

FLUE GAS VENTING SYSTEMS



System1738®
FLUE GAS VENTING



FLUE GAS VENTING SYSTEM

- System 1738 PVC and CPVC materials are UL 1738 certified for venting gas burning appliances
- PVC is certified for venting category II & IV appliances and rated for flue gas temperatures up to 149°F (65°C)
- CPVC is certified for venting categories II, III, & IV gas burning appliances and rated for flue gas temperatures up to 194°F (90°C)
- System 1738 is a complete system of PVC and CPVC pipe, fittings, cements and accessories certified to UL 1738
- Available in 2", 3" and 4" diameters
- National distribution


IPEX
by aliaxis

We build tough products for tough environments®

Two Certified Solutions

The first engineered PVC and CPVC Flue Gas Venting System certified to UL 1738

System 1738® offers a complete system of pipe, fittings, termination kits, and cements manufactured to meet the stringent demands of the UL 1738 venting standard.

PVC (Polyvinyl Chloride) System 1738 is certified up to 149°F (65°C) and for gas fired appliance categories II and IV.

CPVC (Chlorinated Polyvinyl Chloride) System 1738 is certified up to 194°F (90°C) for gas fired appliance categories II, III and IV.

To aid installers and inspectors is our System 1738 Installation Guide.

The contents of the guide are part of the certification process and contain many important aspects of installation to ensure successful, code-compliant installations. Installation instructions provided by the guide includes support spacing, expansion and contraction, solvent welding procedures and flue gas venting accessories.

NOTICE

Check out system1738.com to reference and download a copy of the Installation Methods Guide for IPEX System 1738® Venting Systems for Gas-Burning Appliances Categories II and IV that includes safety precautions, installation and warranty.



The Code Change and Better Venting Option

Historically, the plumbing and HVAC industry has not nationally regulated the use of plumbing pipes and accessories used for thermoplastic Flue Gas Venting (FGV) installations. Currently, the use of plumbing Schedule 40 Solid Wall or Drain, Waste, and Vent (DWV) pipe and fittings are allowed if they are referenced as options in the appliance manufacturer's installation instructions.

These plumbing products do NOT meet the UL 1738 safety standard for venting one of the most dangerous and silent killers: carbon monoxide.

The use of plastic venting systems on gas fired water heaters, furnaces and boilers has undergone a significant change. NFPA 54-18 (National Fire Protection Association) National Fuel Gas Code and IFGC-18 (International Fuel Gas Code) now recognizes the UL 1738 venting standard as an option for venting Categories II, III, & IV gas fired appliances.

The change to both these model codes empowers relevant authorities to allow and even require in their local plumbing and mechanical code the use of a vent material specified by the appliance manufacturers to be certified to the UL 1738 venting standard.



Safe Design

The New Standard in Life Safety

The safety concern today is in the use of plumbing DWV pipe and fittings in FGV applications. These products were never intended to be used in FGV applications, but they have been chosen because they are often the least expensive materials available.

Some manufacturers of these products have stated repeatedly that these products are not designed or certified for FGV. These products neither meet the key performance requirements nor most of the material requirements of UL 1738. **Simply put, plumbing DWV products are NOT designed to meet the life safety standards of FGV applications.**

ASTM Standards vs. UL 1738

Currently, the use of plumbing thermoplastic products are referenced in the ANSI Z21 appliance standards as being suitable materials in FGV applications; provided that, they meet the Heat Deflection Temperature (HDT) in accordance with ASTM Standards which are specified by the appliance manufacturer as an approved option for venting. However, these ASTM Standards are for fluid handling applications only. For example, ASTM D1785 is a standard for pressure rated Schedule 40, 80, and 120 PVC pipe intended for use with distribution of pressurized liquids only. In fact, the 2015 standard states:

"This standard specifies dimensional, performance and test requirements for plumbing and fluid handling applications only. It does not include provisions for the use of these products for venting of combustion gases. UL 1738 is a standard that does include specific testing and marking requirements for flue gas venting products, including PVC" ASTM D1785-15 Standard reference.

