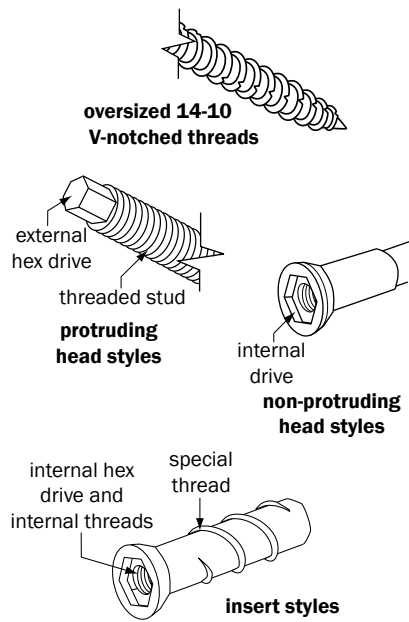


## The Quick, Economical Method to Secure Hurricane Protection

The PanelMate® hurricane anchoring system, the most recognized name for anchoring hurricane shutters, allows fast and easy installation in concrete, block or wood. Since its introduction, the PanelMate anchoring system has expanded not only to accommodate the various building materials and practices used in different geographical areas, but also to meet ever-changing building code requirements. Originally just two anchors (PanelMate male and female), there are now seven designs to choose from.

All PanelMate fasteners, except for the inserts, utilize the same oversized 14-10 V-notch thread design. This consistency can offer a simplified approach when determining appropriate anchoring requirements.



### Key Features and Benefits

- System approach (fasteners and installation components) simplifies assembly to reduce costs
- All PanelMate anchors (except for PanelMate inserts) have the same special oversized 14-10 V-notched threads (.270 O.D.) to provide exceptional pull-out and shear values
- Most designs available in 300 series (18-8) stainless steel
- Carbon steel designs have silver Stalgard® finish for outstanding corrosion resistance (withstands 800 – 1000 hours in salt spray testing per ASTM B117 standards)
- Tested to tough Miami-Dade hurricane standards:
  - PA202-94 Uniform Static Air Pressure
  - PA201-94 Impact
  - PA203-94 Cyclic Wind Loading

For additional technical information, see the individual spec sheets for each PanelMate anchor design.

### The PanelMate Line-Up

Application	Building Material	Available Lengths By Fastener Material	
		Carbon Steel with Stalgard Finish	18-8 Stainless Steel
<b>Attachment of Direct Mount Shutters</b>			
<b>Protruding Connections</b>			
PanelMate Pro	concrete, block or wood	2-1/4" to 5-1/2"	2-1/4" to 5-1/2"
PanelMate Plus	wood only	2-1/4"	2-1/4"
PanelMate Pro TVAS	through brick to structural members	7-3/8"	7-3/8"
<b>Non-Protruding (Countersunk) Connections</b>			
PanelMate Female ID*	concrete, block or wood	2-5/8" – 5-1/2"	2-5/8" – 5-1/2"
PanelMate Female TVAS	through brick to structural members	7-3/8"	7-3/8"
PanelMate Inserts	concrete, block or wood	1-5/8" & 2-/8"	Not Available
<b>Track Attachment of Accordion or Roll-Up Shutter</b>			
PanelMate TVAS Hex	through brick to structural members	7-3/8"	Not Available

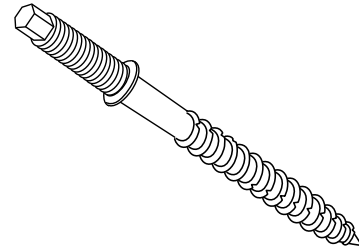
\* PanelMate Female ID anchors have a 18-8 stainless steel head assembled to a carbon steel or 18-8 stainless steel fastener

## PanelMate® Pro Anchors

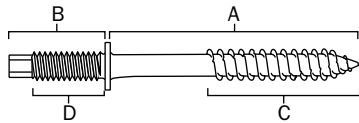
Our latest protruding design just got better with new lengths and 18-8 stainless steel designs. Ideal for concrete, masonry or wood applications.

