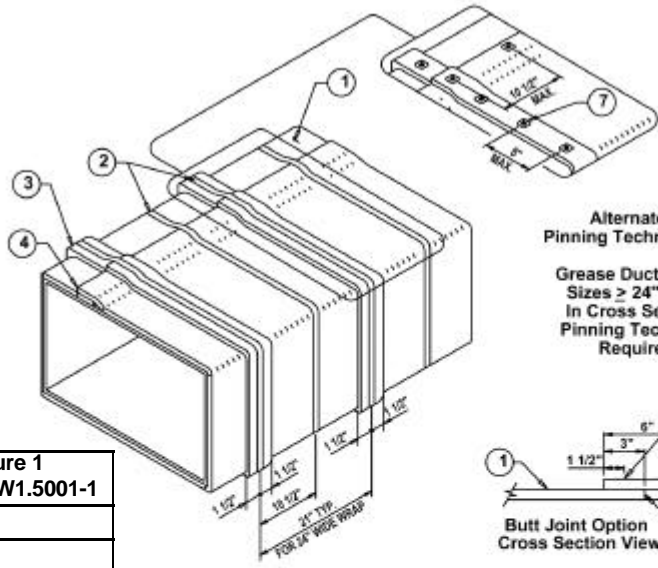
B. Fire Stop Sealant

Tremco Fyre-Sil silicone firestop sealant	Gun grade	Self-leveling
Color	limestone	rust red
Working Time (min.)	5 - 10	20 - 40
Cure Time at 77°F (25°C), 50% R.H.	14 - 21 days	14 - 21 days
Flow, Sag, or Slump	Nil	Self Leveling

C. Listings

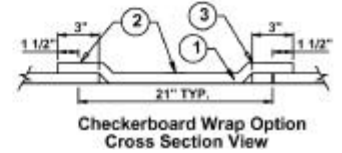
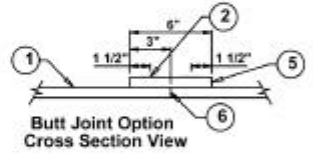
Agency	Reference Standard/File No.
Omega Point Laboratories, Inc.	Listing # 11660-3, FS 587F, GD 544F
Underwriters Laboratory	Grease Duct Enclosures (YYET): R14229; Fire Resistive Ventilation Duct Assemblies (HNJL): V-19; Through-Penetration FireStop System (XHEZ): C-AJ-7095, C-AJ-7098
NFPA	Complies with NFPA 96, 2001 Edition
International Mechanical Code	Section 506.10.3 Commercial Kitchen Grease Ducts and Exhaust Equipment, Section 507 Commercial Kitchen Hoods, 2003 Edition
New York MEA	412-02-M, 413-02-M
International Code Council	SBCCI Legacy Report No. 9424E BOCA Legacy Report No. 22.25

New and Improved FireMaster 1 1/2" FastWrap+ Commercial Kitchen Grease or Air Ventilation Duct 1 or 2 Hour Shaft Alternative Zero Clearance to Combustibles