Plumbing Product Standard vs. FGV Installation

Standards	Description	ABS Foam-core	ABS	PVC Foam-core	PVC	CPVC	PVC DWV	System 1738®
ASTM D1785	Schedule 40, 80 and 120 PVC, Pressure Rated for Water				✗			
ASTM D2665	PVC Drain Waste Vent (DWV) Pipe and Fittings						✗	
ASTM F891	PVC Pipe with a Cellular Core for Non Pressure			✗				
ASTM D2241	PVC Pressure Rated Pipe - SDR Series				✗			
ASTM F441	CPVC Plastic Pipe, Schedules 40 and 80					✗		
ASTM D2661	ABS Schedule 40 Pipe and Fittings		✗					
ASTM F628	ABS DWV Schedule 40 Pipe with a Cellular Core	✗						
UL 1738	Vent Systems for Gas-Burning Appliances Categories II, III, and IV							✓

✗ Not Recommended or warranted in a FGV installation (ASTM Standards are for liquid handling applications only) | ✓ Recommended and warranted in a FGV installation



Venting. ReInvented.™

Advantages

System 1738 Flue Gas Venting offers a comprehensive selection of pipe, fittings, cement and termination components all manufactured from engineered PVC and CPVC compounds. PVC is rated for a maximum flue gas temperature of 149°F, while CPVC is rated for a maximum flue gas temperature of 194°F. Both materials meet the stringent requirements of UL 1738 venting standard for gas-burning appliances in Categories II and IV. Additionally, System 1738 CPVC is certified for gas-burning appliances in Category III.

The Certified System for Flue Gas Venting

System 1738 pipes and fittings are black in color for PVC and grey for CPVC. Material type, application and temperature rating is included in the pipe print line as well as on the orange and black certification labels applied to each fitting.

All System 1738 products have been certified by Underwriters Laboratories and carry a UL mark as proof of certification. Markings on pipe and fittings are required by UL 1738 and clearly distinguish a certified gas venting system from every day, non-certified plumbing pipe and fittings. Look for the System 1738 label and the UL mark as assurance that the venting system being used is certified.

System 1738® Physical Properties and Conformity to UL 1738

To be certified to the UL 1738 standard, System 1738 underwent extensive material and performance testing. In addition, part of the certification process included formal approval of all installation instructions and special marking and labeling requirements for FGV pipe, fittings, and cement. Meeting the UL 1738 standard ensures that System 1738 is suitable and the safest option available for FGV applications.

This chart reflects only a selection from the list of conditioning and test requirements in UL 1738.

Section	System Performance Test Requirements	UL 1738	Section	Material Conditioning & Test Requirements	UL 1738
19	Temperature Structure	✓	40.2	Elevated Temperature Conditioning	✓
22.4	Joint Load	✓	40.3	Light and Water Conditioning	✓
28	Vent Sag	✓	40.4	Condensate Conditioning	✓
29	Puncture	✓	42.2	Tensile	✓
35	Joint Tightness	✓	42.3	Impact	✓
37	Low Temperature Handling	✓	42.5	Flammability	✓
42.4	Crush Resistance and Stiffness	✓	43.1	Heat Deflection Temperature	✓

✓ System 1738® meets all requirements listed above

Size Selection

2" – 4" PVC and CPVC pipe and fittings offer a homogeneous solvent weld joining system and are manufactured to STURDY DIMENSIONS and tighter tolerances than required by ASTM DWV standards to provide a strong, rigid vent piping system.

System 1738® Cements and Primers

System 1738 solvent cement is specifically formulated and certified for flue gas venting applications to provide strong, homogeneous joints.. PVC cement is auburn in color and CPVC cement is orange. These cements include an optical brightener as an additive that is visible under a UV light for identification of the proper cement having been used for the application.

IPEX cements and primers are UL GREENGUARD Gold certified. To search which products are certified and view/download their certificates, please visit the spot.ul.com website.

A primer is also offered for applications where the gas venting system is to be installed in temperatures below 32°F (0°C).

Cutting and deburring tools are also available to ensure proper joint preparation.

System 1738 Field Installation

In accordance with standard UL 1738, System 1738 pipe, fittings and cements are certified as a system and must be installed as such. Different manufacturers have different materials, joining systems and/or cements. **Do NOT mix pipe, fittings, solvents, or joining methods from different manufacturers. Do NOT use other IPEX product not listed in this brochure. This may result in unsafe conditions and will void certification and warranty.**

We are proud to offer you our 10-year industry-leading Product Warranty on our System 1738 FGV piping system.



System 1738® Installation and Training

The certified Installation Methods Guide for IPEX System 1738® Venting Systems may be obtained by contacting IPEX or may be viewed online at system1738.com.