### Key Features & Benefits

- Five new fastener lengths in both 18-8 stainless steel and carbon steel with silver Stalgard® finish
- Just drill and drive, no need to countersink
- 1/4-20 threaded stud has 1-1/8" standardized length of (one part has 2-1/4" length and 7/8" threaded stud length)
- Installs with standard 7/32" ANSI masonry drill bits
- Oversized #14 diameter with V-notched threads (.265" O.D.)
- For concrete, block or wood applications



Catalog Number		Length A	Overall 1/4-20 Stud Length B	Thread Length C	1/4-20 Thread Length D
Carbon Steel Fastener with Silver Stalgard Finish	18-8 Stainless Steel Fastener				
ENT220†	X	2-1/4"	7/8"	2"	5/8"
ENT320††	X	3-1/4"	7/8"	3"	5/8"
ENT225	ENT226	2-1/4"	1-1/8"	2"	7/8"
ENT325	ENT326	3-1/4"	1-1/8"	3"	7/8"
ENT450	ENT451	4-1/2"	1-1/8"	3"	7/8"
ENT550	ENT551	5-1/2"	1-1/8"	3"	7/8"
ENT737	ENT738	7-3/8"	1-1/8"	3"	7/8"



† formerly sold as Cat# ENX320 †† formerly sold as Cat# ENX328

### Installation

PanelMate® Pro anchors can easily be installed with the ENY246 PanelMate® Pro installation kit, conveniently packaged in a sturdy plastic box

### ENY246 PanelMate® Pro Installation Kit Contents

Catalog No.	Description	
ELY100	Drill bit adaptor & 1/8" hex key	
ELY110	Drive sleeve	
ENY156	PM Pro drive socket	
ENY165	Back-up driver with internal 1/4-20 threads	

PanelMate® Installation components are also available individually. The ENY246 PM Pro installation kit does not include a masonry drill bit.

### Masonry Drill Bits

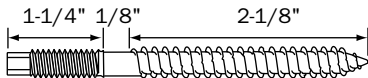
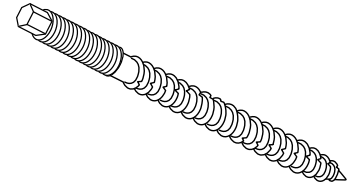
Part No.	Description	Functional Length	
<b>Tanged Masonry Drill Bits</b>			
EMC100	7/32 x 4-1/2" tanged masonry drill bit	3"	
EMC110	7/32 x 5-1/2" tanged masonry drill bit	4"	
EMC115	7/32 x 7-1/2" tanged masonry drill bit	6"	
EMC116	7/32 x 13" hex stem masonry drill bit	11-1/2"	
<b>SDS Hex Shanked Masonry Drill Bits††</b>			
EMC120	7/32 x 5-1/2" SDS masonry drill bit	2-1/4"	
EMC130	7/32 x 7" SDS masonry drill bit	4"	
EMC140	7/32 x 8 1/4" SDS masonry drill bit	5"	
EMC150	7/32 x 11" SDS masonry drill bit	6"	

†† SDS bit not recommended for use with hollow block due to the excessive percussion generated by rotary hammer drills.

## PanelMate® Plus Anchors

### Key Features & Benefits

- Just drill and drive; no countersinking needed
- Designed for wood applications; not recommended for concrete or block
- One fastener length: 2-1/8"
- Available in 18-8 stainless steel or carbon steel with silver or white Stalgard® finish
- No washer on anchor allows for adjustable protruding length



Catalog Number			Fastener Length A	Overall 1/4-20 Stud Length B	Thread Length C
Carbon Steel with Silver Stalgard® Finish	Carbon Steel with White Stalgard® Finish	18-8 Stainless Steel			
ENX383	ENX384	ENX400	2.25"	1-1/4"	2"

### Installation

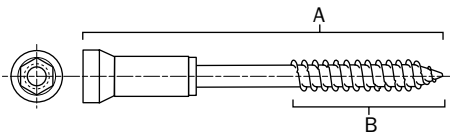
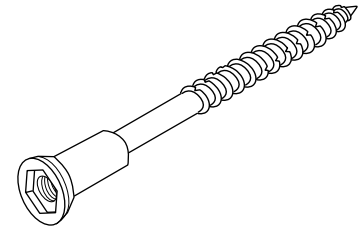
PanelMate Plus anchors can be installed with the same installation components used with PanelMate Pro anchors.

