



## **Advancing Building Methods**







### **About Airex Manufacturing, Inc.**

ur focus is designing and engineering evolutionary products for contractors, architects, engineers, designers, and specifiers to fulfill the ongoing evolution of market demand and building energy efficiency code requirements.

Incorporated in 2009 and based in Southern California we are a proud U.S. Manufacturer of innovative patented products for the Building and HVAC Industries.

All of our superior products have been innovated through intense engineering, smart design, premium material selection, and rigorous laboratory testing. We are now the #1 Choice in the PRO-HVAC industry within the wall refrigerant piping penetration outlet seal and outdoor refrigerant piping insulation protection categories.





Please, visit our website for product information, inquires, specifications, brochures, CAD drawings.

www.airexmfg.com

### **Product Line**



#### **Engineered Wall Seal & Insulation Protection System!**

The Airex Pro-System Kit is a 2-In-1 system that combines a wall-mounted HVAC piping outlet and air-tight seal with a piping insulation protector and UV Vapor Retarder for exterior application of refrigerant piping wall penetrations and outdoor insulation.









#### Air Leakage Wall Seal, Protect Indoor Air Quality!

The Titan Outlet is the engineered solution for wall sealing HVAC refrigerant line penetrations featuring a weather and air leakage resistant, vibration control, rodent proof, wall enclosure system, and has become the preferred industry leader.











#### **UV Weather Protector and Vapor Retarder (All-In-One)!**

The E-Flex Guard is an Insulation Protector for HVAC Piping on Outdoor applications that complies with mandatory requirements where adhesive tapes are no longer allowed by code, and as specifically prescribed by the new Building/Residential/Energy Codes. Engineered PVC Material is UV/Weather Resistant and a Class II Vapor Retarder to comply with new energy codes, and sustainably protects outdoor pipe insulation.









72 Series

750 Series

90 Series



### **Typical Installations Guaranteed to Fail**

### **Makeshift Methods Are Guaranteed to Fail**



- **⋉** Building Damage
- Energy Loss

- **Rodent Intrusion**
- 🔀 Unhealthy Indoor Air 🔀 Unprofessional, Ugly Installation

### **Airex Manufacturing-Superior Installation**



### **Sustainable Solution Professionally Engineered**



- **V** Pipe Vibration Control
- Airtight Seal
- **✓** Sustainable Energy Savings
- **√** Rodent Proof
- $\overline{\checkmark}$  Aesthetic Installation





Seals HVAC Piping Wall Penetrations

### **Product Summary**

The TITAN OUTLET™ is the engineered solution for wall sealing HVAC penetrations featuring a wall enclosure system that is weather and air leakage resistant, controls vibration, is rodent proof, and has become the preferred industry leader.



### Air Leakage Wall Seal, Protect Indoor Air Quality!

- Meets mandatory Building Codes, Energy, Residential, Mechanical, and Green Codes
- Made in The USA
- Superior durable quality with UV/resistance and high impact strength design
- Gasket Compression System Seals Wall Air Leakage and Weather Moisture Wall Damage
- Flexible elastomeric outlet sleeve design offers, anti-wind, anti-rodent features
- Design supports HVAC systems with wall isolation & anti-vibration features
- Flexible Sleeve Reduces Piping Vibration and Noise

**TGS Series** 

AIREX TITAN OUTLET™ – Professionally Engineered and with an Architectural aesthetic finish design, features a Wall Outlet Enclosure with excellent weather proofing capabilities that fits over and seals around wall surface piping penetrations, utilizing elastomeric gaskets and seals, as required by building, energy, and mechanical codes. AIREX TITAN OUTLET™ prevents wall gaps and exterior surface cracks associated with the use of rigid wall penetration sleeves or rigid penetration flashing materials. Featuring a combined fastener and gasket/seal applied compression-force system that accomplishes simultaneous, solid, internal wall structure attachment and all-surface wall gasket mounting for long-term sustainable and effective air leakage sealing.