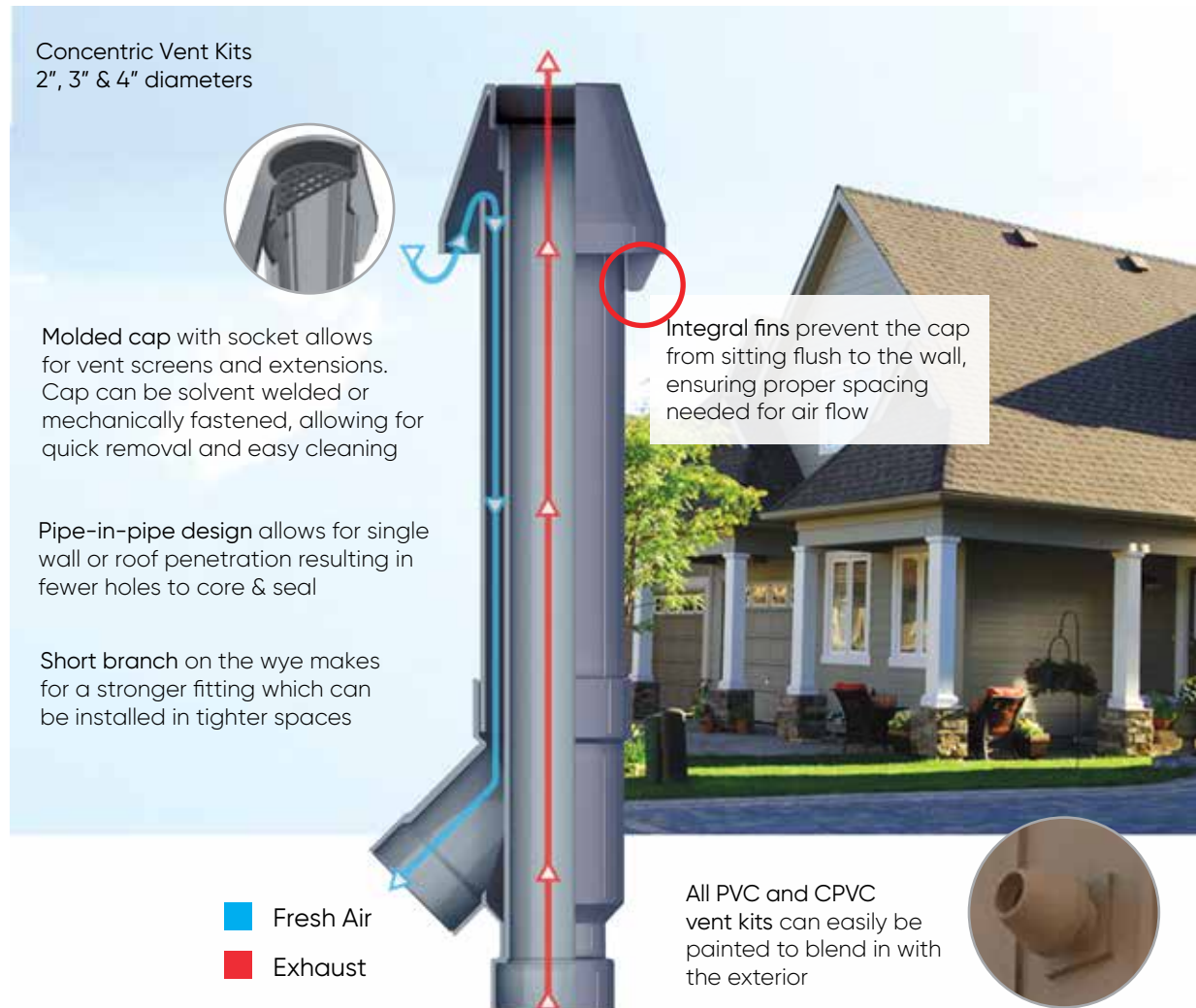
SYSTEM 1738 TRAINING IS AVAILABLE focusing on proper solvent welding and installation. Contact IPEX for details.

IPEX recommends that installers attend formal training on System 1738 every three years to ensure proper installation methods are utilized at all times.