**Note:** The PanelMate Plus anchor is not recommended for use in concrete or masonry. It is intended for use in wood. For concrete or masonry applications, please see information on the PanelMate Pro design.

## PanelMate Female ID (Internal Drive) Anchors

### Key Features & Benefits

- Five lengths feature a 18-8 stainless steel head attached to carbon steel with silver Stalgard finish or 18-8 stainless steel fastener
- One more economical product made with all carbon steel with silver Stalgard finish
- 5/16" internal hex drive allows for snug fit in exterior surface
- Prevents air gap and voids around the anchor head



Catalog No.			Overall Length A	Thread Length
Stainless Steel Head & Carbon Steel Fastener	Stainless Head & Stainless Steel Fastener	All Carbon Steel		
ENW260	ENW261	ENW300**	2.600"	1.75"
ENW325	ENW326	-	3.250"	2.00"
ENW450	ENW451	-	4.500"	3.00"
ENW550	ENW551	-	5.500"	3.00"
ENW737	ENW738	-	7.375"	3.00"

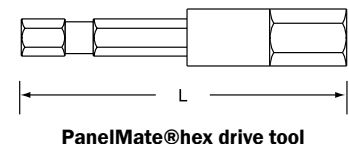
\*\* to be introduced summer 2008

### Installation

1. Drill hole using 1/2" masonry drill bit to countersink hole.
2. Use the PanelMate hex drive tool to seat fastener.

### Installation Components

Catalog No.	Model	Length "L"	Dia.	Material	Finish
ENY190	PanelMate® hex drive tool	2"	5/16" hex drive	steel	zinc plate
ENY192		3"			
ENY194		4"			

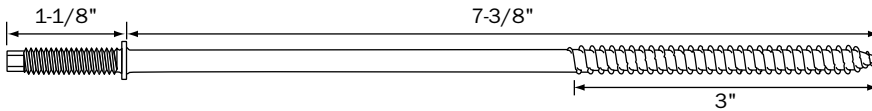


## PanelMate® Pro TVAS (Through-Veneer Anchoring System)

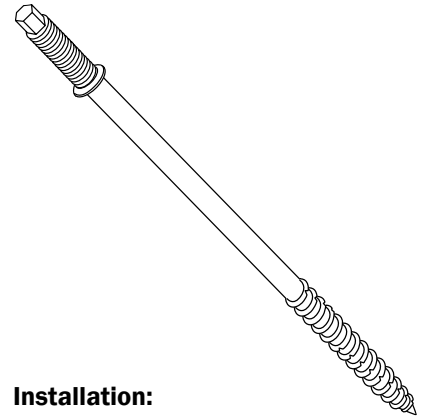
The first anchoring system designed specifically to attach hurricane shutters through brick to a building's structural members.

### Key Features & Benefits

- Available in both 18-8 stainless steel and carbon steel with silver Stalgard® finish
- 1/4-20 threaded stud has 1-1/8" standardized length
- Oversized 14-10 thread is 3" long to provide installation flexibility



Catalog Number		Fastener Length	Overall 1/4-20 Stud Length	Thread Length
Carbon Steel	18-8 Stainless Steel			
ENT737	ENT738	7-3/8"	1-1/8"	3"



### Installation:

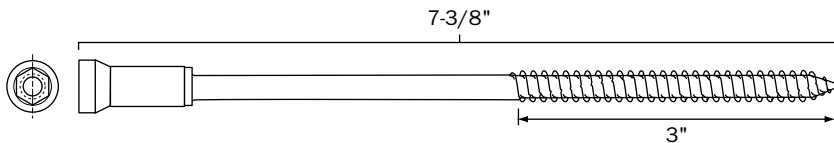
1. Drill a clearance hole through the brick with a 1/4" ANSI masonry drill bit.
2. PanelMate® Pro installation tools can be used to seat the anchor.