Alternate Pinning Technique

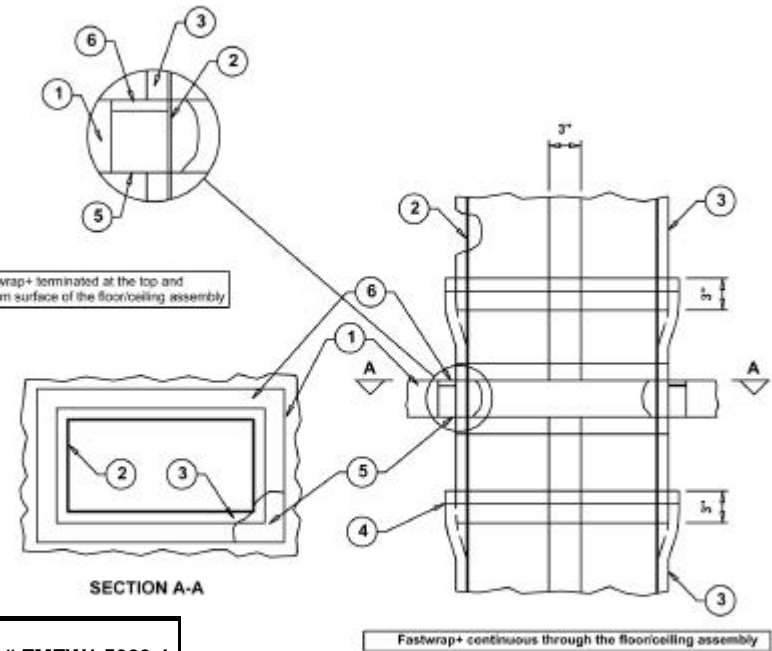
Grease Ducts Only: Sizes > 24"x48" In Cross Section Pinning Technique Required.



OPL Design No. GD 544 F		Figure 1	
UL Design No. G-14 and V-19		Drawing No. FMFW1.5001-1	
1	One layer FireMaster FastWrap+ 1 1/2" thick	3	3" minimum longitudinal overlap
2	Steel banding 1/2" wide minimum	4	3" minimum perimeter overlap
5	6" wide FastWrap+ collar (for Butt Joint option)	6	Firmly butted joint (for Butt Joint option)
7	10 or 12 gauge steel insulation pin with 1 1/2" x 1 1/2" or 1 1/2" diameter galvanized speed clips (for alternate pinning)		

Note: The integrity of FireMaster Duct Systems is limited to the quality of the installation.

New and Improved FireMaster 1 1/2" FastWrap+ Through Penetration System 1 or 2 Hour Grease or Air Duct



OPL Design No. FS 587 F		Figure 2	
UL Design Nos. C-AJ-7095 AND C-AJ-7098		Drawing# FMFW1.5003-1	
1	Floor/ceiling		
2	Duct		
3	One layer FireMaster FastWrap+ 1 1/2" thick		
4	Steel banding 1/2" wide minimum or pinning		
5	FireMaster FastWrap+ (packing material)		
6	Approved Through Penetration FireStop System		

Note: The integrity of FireMaster Duct Systems is limited to the quality of the installation.



IMC NFPA 96 MEA

1. Product Description - Original FastWrap+

Thermal Ceramics **Original FireMaster FastWrap+** is a one-layer, totally foil-encapsulated, non-combustible, 2000°F (1093°C) rated, low biopersistence, flexible fireproofing wrap specifically tested to provide a 1 or 2 hour fire rated enclosure for horizontal and vertical commercial kitchen grease and air ventilation ducts. The core blanket chemistry is alkaline-earth silicate wool free of binders and lubricants. Thermal Ceramics FireMaster FastWrap+ is classified by Omega Point Laboratories Listing and Follow-up Service Program to ensure uniform thickness and density specifications, thus providing consistency in end physical properties for required fire ratings. Thermal Ceramics FireMaster FastWrap+ is a proven performance alternative through extensive testing to 1 or 2 hour fire-resistance rated shaft enclosures. With its excellent insulating capability of withstanding fire condition temperatures up to 2000°F (1093°C), it protects combustible constructions at zero clearance at the overlap or collar and a reduced clearance of 1 1/2" between overlaps or collars for commercial kitchen grease ducts in tight congested areas. When the duct penetrates fire rated walls and floors, Tremco Fyre-Sil silicone firestop sealant used in combination with Thermal Ceramics FireMaster FastWrap+ provides an alternate means of protection to rigid shafts by maintaining the integrity of the 1 or 2 hour fire rated wall and floor assembly.

