

VESDA Pipes & Fittings



Reliable smoke detection systems are dependent on a network of specialty piping that constantly and efficiently carry air samples from protected zones to highly sensitive detectors.

VESDA Pipe and Fittings are part of an integrated system manufactured from specialty plastics designed for use with most aspirating smoke detection systems, the VESDA VLP system in particular.

The Concept

The quality of VESDA pipe has been specifically chosen to surpass the requirements for most systems and aims to provide:

- A “one-stop” shopping for detector, pipe and fittings - thus saving procurement time and costs
- An easy and professional installation
- A competitive solution, including a Fast-Track ordering and delivery service
- Committed customer service with full technical advice and support on design and installation
- Design verification using the very latest ASPIRE Pipe Modeling software
- Commissioning, advice, service, and system performance testing

The VESDA pipe range is based on pipework of a standard inside diameter (ID) of 3/4”.

VESDA aspirating smoke detection is an early warning system that detects fire in the incipient stages - before flames are visible - by detecting the products of pre-combustion in the air around the area about to ignite.

The VESDA detector family is the result of extensive research and development. Using unique detection principles, the detector provides a sensitivity range of 0.0015 to 6% obscuration/ft. It detects fire at the earliest possible stage and reliably measures very low to extremely high concentrations of smoke.

The VESDA system samples air from a fire zone for the presence of smoke. The air sampling system makes this possible by providing the means for transporting air from a fire zone to the detector.

The air sampling system is active, continuously drawing in air samples by means of an integral pump. It does not rely on air or heat currents in the vicinity of the detector transporting the smoke particles to the detector. The VESDA system can function effectively in all kinds of environments from high air flows to still air.

The network of sampling pipes to the detector is the key element in the performance of the detection system.

Features

- UL1887 Listed for use in Plenum Rated Areas
- An integrated CPVC Pipe & Fittings package designed for use with VESDA Aspirating Smoke Detection Systems
- Simplifies the selection of Pipe & Fittings to ensure the correct product is installed
- Simplifies specifiers' and installers' task and saves time and money
- Pre-labeled Pipes in accordance with NFPA 72 Requirements

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Air Sampling

Three basic sampling methods can be used in an VESDA system installation:

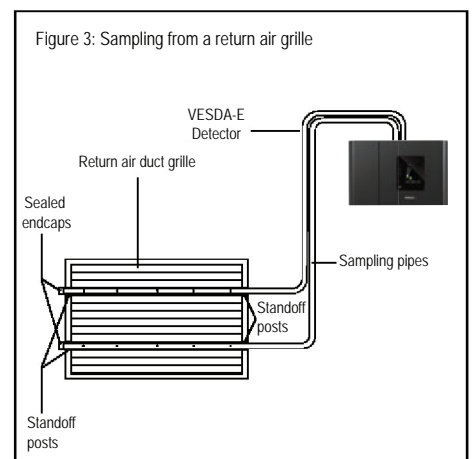
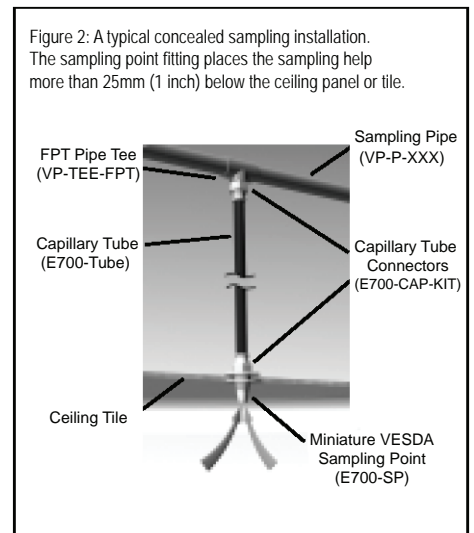
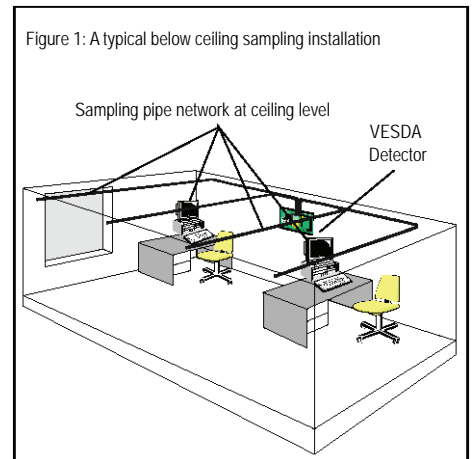
- Standard pipe sampling systems (below ceiling; in ceiling or floor void)
- Capillary tube sampling (concealed; above ceiling; within cabinets)
- Return air sampling (within duct; return air grille)

While each sampling method is suited to specific applications, more than one method is often effectively employed to monitor a firezone. In some applications - particularly those in which there is movement of high volumes of air – the most effective sampling network generally combines two methods to provide maximum coverage to a zone under all operating conditions.

System Description

VESDA piping systems are produced from specialty thermoplastics that offer unique benefits. Piping systems are lightweight, and assembled easily in the field using inexpensive tools. The one-step solvent cement joining process ensures fast reliable connections. In addition to ease of installation, this unique piping system offers enhanced flow characteristics and exceptional fire performance properties.

The complete system includes all of the components necessary to install and test the system. This includes: pipe, a comprehensive range of fittings, capillary tube, a variety of sample point configurations, and sampling point labels.