## PanelMate Female TVAS

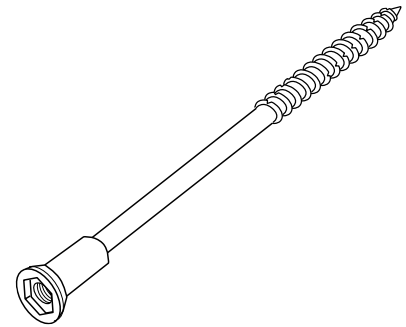
Designed specifically to provide a non-protruding surface to attach hurricane shutters through brick to a building's structural members

### Key Features & Benefits

- Available in both 18-8 stainless steel and carbon steel with silver Stalgard finish
- End-drilled head has 1/4-20 internal threads to a depth of 1/2"
- Oversized 14-10 thread is 3" long to provide installation flexibility



Catalog Number		Fastener Length	Thread Length
Carbon Steel	18-8 Stainless Steel		
ENW737	ENW738	7-3/8"	3"



### Installation

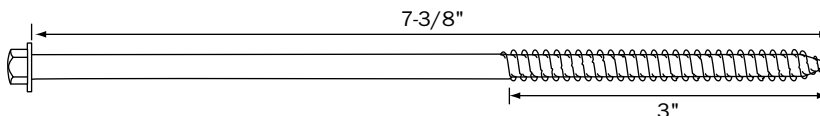
PanelMate Female TVAS anchors can be installed with the same installation components used with PanelMate Female I.D. anchors.

## PanelMate TVAS Hex

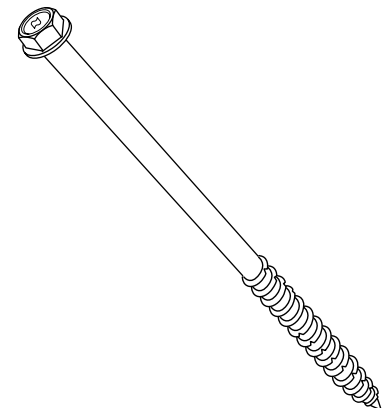
The first anchoring system designed specifically to attach track systems for roll-up or accordion shutters through brick to the building's structural members.

### Key Features & Benefits

- Carbon steel with silver Stalgard corrosion-resistant finish
- 5/16" hex drive with 1/2" washer face
- 3" length of oversized 14-10 thread
- Suitable for concrete, block and steel (pre-drilling required) as well as wood (no pre-drilling required)



Catalog Number	Fastener Length	Thread Length
ENX335	7-3/8"	3"



### Installation

Follow the same instructions used for the PanelMate TVAS anchors except use a 5/16" hex driver instead of the PanelMate Pro driver.

## Performance Data

### Performance Data – Anchors with 14-10 Threads Only

Concrete : 3,350 PSI						
Fastener Material	Style	Design	Edge distance	Depth of embedment	Tension	Shear
Carbon Steel Only	PanelMate® Pro, Plus, TVAS	Protruding	2.50" 10d	1.75"	2176	-
			1.00" 4d	2.00"	2383	755
			1.75" 7d	2.00"	-	1758
			2.50" 10d	2.00"	2458	2269
Carbon Steel Only	PanelMate® Female ID	Non-protruding	1.75" (7d)	1.75"	-	1620
			2.50" 10d	1.75"	2176	1602
CMU: 2,071 PSI						
Fastener Material	Style	Design	Edge distance	Depth of embedment	Tension	Shear
Carbon Steel Only	PanelMate® Pro, Plus, TVAS	Protruding	2.00"	1.25"	1091	1060
			3.00"	1.25"	1050	1300
Carbon Steel Only	PanelMate® Female ID	Non-protruding	2.00"	1.25"	1091	-
			3.00"	1.25"	1050	994
Wood – #2 SYP (Specific Gravity .54)						
Fastener Material	Style	Design	Edge distance	Depth of embedment	Tension	Shear
Carbon Steel and Stainless Steel	All	All	0.75"	1.875"	2632	1152
			2.00"	1.50"	-	1560

**NOTE:** Performance values listed are ultimate values obtained under laboratory conditions. Appropriate safety factors should be applied for design purposes.