Product Features

- One-layer system with 3 optional installation techniques
- Low biopersistent insulation blanket
- Does not contain low temperature fiberglass or mineral wool
- Shaft alternative to rigid boards
- Zero clearance to combustibles protection at the overlap or collar and reduced clearance of 1 1/2" between overlaps or collars
- Lightweight, flexible wrap saves labor
- Passive fire proof material does not shrink, become brittle, or lose fire fighting capabilities with age
- Totally foil encapsulated system protects against material degradation, potential fire hazards and allows easy installation
- Product markings on foil ensure proper material identification for easy inspections
- Wide variety through-penetration systems

2. Applications

- 1 or 2 Hour Commercial Kitchen Grease Duct Enclosure
- 1 or 2 Hour Air Ventilation Duct Enclosure

3. Physical Characteristics

FireMaster Product	Unit	Size	Units/ Carton	Wt./ Carton
FastWrap+	Roll	2" x 24" x 20' (50 mm x 610 mm x 6 m)	1	52 lbs. (24 kg)
FastWrap+	Roll	2" x 48" x 20' (50 mm x 1.2 m x 6 m)	1	103 lbs. (47 kg)
FastWrap+ Collar	Roll	1 1/2" x 6" x 20' (38.1 mm x 152 mm x 7.6 m)	4	47 lbs. (21 kg)
Color	White blanket with silver foil encapsulation			



4. Specifications

This specification guide covers the application of Thermal Ceramics FireMaster FastWrap+ and Tremco Fyre-Sil silicone firestop sealant.

Application	Fire Resistive Rating	Enclosure System	Through Penetration System
Grease Ducts	1 or 2 hours	1 layer FastWrap+, 3" (75 mm) perimeter and longitudinal overlap, GD 544 F	OPL FS 587F
Air Ducts	1 or 2 hours	1 layer FastWrap+, 3" (75 mm) perimeter and longitudinal overlap, VAD541F	OPL FS 583F

5. Performance

A. Thermal Ceramics FireMaster FastWrap+

Flammability (ASTM # 84/UL 723)		
Foil:	Flame spread	5
	Smoke developed	10
Blanket:	Flame spread	0
	Smoke developed	0
Thermal Resistance	R value per ASTM C 518 4.15 per inch at 70°F (21°C)	

B. Fire Stop Sealant

Tremco Fyre-Sil silicone firestop sealant		
	Gun grade	Self-leveling
Color	limestone	rust red
Working Time (min.)	5 - 10	20 - 40
Cure Time at 77°F (25°C), 50% R.H.	14 - 21 days	14 - 21 days
Flow, Sag, or Slump	Nil	Self Leveling

C. Listings

Agency	Reference Standard/File No.
Omega Point Laboratories, Inc.	Listing # 11660-3 GD545F, GD546F, VAD541F, FS582F, FS583F
NFPA	Complies with NFPA 96, 2001 Edition
International Mechanical Code	Section 506 Commercial Kitchen Grease Ducts and Exhaust Equipment, Section 507 Commercial Kitchen Hoods, 2003 Edition
International Code Council	BOCA - Research Report No. 22.25 SBCCI - Research Report No. 9424E
New York MEA	421-00-M, 422-00-M
California State Fire Marshal	2440-1361:103

Preparatory Work:

FireMaster FastWrap+ is installed with common tools, such as knives, banders and capacitor discharge guns for applying insulation pins. In order to install the duct fire stop system, the surfaces of all openings and penetrating items need to be clean, dry, frost free, and free of dust.