Engineered Solutions: Vent Terminations

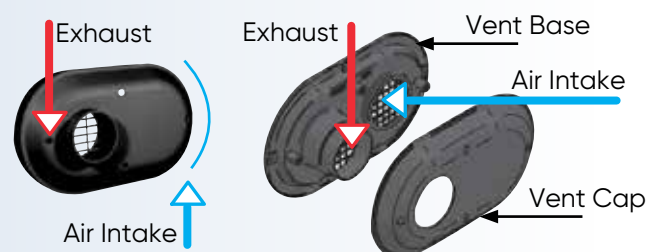
Concentric Vent Kit

Available in both PVC and CPVC materials, this termination type allows for both exhaust and intake pipes to penetrate the roof or side wall through only one hole.



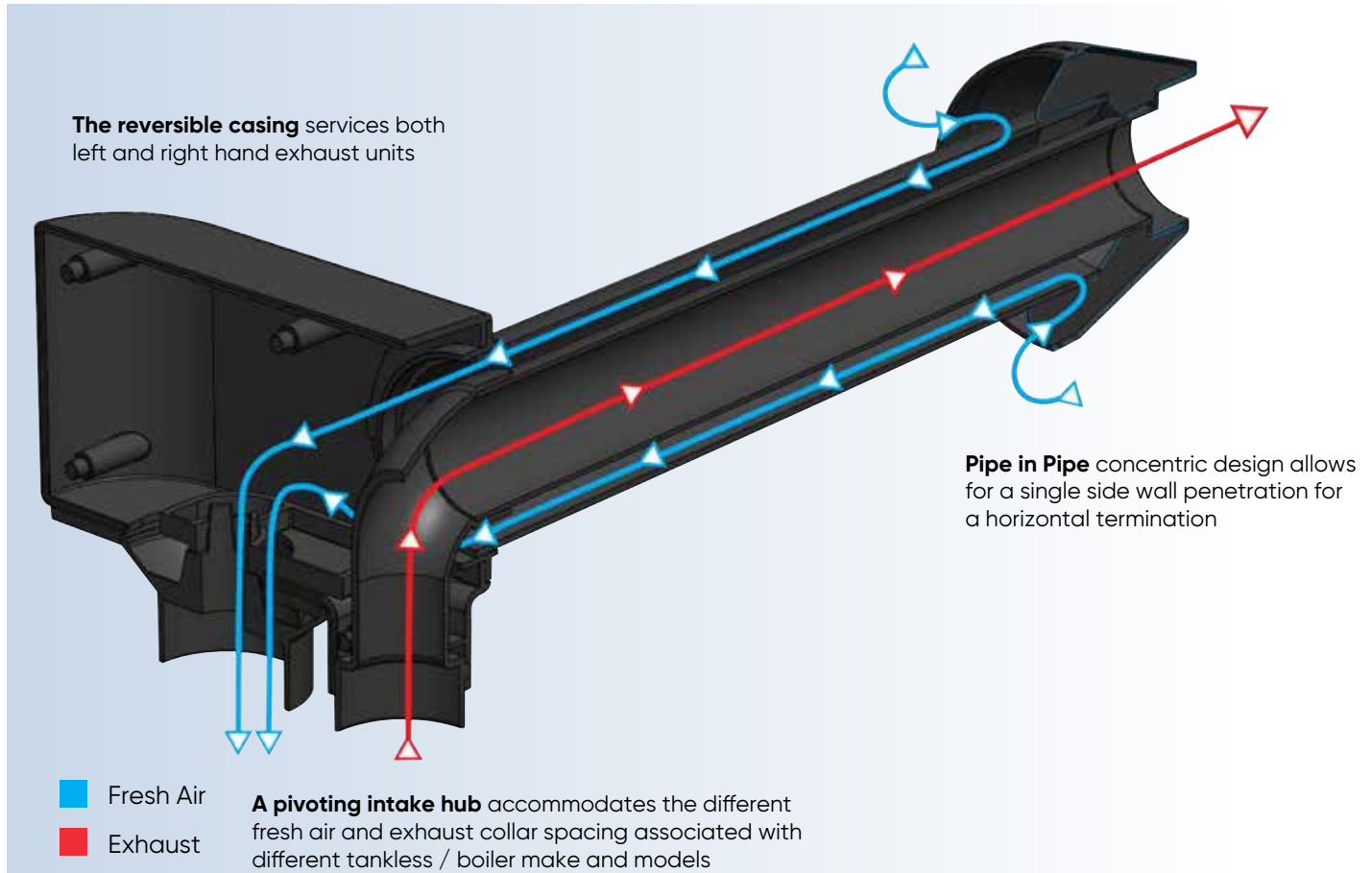
Low Profile Side Wall Vent Kit

This termination is made available in a PVC material and offers a lower profile alternative to the typical two pipe side wall snorkel termination. They include integrally molded vent screens, and the design neatly disguises both the intake and exhaust.