### Performance Data – PanelMate® Inserts

Poured Concrete Beam (2,700 PSI)					
Test	Edge Distance	Embedment	Ultimate Load (lbs.)		
Pull-out	4"	1-5/8"	2,342		
Block or CMU (2,676 PSI)					
Test	Block Type	Power Tool and Drill Bit	Embedment	Ultimate Load (lbs.)	
Pull-out	Grout filled	Rotary hammer and SDS bit	1-1/2"	1,666 <sup>†</sup>	
Hollow Block (1,794 PSI) <sup>††</sup>					
Test Type	Edge Distance (in.)	Embedment (in.)	Ultimate Load (lbs.)	Typical Mode of Failure	
Pull-out	1-3/4"	1-1/4"	1,376	Pop-out/spall of block	
Shear			1,100	Break-out of block	
Pull-out	3-1/2"		1,608	Pop-out/spall of block	
Shear			2,208	Break-out of block	
Wood					
	Specific Gravity	Pilot Hole	Embedment	Edge Distance	Ultimate Load (lbs.)
SPF	.35	7/16" (.437")	1-5/8"	3/4"	1,115
#2SYP	.55				1,396

<sup>†</sup> In-house testing was done with pilot hole drilled using corded rotary hammer and 7/16" SDS masonry drill bit.

<sup>††</sup> In testing, the PanelMate® insert was installed and a 1/4-20 stainless steel machine screw was threaded into the insert. The test load was then applied to the machine screw.

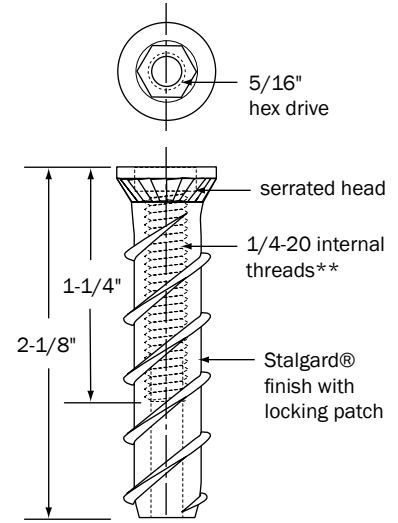
**NOTE:** These values are offered only as a guide: therefore, an appropriate safety factor should be applied to these values.

## PanelMate® Inserts

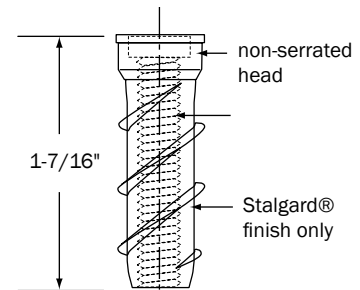
The fast and economical method to anchor hurricane shutters to concrete, masonry and wood.

### Key Features & Benefits

- Two lengths
  - 2-1/8" for applications with a stucco exterior
  - 1-7/16" for applications without a stucco exterior
- Oversized 1/2" thread design (.527" O.D.) provides high strength connection
- 5/16" internal hex drive with countersinking head design
- Deeply tapped 1/4-20 internal threads; through-drilled on short version
- Silver Stalgard® finish provides exception corrosion resistance
- Nylon locking patch on long insert resists back-out



**PanelMate L Insert**



**PanelMate S Insert**

\*\*accept multiple lengths of 1/4-20 fasteners

Catalog No.	Model	Insert Length	Dia.	Material	Finish
ENX305	PanelMate L Insert	2-1/8"	1/2"	carbon steel	Silver Stalgard® with nylon locking patch
ENX310	PanelMate S Insert	1-7/16"			Silver Stalgard® only

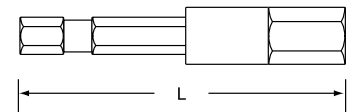
### Installation

1. Pre-drill pilot hole with 7/16" ANSI drill bit.
2. Drive in the PanelMate insert until it seats flush. Use of an impact driver is recommended.

**NOTE:** In non-grout-filled CMU applications, masonry drill bits and hammer drills are recommended instead of SDS bits and rotary hammer drills, in order to minimize spalling of block wall.

### Installation Components

Catalog No.	Model	Length L	Dia.	Material	Finish
ENY190	PanelMate® hex drive tool	2"	5/16" hex drive	steel	zinc plate
ENY192		3"			
ENY194		4"			



**PanelMate® hex drive tool**

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