Installation techniques for Thermal Ceramics FireMaster FastWrap+ (Figures 1 and 3):

- **3" (75 mm) Overlap Wrap Telescope** - Each blanket overlaps one adjacent blanket, and each blanket has one edge exposed and one edge covered by the next blanket as shown in Figures 1 and 3. The visible edges of the longitudinal overlaps all point in the same direction.
- **Overlap Checkerboard Pattern** - Blankets with both edges exposed alternate with blankets with covered edges, as shown in Figures 1 and 3. The visible edges of the longitudinal overlaps alternate their directions and appear on every other blanket.
- **Butt Joint & Collar System** - Adjacent blankets are butted tightly together and a 6" (152 mm) wide collar of FireMaster FastWrap+ is centered over the joint, overlapping each blanket by 3" (75 mm) as shown in Figures 1 and 3.
- **2 & 3 Sided Enclosure System** - When space does not allow for full wrap enclosure on all four sides of the duct, the FireMaster FastWrap+ may be installed on 2 or 3 sides of the duct and mechanically attached to a concrete or CMU assembly on the unexposed side of the duct.

General:

To minimize waste, FireMaster material should be rolled out tautly before measuring. Cut edges of the blanket shall be taped with aluminum foil tape to prevent exposed edges of the insulation from wicking moisture from condensation or grease from a compromised leaking duct joint into the material and causing degradation of the fire barrier. The FireMaster FastWrap+ material may be installed with either a mechanical banding system or insulation pins and clips (see Mechanical Attachment Methods below and Figures 1 and 3). When using the banding technique, caution shall be taken to ensure that the bands are not fitted too snug as which could result in cutting into the blanket. To prevent blanket sag on ducts with dimensions greater than or equal to 24" (600 mm), insulation pins, long enough to extend through the layers of blanket insulation, are welded to the duct in columns spaced 12" (305 mm) apart, between 6" and 12" (152 and 305 mm) from each edge and 10½" (267 mm) on center along the bottom horizontal and outside vertical duct runs. Insulation pins that extend beyond the blanket wrap shall be tuned down to eliminate sharp points. Support hanger systems do not need to be wrapped provided that the steel hanger rods are at least a minimum of ⅜" (9.5 mm) diameter and the steel angle is a minimum of 1½" x 1½" x ⅛" (38 mm x 38 mm x 3.2 mm), or SMACNA equivalent support system (SMACNA band strap support systems do not apply). Horizontal trapeze support systems may be incorporated into the wrap enclosure.

A. Overlap Wrap Telescope Installation

FireMaster FastWrap+ commercial kitchen grease or air ventilation duct 1 or 2 hour enclosure includes a one-layer wrap construction applied directly to all surfaces of the duct (Figures 1 and 3). The FireMaster FastWrap+ blanket is wrapped one layer 1½" (38.1 mm) or 2" (50 mm) thick around the perimeter of the duct with a length cut to provide enough excess to overlap itself not less than 3" (75 mm). Adjacent blankets are placed to overlap the previous blanket not less than 3" (75 mm). The overlap made by adjacent blankets forms the "longitudinal" overlap. The overlap a blanket makes with itself is called the

"perimeter" overlap. The wrap layer may be held temporarily in place with filament tape 1½" (38 mm) from each blanket edge and in the center of the blanket until the mechanical banding or pinning and clip attachment method is secured.

B. Checkerboard Wrap Installation

FireMaster FastWrap+ is cut to completely wrap around the perimeter of the duct with enough excess to provide an overlap of not less than 3" (75 mm) (Figures 1 and 3). The blankets with both edges exposed alternate with blankets with covered edges as shown in Figures 1 and 3. The visible edges of the longitudinal overlaps alternate their directions and appear on every other blanket. A 3" (75 mm) longitudinal overlap is installed onto the previous adjacent wrap forming a "checkerboard" construction. The wrap layer may be held temporarily in place with filament tape 1½" (38 mm) from each blanket edge and in the center of the blanket until the mechanical banding or pinning and clip attachment method is secured.

C. Butt Joint / Collar Installation

FireMaster FastWrap+ is installed in a single layer directly to the duct with a tight butt joint construction (Figures 1 and 3). The FireMaster FastWrap+ material may be held in place with filament glass tape 1½" (38 mm) from each blanket edge and in the center of the blanket temporarily until the mechanical banding or pinning and clip attachment method is secured. A 6" (152 mm) wide FireMaster FastWrap+ Collar is centered over the joints overlapping on each side of the blanket joint 3" (75 mm).