An integral over-molded Flexible Elastomeric Sleeve, seals the refrigerant piping and insulation, creating an air leakage seal, that permanently supports the refrigerant piping at the point of equipment service areas, professionally engineered and with an architectural aesthetic finish design. The sleeve also features a designated region to accommodate a stainless-steel clamp that mechanically grips both refrigerant piping and piping insulation, mechanically securing against vibration, rodents, insects, and pipe insulation protection for outdoor usage.







**TSS Series** 



Packaging

U.S. Patent #9,091,377 B2 #9,523,200 B2





### **Wall Surface Applications**

Brick

- Siding
- Concrete
- Stone
- Masonry
- Stucco
- Metal Paneling
- Drywall

### **Weather and Physical Damage Protection**

















Outlet Approved Product & Material Testing					
<b>**</b>	ASTM E283	Air Leakage	0	ASTM E331	Water Penetration
	UL 746C	Outdoor Suitability - f1 Rating	*	ASTM E2178	Air Permeability

#### **Other Pertinent Material Tests**

- ASTM D1525C-09 Temperature Deformation
- ASTM D648-07 Temperature Load Deformation
- UL 94 HB Flammability

- ASTM D573-04 Deterioration
- ASTM D746-07 Brittleness Temperature

#### **Codes & Standards Compliance**

#### 2012, 2015, 2018 International Energy Conservation Code (IECC)

#### Commercial

**Air Leakage** (Mandatory) - C402.4 & C402.4.2 (2012); C402.5 & C402.5.1.1(3) (2015, 2018)

Air Barrier Penetration (2018) - C402.5.1.1

Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed... <u>Sealing shall allow for expansion and contraction of materials and mechanical vibration</u>.

#### Residential

**Air Leakage** (Mandatory) Section R402.4.1, R402.4.1.1, R402.4.1.2 (2012, 2015); R402.4, R402.4.1.1, R402.4.1.2 (2018) Building Thermal Envelope - Penetrations

 2016, 2019 California Building Energy Efficiency Standards (TITLE 24 ENERGY CODE)

#### Commercial, Residential Sections

**Air Leakage** (Mandatory) - Section 110.7 All joints, penetrations and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather stripped, or otherwise sealed to limit infiltration and exfiltration.

#### 2016, 2018 Uniform Mechanical Code (UMC) Chapter 11 Refrigeration

Scope 1101.0; General 1106.0; Support 1106.2; Piping Vibration & Strain 1111.1; Support 1111.2...piping and tubing shall be securely fastened to a permanent support within six (6) feet from... the compressor; Visual Inspection 1111.4

#### 2012, 2015, 2018 International Mechanical Code (IMC) Chapter 3

General 301.1; Energy Utilization 301.2; Listing, Labeling 301.7; 301.11; Vibration Isolation 301.13; Rodent Proofing 301.17; Wind Resistance 301.15; Piping Support 305, 305.1, 305.2, 305.4; Refrigeration Piping 1107 ASME B31.5

 2012, 2015, 2018 International Building Code (IBC) Appendix F

Rodent Proofing F101.3

2012, 2015, 2018 International Residential Code (IRC)
 Chapter 11 Part IV Energy Efficiency

General N1101; Scope N1101.1; Air Leakage N1102.4; Building Thermal Envelope N1102.4.1 - (1. All joints, seams, penetrations)





### Performing Insulation Protection

### **Product Summary**

The E-FLEX GUARD™ is an Insulation Protector for HVAC Piping on Outdoor applications, complying with mandatory code requirements where adhesive tapes are no longer allowed, as specifically prescribed by the new Building/Residential/Energy Codes. Engineered PVC Material is UV/Weather Resistant and a Class II Vapor Retarder that complies with new energy codes, and sustainably protects outdoor pipe insulation (All-In-One).