Universal Concentric Vent Kit (UCVK™)

A versatile UCVK™ is available in PVC and CPVC material to quickly and compactly terminate tankless water heaters on exterior walls



System 1738[®]

Setting a New Standard in Venting Safety

The first PVC & CPVC Flue Gas Venting System of its kind.

- Fully certified to UL 1738
- Durable and long-lasting
- Easily identifiable
- Designed for Categories II, III & IV gas-burning appliances





Success in Manufacturing

Innovative Piping Systems

IPEX looks to the future with innovative product development and a focus on customer needs. Our systems approach to products offers customers complete fittings, accessories, and piping systems in diameters 1/2" through 60". Customers are guaranteed high quality products, reliable compatibility, simplicity in supply, and superb sales support—all from one manufacturer.

Below are some of our innovative, customer-inspired systems:

AquaRise® Potable Water Piping System for commercial, industrial and high-rise buildings, provides designers and installers with a long-overdue, viable option to copper.

Centurion® PVC Pipe and Fittings are available in sizes from 14" - 60" diameter, extending corrosion-free benefits to the municipal market.

Novaform™ is a durable and cost-efficient PVC liner for sewer and culvert rehabilitation, bringing the lasting benefits of engineered PVC pipe to the trenchless pipe rehabilitation industry.

Blue Brute® PVC Pipe and Fittings offer superior strength with corrosion-resistant performance and the ability to flex, allowing the system to perform under high traffic loads and deep burial conditions.

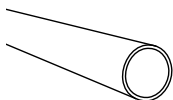
Vortex™ Flow Insert for Odor and Corrosion Control is revolutionary technology for eliminating odorous emissions and minimizing corrosion in vertical sewer drops.

Today, IPEX continues to employ a dedicated team of innovation managers to continue looking for and developing new, innovative, thermoplastic products for improved piping systems.

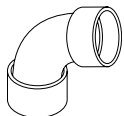
FLUE GAS VENTING PRODUCT SELECTION

Size (in)	Product Code	
	PVC	CPVC

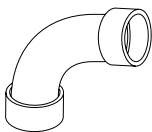
FGV Pipe Plain end (10 ft lengths)

	2	394000	391000
	3	394001	391001
	4	394002	391002

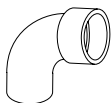
FGV 90° Elbow H x H

	2	397035	392035
	3	397025	392025

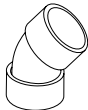
FGV 90° Long Elbow H x H

	2 EL	397022	392022
	3 EL	397023	392023
	4 EL	397124	392124

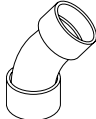
FGV 90° Street Elbow SP x H

	2	397232	392232
	3	397233	392233
	4	397234	392234

FGV 45° Elbow H x H

	2	397242	392242
	3	397243	392243
	4	397244	392244

FGV 45° Long Elbow H x H

	2 L	397010	392012
	3 L	397011	392013

Size (in)	Product Code	
	PVC	CPVC

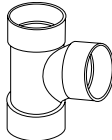
FGV 45° Elbow Street SP x H P

	2	397071	392071
	3	397223	392223
	4	397117	392117

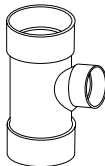
FGV 22-1/2° Elbow H x H

	2	397252	392252
	3	397253	392253
	4	397254	392254

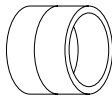
FGV Tee-Wye H x H x H

	2	397082	392082
	3	397083	392083
	4	397084	392084

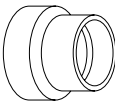
FGV Reducer Tee-Wye H x H x H

	3 x 2	397185	392185
	4 x 3	397184	392184

FGV Coupling H x H

	2	397352	392352
	3	397353	392353
	4	397354	392354

FGV Increaser Coupling H x H

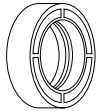
	3 x 2	397364	392364
	4 x 2	397365	392365
	4 x 3	397366	392366

NOTE: Do NOT mix pipe, fittings or joining methods from different manufacturers.