D. 2 & 3 Sided Wrap System

When space does not allow for a complete wrap applied to the duct on all four sides, the FireMaster FastWrap+ can be installed in a single layer on the 2 or 3 sides of the unexposed duct and mechanically attached to a concrete or CMU assembly. The FireMaster FastWrap+ is installed on the duct as described in one of the three installation methods described above with the starting edge of the blanket attached to the concrete or CMU assembly and then wrapped around the duct until the other end can be affixed to the other concrete or CMU assembly, thus encapsulating the duct with insulation around all accessible sides. The blanket is to flange out onto the concrete or CMU assembly. It should be secured to the adjoining assembly with minimum ⅜" (4.7 mm) diameter, 4" (100 mm) long concrete anchors, footed to a minimum 1½" (38 mm) wide x ⅜" (4.7 mm) thick steel strip/strap with pre-drilled holes spaced a maximum 10" (254 mm) on center. The FireMaster FastWrap+ insulation wrap is secured to the duct with banding (see Mechanical Attachment Methods for Insulation Wrap section below or Figures 1 and 3). The ends of the banding are to loop into the steel strips/straps that foot the blanket to the concrete floor or wall, and are tightened down. The trapeze support system may be incorporated within the wrap system.

Mechanical Attachment Methods for Insulation Wrap

1. Banding - ½" (12.7 mm) wide carbon steel or stainless steel banding, 0.015" (0.376 mm) thick, is placed around the entire perimeter of the insulated duct with maximum 10½" (267 mm) spacing centers and 1½" (38 mm) from each blanket edge or 1" (25 mm) from each collar edge when using the butt joint and collar method. When banding, filament tape can be used to temporarily hold the blanket in place until the banding is applied. The banding is placed around the material and tightened so as to firmly hold the FireMaster FastWrap+ in place against the duct, but not cause any cutting or damage to the blanket.

2. Pinning - Min. 12 gage, 5" long (125 mm) steel insulation pins are welded to the duct at all blanket overlap locations (see Figures 1 and 3) spaced in rows max. 10½" (267 mm) on center and maximum 8" (200 mm) apart. An insulation pin is located in the middle of the perimeter overlap and center spaced between the pins. Pins are locked into place with 1½" (38 mm) diameter square or round, galvanized steel, speed clips or cup head pins. Pins that extend beyond outer blanket wrap layer shall be turned down to eliminate sharp edges or the excess length cut off.

NOTE: Support hanger systems do not need to be wrapped and can be incorporated into the wrap enclosure.

Through-Penetration Firestop System

When the duct penetrates a concrete or drywall fire rated wall, ceiling, or floor, an approved fire stop system must be employed. (Figures 2 and 4). FireMaster FastWrap+ approved through penetration fire stop systems are listed in Section 4, Specifications.

To fire stop the through penetration void area, cut strips of FireMaster FastWrap+ 4½" (106 mm) wide and as long as the opening and install at a minimum 50% compression. Install the strips so that they are recessed ¼" (6.35 mm) from the top surface of the wall or floor. Install a minimum ¼" (6.35 mm) depth of Tremco Fyre-Sil silicone firestop sealant into the opening to the recess around the top surface of the floor or wall through-penetration opening.

Grease Duct Access Door Installation

Four galvanized steel threaded rods, ¼" diameter (6.35 mm) by 4½" to 5" long (114 to 125 mm) are welded to the duct at the corners of the door opening. Four 5" (125 mm) long 12 gage insulation pins are welded to the door panel for installation of the blanket. Two layers of FireMaster FastWrap+ are installed on the door. The first layer is cut and placed on the pins and over the access opening with a ½" (13 mm) overlap. When the door is installed, this first layer is compressed and fitted against the wrap surrounding the door opening to form a tight butt joint. The second layer is centered over the first piece so that a minimum 1" (25 mm) overlap exists around the perimeter. It is essential that this layer fit tightly against the wrap surrounding the access door opening with no through openings. The second layer is impaled over the pins and both layers are locked in place with speed clips. Pins that extend beyond the outer layer of FireMaster FastWrap+ shall be turned down to avoid sharp points on the door.