### **UV Weather Protector & Vapor Retarder (All-In-One)!**

- Meets mandatory Building Codes, Energy, Residential, Mechanical, and Green Codes
- Made in The USA
- Outdoor UV/Weather Grade Resistant Construction
- Self-Gripping, Dual-Bonded Hook & Loop Fastening System
- Removable/Reusable for Maintenance
- Protector and Class II Vapor Retarder (All-In-One)
- Meets ASTM G153 Weatherization and UV
- Meets ASTM E-96 Water/Vapor Permeability

AIREX E-FLEX GUARD<sup>TM</sup> - Flexible, insulation protection jacket system engineered with PVC Sheeted Material specifically formulated for outdoor piping insulation protection. The integral fastening system is non-adhesive, dual bonded, hook and loop, making it Removable and Reusable for Maintenance required by code. Additional, unrivaled benefits include: Class "A" Fire/Smoke Rating, Vapor Retarder, Anti-Fungal, Anti-Microbial, variable piping insulation diameter sizes, lengths of up to 75 feet, plus available 90-Degree Angle fittings. The Insulation Protection System completes a code compliant, secure, professional aesthetic installation as a sustainable solution to maintain energy efficiency and optimum performance of HVAC equipment.







**Packaging** 

75 ft Rolls 750 Series





**Packaging** 

90° Angles 90 Series



U.S. Patent #9,091,377 B2 #9,523,200 B2





### **Weather and Physical Damage Protection**















Insulation Protection Approved Product & Material Testing						
	ASTM G153	Weatherization and UV Exposure		ASTM E84/UL 723	Flame and Smoke Rating 25/450	
0	ASTM D570	Water Absorption	CANA S	ASTM G21	Anti-Fungal/Anti-Microbial	
	ASTM E96	Water/Vapor Permeability		ASTM D412	Tension Deformation Test	

#### **Codes & Standards Compliance**

 IECC - 2012, 2015, 2018 Protection of Piping Insulation – Commercial Section

C403.2.8.1 (2018), C403.2.10.1 (2015), C403.2.8.1 (2012)

#### **Residential Section**

R403.3.1, (2012, 2015), R403.4.1 (2018)

Protection of Piping Insulation: Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, Equipment Maintenance, wind and shall provide shielding from solar radiation that can cause degradation of the material. Adhesive tape shall not be permitted.

 2016, 2019 California Building Energy Efficiency Standards (TITLE 24 ENERGY CODE)

Commercial Requirement for Pipe Insulation, Section 120.3(a) 1. (b) 1. & 2. Residential Requirement for Pipe Insulation, Section 150.0(j)3. A. & B.

 International Mechanical Code 1107.7 - Exposure of refrigerant pipe joints.

Refrigerant pipe joints erected on the premises shall be exposed for visual inspection prior to being covered or enclosed.

• IRC - 2018

Refrigerant Line Insulation Protection - M1411.61 - Section N1103.4.1

ASHRAE Standard 90.1 - 2013, 2016, 2019

a .Insulation exposed to weather shall either be rated for outdoor use or be installed with a cover suitable for outdoor service; e.g., including but not limited to protected by aluminum, sheet metal, painted canvas, or plastic cover. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

b. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder facing, or the insulation shall be installed at the thickness that qualifies as a Class I or Class II vapor retarder.

 2009, 2012, 2015, 2018 International Mechanical Code (IMC) Chapter 3

General Regulations Section 301.1 Scope - Sections 301.10, 301.11, 301.14, 301.15, 305.1, 305.2, 305.4

• 2009, 2012, 2015, 2018 Uniform Mechanical Code (UMC) Chapter 11 Refrigeration – Section 1101.0 Scope -

Section 1101.1 - General Requirements Section 1106.0 – Section 1106.2, Section 1111.0 Erection of Refrigerant Piping & Vibration – Sections 1111.1, 1111.2, 1111.4





Complete Sustainable HVAC & Building Performance



The AIREX PRO-SYSTEM KIT™ is a 2-In-1 System that combines air-tight sealing with a wall-mounted piping outlet and a UV/Vapor Retarder piping insulation protector for exterior applications of HVAC refrigerant piping wall penetrations and outdoor insulation.



### **Weather and Physical Damage Protection**













AIREX PRO-SYSTEM KIT™ is a 2-in-1 System for combined air-tight sealing wall-mounted piping outlets and UV/Vapor Retarder insulation protection system for exterior HVAC refrigerant piping penetrations and outdoor insulation located at the point of service connections for outdoor equipment.