FLUE GAS VENTING PRODUCT SELECTION

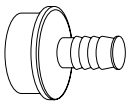
Size (in)	Product Code	
	PVC	CPVC

FGV Reducer Bushing H x SP



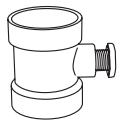
2 x 1-1/2	397282	392282
3 x 2	397284	392284

FGV Reducer Bushing SP x Hose Barb



1-1/2 x 1/2	397278	392278
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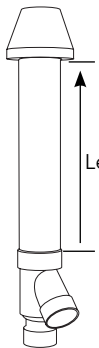
FGV Access Tee H x H x FPT



2	397511	392511
3	397512	392512
4	397513	392513

Includes 1/2" plug

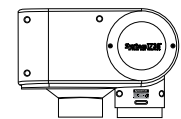
FGV Concentric Vent Kit



2 x 16	397005	392005
2 x 28	397105	392105
2 x 40	397125	392125
3 x 20	397006	392006
3 x 32	397106	392106
3 x 44	397116	392116
4 x 36	397021	392021

Vent screen not included

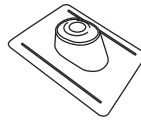
FGV Universal Concentric Vent Kit (UCVK™)



3 x 24	397256	392256
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Size (in)	Product Code	
	PVC	CPVC

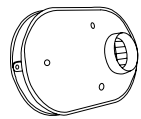
Concentric Vent Termination Roof Flashing (stretch fit)



2	397191	-
3 - 4	397206	-

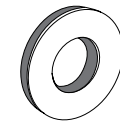
Not UL1738 Certified

FGV Low Profile Termination Kit



2	397984	-
3	397985	-
4	397986	-

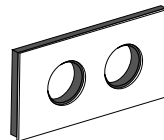
Faceplate – Round (w/ self sealing foam back)



2	397063	-
3	397064	-
4	397055	-

Not UL 1738 Certified

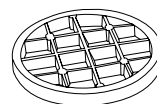
Faceplate – Rectangular (w/ self sealing foam back)



2	397216	-
3	397219	-

Not UL 1738 Certified

Termination Vent Screens (Polyethylene)



2	196050	-
3	196051	-
4	196052	-

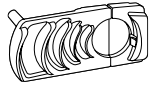
Vent screens are not UL 1738 Certified.

Friction fit the vent screen inside the termination fitting bell to prevent debris & rodents from entering the vent.

NOTE: Do NOT mix pipe, fittings or joining methods from different manufacturers.

Size (in)	Product Code	
	PVC	CPVC

Deburring Tool (DEB 4)



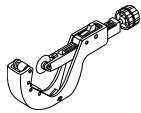
1-1/2 to 4

196246

-

To ensure quality solvent cement connections, deburr all pipe ends prior to cementing.

Cutter



1-1/2 to 3

196247

-

Size (in)	Product Code	

PVC FGV Cement Medium Bodied (low voc) - Auburn



pint (473ml)

397040

quart (946ml)

397041

CPVC FGV Cement Medium Bodied (low voc) - Orange



pint (473ml)

392008

quart (946ml)

392009

PVC/CPVC FGV Primer (low voc) - Yellow



pint (473ml)

397042

quart (946ml)

397043

- Primer shall be used when installing System 1738 PVC products at temperatures below 32°F (0°C).
- Primer is required in some municipalities regardless of temperature, verify with your local regulatory authority.

Note: Use only System 1738 cements and primers. Substituting other cements and primers will void certification and warranty.

All pint and quart cans supplied with dauber (applicator) for use up to 4".



**IPEX cements and primers are
UL GREENGUARD Gold Certified**

NOTE: Do NOT mix pipe, fittings or joining methods from different manufacturers.

SALES AND CUSTOMER SERVICE

IPEX USA LLC

Toll Free: (800) 463-9572

system1738.com | ipexna.com

About IPEX by Aliaxis

As leading suppliers of thermoplastic piping systems, IPEX by Aliaxis provides our customers with some of the world's largest and most comprehensive product lines. All IPEX by Aliaxis products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX by Aliaxis products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, and ABS pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

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A policy of ongoing product improvement is maintained. This may result in modifications of features and/or specifications without notice.



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