The insulated door panel and the steel tubes are placed over the threaded rods and held in place with washers and wing nuts. The steel tubes hold the door to the duct and protect the wrap from damage as the door is removed. Alternatively, insulated pre-fabricated access doors are available from FireMaster dealers. See the Thermal Ceramics FireMaster FastWrap+ Design and Installation Manual for complete installation and drawing details.

7. Maintenance

No maintenance is required when installed in accordance with Thermal Ceramics installation instructions. Once installed, if any section that is greater than 8" x 8" is damaged or if the overlap area is damaged, the following procedures will apply:

- The damaged section should be removed by cutting the steel

- banding or removing the clips holding it in place
- A new section of the same dimension should be cut from a roll of FireMaster FastWrap+, either 24" (610 mm) or 48" (1220 mm) wide. Cut edges of the blanket shall be taped to prevent exposed edges of the insulation from wicking moisture or grease into the material and degradation of the fire barrier
- The new section should be placed per Thermal Ceramics manufacturer's Installation Instructions ensuring the same overlap that existed previously
- The steel banding should be placed around the material and tensioned so as to sufficiently hold the FireMaster FastWrap+ in place without cutting the blanket
- If the blanket has not been damaged but the foil has ripped, seal the opening with aluminum foil tape

For damaged areas less than or equal to 8" X 8" the following procedure may be used.

- The damaged section should be removed by cutting out a square or rectangular that includes the damaged area and does not exceed 8" in width or length.
- A repair section should be cut from a section of FireMaster FastWrap+ that is 1" wider and 1" longer than the damaged area that has been removed. Cut edges of the blanket shall be taped to prevent the exposed edges of the insulation from wicking moisture or grease into the material.
- A single min. 12 Gauge insulation pin min. 3" long should be welded to the grease duct in the center of the repair area. (Note: Cup head pins may also be used.)
- The repair section is to be centered on the opening and impaled upon the insulation pins. All overlaps should be tucked into the repair opening to provide a tight fitting joint. Insulation is held in place with a 1½" square or round galvanized or stainless steel speed clip or a minimum 1" diameter cup head pin. The excess portion of the pin shall be cut off and/or turned down to eliminate sharp edges.
- The joint should be sealed using aluminum foil tape.

8. Limitations

- FireMaster FastWrap+ shall be installed in accordance with Thermal Ceramics - Installation Instructions
- Multiple steel ducts in a single FireMaster FastWrap+ enclosure system are not permitted for commercial kitchen grease ducts. Multiple steel ducts in a single enclosure are permitted for air ventilation ducts
- Grease Duct Sizes > 24"x48" (600 mm x 1200 mm) insulation is attached using steel pins
- Air Ducts: when maximum duct size dimensions are greater than 84" x 21" (2100 mm x 525 mm) in cross section, reinforce the duct with steel angles sufficient to support the total weight of the duct assembly and the FireMaster FastWrap+ enclosure
- Minimum ⅜" (9 mm) diameter all thread steel rods do not have to be insulated
- Horizontal support members may be incorporated into the enclosure wrap
- The integrity of FireMaster FastWrap+ system is limited to the quality of the installation

**For personal protective equipment recommendations see the MSDS. Thermal Ceramics is a trademark of Morgan Crucible Company plc. FireMaster and FastWrap are trademarks of and manufactured by Thermal Ceramics Inc. FireMaster Duct Systems are distributed by authorized distributors and no longer by 3M. Tremco and Fyre-Sil are trademarks of Tremco Inc.*

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