The 2-In-1 System (Includes TITAN OUTLET and E-FLEX GUARD) Offers improved sustainability, energy efficiency, and optimum performance of building wall, outdoor pipe insulation, and HVAC equipment. Due to the multi-dimensional complexities of recent building energy codes, building codes, green codes, mechanical codes, residential codes, and standards within this category, using AIREX PRO-SYSTEM KIT™ is the only guaranteed solution to meet all your quality needs and mandatory code requirements.







U.S. Patent #9,091,377 B2 #9,523,200 B2





TITAN OUTLET™

Engineered Solution for Wall Sealing HVAC Penetrations

**E-FLEX GUARD**™

Insulation Protector for HVAC Piping on Outdoor Applications















#### **Outlet Approved Product & Material Testing**

- ASTM E283 Standard Test Method for Air Leakage
- ASTM E331 Standard Test Method for Water Penetration
- **ASTM D1525C-09** Temperature Deformation Test
- ASTM D648-07 Temperature Load Deformation Test
- UL 94 HB Flammability Test
- UL 746C Outdoor Suitability f1 Rating
- ASTM D573-04 Deterioration Test

### **Insulation Protector Approved Product & Material Testing**

- ASTM G153 Weatherization and UV Exposure
- **ASTM E96** Water/Vapor Permeability
- **ASTM G21** Anti-Fungal/Anti-Microbial
- ASTM D570 Water Absorption
- ASTM E84/UL 723 Flame and Smoke Rating 25/450

#### **Codes & Standards Compliance**

(See page 6 for specific code language.)

- 2012, 2015, 2018 International Building Code (IBC) Appendix F: Rodent Proofing
- 2012, 2015, 2018 International Residential Code (IRC) Chapter 11 Part IV Energy Efficiency
- 2012, 2015, 2018 International Energy Conservation Code (IECC)
- 2016, 2018 Uniform Mechanical Code (UMC) Chapter 11 Refrigeration
- 2012, 2015, 2018 International Mechanical Code (IMC) Chapter 3
- 2016, 2019 California Building Energy Efficiency Standards (TITLE 24 ENERGY CODE)
   Commercial, Residential Sections

### **Codes & Standards Compliance**

(See page 8 for specific code language.)

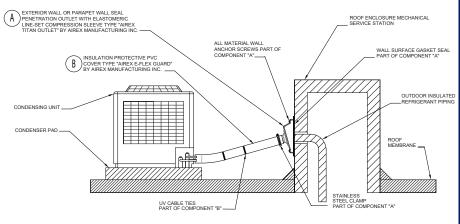
- IECC 2012, 2015, 2018 Protection of Piping Insulation Commercial, Residential Section
- 2016, 2019 California Building Energy Efficiency Standards (TITLE 24 ENERGY CODE)
   Commercial Requirement for Pipe Insulation, Section 120.3(a) 1. (b) 1. & 2.
   Residential Requirement for Pipe Insulation, Section 150.0(i)3. A. & B.
- International Mechanical Code 1107.7 Exposure of refrigerant pipe joints.
- IRC 2018
  Refrigerant Line Insulation Protection M1411.61 Section N1103.4.1
- ASHRAE Standard 90.1 2013, 2016, 2019
- 2009, 2012, 2015, 2018 International Mechanical Code (IMC) Chapter 3
- 2009, 2012, 2015, 2018 Uniform Mechanical Code (UMC) Chapter 11 Refrigeration



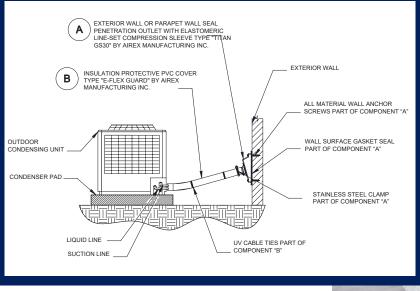
### **Installations Using CAD Drawings**



Mechanical Rooftop Service Station



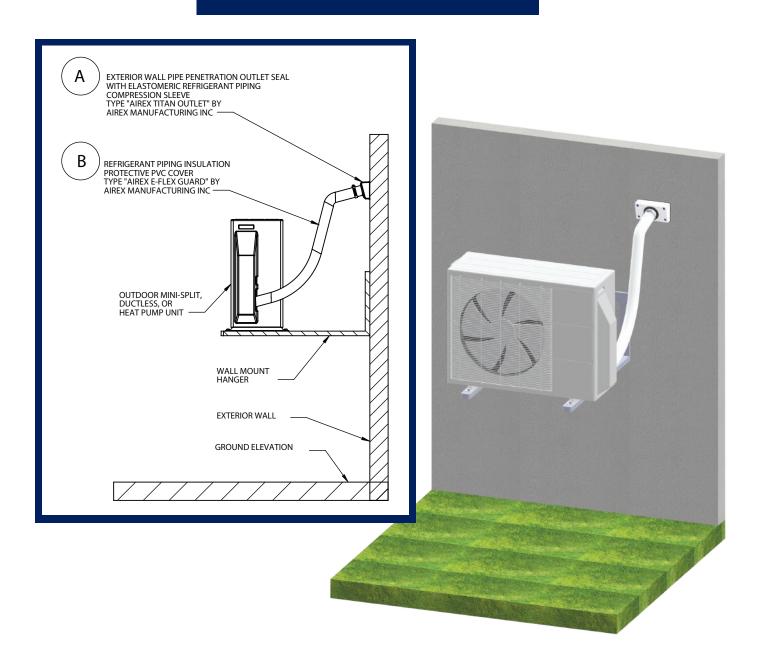
### Wall Installation





### **Mini-Split Unit Application**

### Refrigerant Piping Diagram Wall-Mounted Mini-Split Unit





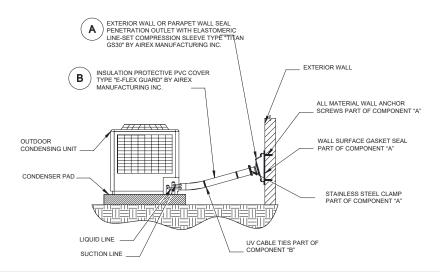
### **CAD Drawings Available**



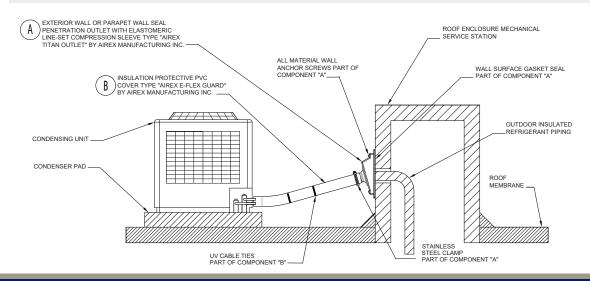
"We assist engineers by maintaining the only CAD resource

- Acquire CAD Drawings for use in your projects.
- Update your plans
- Fast implementation

#### TGS Condensing Unit Refrigerant Piping Diagram



#### **TGS Rooftop Enclosure Application**



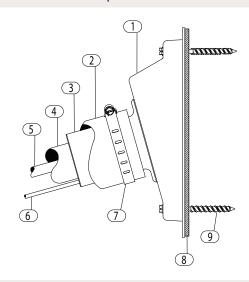
### **CAD Drawings Available**

of HVAC wall sealing and insulation protection!"

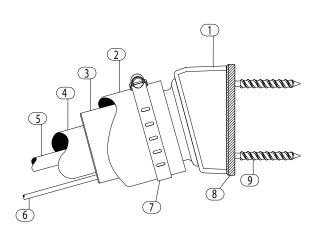
- Download from www.airexmfg.com
- Available in the following formats: PDF, DXF, DWG, RFA



### TGS Pipe Penetration Detail



TSS Pipe Penetration Detail



- 1. EXTERIOR WALL OR PARAPET WALL SEAL PENETRATION OUTLET WITH ELASTOMERIC SLEEVE
- 2. INSULATION PROTECTIVE PVC COVER
- 3. ELASTOMERIC LINE-SET COMPRESSION & ANTI-VIBRATION SLEEVE
- 4. INSULATION FOR REFRIGERATION SUCTION LINE
- 5. REFRIGERATION SUCTION LINE
- 6. REFRIGERATION LIQUID LINE COPPER
- 7. MECHANICAL CONNECTION SECURED WITH STAINLESS STEEL CLAMP
- 8. WALL SURFACE SEAL ELASTOMERIC GASKET
- 9. WALL FASTENERS SELF-TAPPING 3/8" HEX HEAD 1/4" DIAMETER ALL MATERIAL ANCHORS SCREWS WITH ELASTOMERIC WASHERS



### **Recommended Sizing Table**



72 Series: 1.8 m



Airex Part Number	Diameter	Width	Pipe Insulation Thickness		With Tu	be Size
72E D	4 cm				16 mm	5/8"
72E-B		20 cm	13 mm	1/2"	19 mm	3/4"
					22 mm	7/8"
	6 cm	24 cm			16 mm	5/8"
72C-B			19 mm	3/4"	19 mm	3/4"
12C-B					22 mm	7/8"
			13 mm	1/2"	29 mm	1-1/8"
			25 mm	4"	19 mm	3/4"
72X-B	8 cm	29 cm		1"	22 mm	7/8"
			19 mm	3/4"	29 mm	1-1/8"

### **Pro Tip for Sizing:**

E = 4 cm diameter

C = 6 cm diameter

X = 8 cm diameter

750 Series: 22.86 m

Airex Part Number	Diameter	Width	Pipe Insulation Thickness		With Tuk	oe Size
750E-B	4 cm	20 cm	13 mm	1/2"	16 mm 19 mm 22 mm	5/8" 3/4" 7/8"
750C-B	6 cm	24 cm	19 mm	3/4"	16 mm 19 mm 22 mm 29 mm	5/8" 3/4" 7/8" 1-1/8"
750X-B	8 cm	29 cm	25 mm 19 mm	1" 3/4"	19 mm 22 mm 29 mm	3/4" 7/8" 1-1/8"



### **Recommended Sizing Table**



### **TGS Model:** Stucco & Masonry Applications

Airex Part Number	Pipe Insulation Thickness		With Tub	e Size
			16 mm	5/8"
TGS-550-G	19 mm	1/2"	19 mm	3/4"
			22 mm	7/8"
	19 mm	3/4"	16 mm	5/8"
TGS-575-G			19 mm	3/4"
100-070-0			22 mm	7/8"
	13 mm	1/2"	29 mm	1-1/8"
	25	1"	19 mm	3/4"
TGS-510-G	25 mm		22 mm	7/8"
	19 mm	3/4"	29 mm	1-1/8"

Airex Part Number	Sleeve Diameter
TGS-550-G	4 cm
TGS-575-G	6 cm
TGS-510-G	8 cm

# 

### - TSS Model: Siding or Compact Applications

# 6 cm 10 cm

**TSS Dimensions** 

Airex Part Number	Pipe Insulation Thickness		With Tub	oe Size
		1/2"	16 mm	5/8"
TSS-550-G	13 mm		19 mm	3/4"
			22 mm	7/8"
TSS-575-G	19 mm	3/4"	16 mm	5/8"
			19 mm	3/4"
133-3/3-0			22 mm	7/8"
	13 mm	1/2"	29 mm	1-1/8"

Airex Part Number	Sleeve Diameter
TSS-550-G	4 cm
TSS-575-G	6 cm



### **Model Numbers**

### **PROSYSTEMKIT**

Complete Sustainable HVAC & Building Performance

TGS Series Masonry, Stucco, & Flat Applications	Part Number	Fits Pipe Insulation Thickness	Color
	TGS-650G-72E-B	13 mm	Gray TITAN Black E-FLEX
	TGS-675G-72C-B	19 mm	Gray TITAN Black E-FLEX
	TGS-610G-72X-B	25 mm	Gray TITAN Black E-FLEX
	TGS-650G-72E-W	13 mm	Gray TITAN White E-FLEX
000	TGS-675G-72C-W	19 mm	Gray TITAN White E-FLEX
	TGS-610G-72X-W	25 mm	Gray TITAN White E-FLEX
	TGS-650W-72E-B	13 mm	White TITAN Black E-FLEX
6	TGS-675W-72C-B	19 mm	White TITAN Black E-FLEX
	TGS-610W-72X-B	25 mm	White TITAN Black E-FLEX
	TGS-650W-72E-W	13 mm	White TITAN White E-FLEX
	TGS-675W-72C-W	19 mm	White TITAN White E-FLEX
•	TGS-610W-72X-W	25 mm	White TITAN White E-FLEX

TSS Series Siding or Compact Applications	Part Number	Fits Pipe Insulation Thickness	Color
	TSS-650G-72E-B	13 mm	Gray TITAN Black E-FLEX
	TSS-675G-72C-B	19 mm	Gray TITAN Black E-FLEX
	TSS-650G-72E-W	13 mm	Gray TITAN White E-FLEX
. 6	TSS-675G-72C-W	19 mm	Gray TITAN White E-FLEX
	TSS-650W-72E-B	13 mm	White TITAN Black E-FLEX
, 1	TSS-675W-72C-B	19 mm	White TITAN Black E-FLEX
	TSS-650W-72E-W	13 mm	White TITAN White E-FLEX
	TSS-675W-72C-W	19 mm	White TITAN White E-FLEX

### **Model Numbers**

### TITANOUTLET"

### Seals HVAC Piping Wall Penetrations

TGS Series Masonry, Stucco, & Flat Applications	Part Number	Fits Pipe Insulation Thickness	Color
	TGS-550-G	13 mm	Gray TITAN
	TGS-575-G	19 mm	Gray TITAN
	TGS-510-G	25 mm	Gray TITAN
	TGS-550-W	13 mm	White TITAN
	TGS-575-W	19 mm	White TITAN
	TGS-510-W	25 mm	White TITAN

#### TGS 3/4 Inch Series

3/4" Thick Gasket

Extreme Uneven Surface Masonry, Stucco, Applications

TGS-550-G-34	13 mm	Gray TITAN
TGS-575-G-34	19 mm	Gray TITAN
TGS-510-G-34	25 mm	Gray TITAN
TGS-550-W-34	13 mm	White TITAN
TGS-575-W-34	19 mm	White TITAN
TGS-510-W-34	25 mm	White TITAN

#### TSS Series Siding or Compact Applications

.0	TSS-550-G	13 mm	Gray TITAN
	TSS-575-G	19 mm	Gray TITAN
	TSS-550-W	13 mm	White TITAN
	TSS-575-W	19 mm	White TITAN

# **EFLEXGUARD**Performing Insulation Protection

renorming insulation relection				
72 Series 6 ft. Lengths	Part Number	Fits Pipe Insulation Thickness	Color	
	72E-B	13 mm	Black E-FLEX	
	72C-B	19 mm	Black E-FLEX	
	72X-B	25 mm	Black E-FLEX	
	72E-W	13 mm	White E-FLEX	
	72C-W	19 mm	White E-FLEX	
	72X-W	25 mm	White E-FLEX	
750 Series 75 ft. Lengths				
	750E-B	13 mm	Black E-FLEX	
	750C-B	19 mm	Black E-FLEX	
	750X-B	25 mm	Black E-FLEX	
	750E-W	13 mm	White E-FLEX	
	750C-W	19 mm	White E-FLEX	
	750X-W	25 mm	White E-FLEX	
90 Series 90° Angles				
	90E-B	13 mm	Black 90 Angle	
	90C-B	19 mm	Black 90 Angle	
	90X-B	25 mm	Black 90 Angle	
	90E-W	13 mm	White 90 Angle	
	90C-W	19 mm	White 90 Angle	
	90X-W	25 mm	White 90 Angle	



### **For All Inquiries**



### www.airexmfg.com

Please, visit our website for:

- Brochures
- Product Lists
- CAD Drawings
- Submittal Sheets
- Product Instructions
- Product Specifications

### **Contact Information**

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