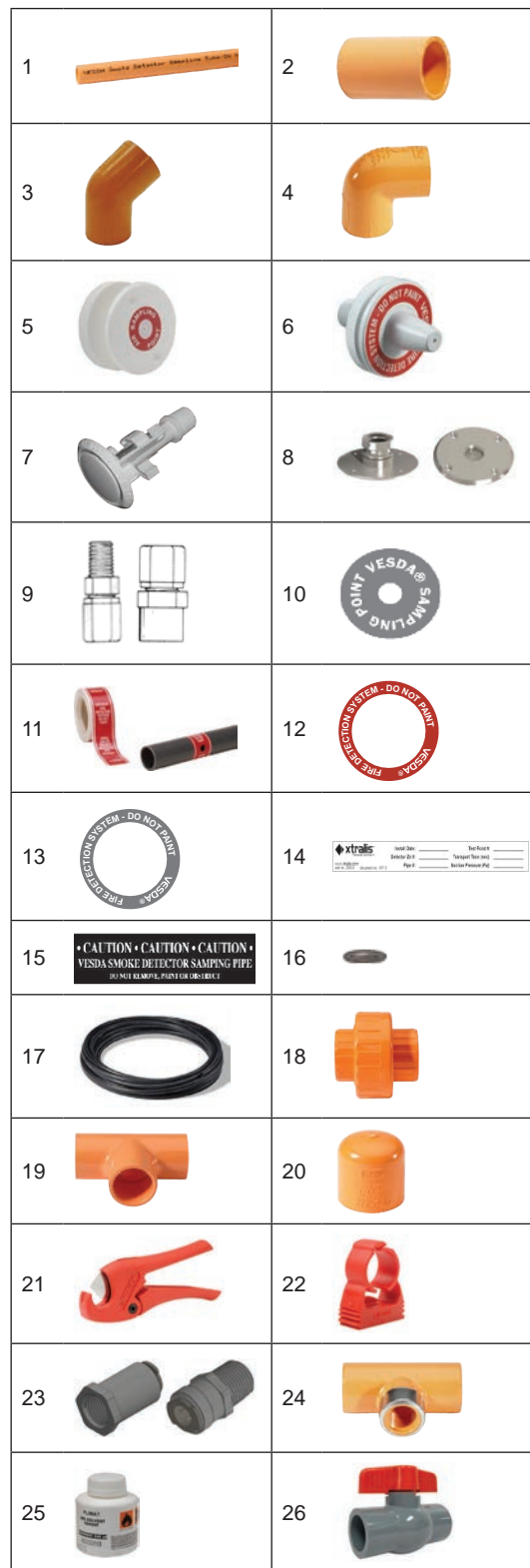


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Pipe Fittings Ordering Information

Part Numbers for System Components

| | | |
|----|------------------|---|
| 1 | VP-P-105 | Pipe - 3/4" (105 ft. kit) |
| | VP-P-210 | Pipe - 3/4" (210 ft. kit) |
| | VP-P-420 | Pipe - 3/4" (420 ft. kit) |
| 2 | VP-COUP | Couplings - 3/4", 15 per box |
| 3 | VP-ELB-45 | 45° Elbow - 3/4", 10 per box |
| 4 | VP-ELB-90 | 90° Elbow - 3/4", 20 per box |
| 5 | PIP-015 | Flush Sampling Point |
| 6 | E700-SP | Miniature Sample Point |
| 7 | VSP-877 | Flush Mount Sampling Point |
| 8 | VSP-610-US | Tamper Proof Sampling Point |
| 9 | CAP-KIT | Brass connector kit for miniature sampling point and capillary tube arrangement. |
| | E700-CAP-KIT | Connector Kits |
| 10 | E700-SP-DCL-PNT | Sampling Point Label, 50 per roll |
| 11 | E700-SP-DCL | Sampling Point Label, wrap around style, 200 per roll |
| 12 | E700-SPLR | Sampling Point Label, red, 10 per sheet |
| 13 | E700-SPLG | Sampling Point Label, grey, 8 per sheet |
| 14 | VSP-950 | Test Point Pipe Labels. |
| 15 | E700-SP-DCL-PIPE | Pipe Label, 35 per roll |
| 16 | VSP-870-US | In-Line Flow Restrictor Assembly - US, for use with Tamper Proof Sampling Points (models VSP-610-US and VSP-620). |
| 17 | E700-TUBE | Capillary Tube 3/8" internal diameter |
| | TUBING-250 | Polyethylene tubing, black, 1/2" OD X 3/8" ID, FPE rated. |
| 18 | VP-UNION | Unions - 3/4", 10 per box |
| 19 | VP-TEE | Tee - 3/4", 15 per box |
| 20 | VP-EC | End Cap - 3/4", 25 per box |
| 21 | VP-CUTTERS | Pipe Cutters |
| 22 | VP-CLIP-US | 3/4" pipe support clamp (required for each 5 feet of pipe). |
| 23 | VSP-878 | Push-in Connect Adaptor Kit for 1/2" capillary tubing |
| 24 | VP-TEE-FPT | Tee - 3/4" x 3/4" x 1/2" FPT, 10 per box |
| 25 | VP-CEMENT | Solvent Cement, one pint |
| 26 | VP-BV | Ball Valve, 10 per box |



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Technical Information - Air Sampling Pipe Systems

Pipe Dimensions

VESDA Pipe systems are produced in 3/4" iron pipe size (IPS) pipe dimensions per ASTM F442. This provides piping with unique flow characteristics and exceptionally smooth interior walls, greatly enhancing system performance.

| Nominal Size | Average OD | Average ID | Pounds Per Feet |
|--------------|-----------------|-----------------|-----------------|
| 3/4" (20mm) | 1.050" (26.7mm) | 0.874" (22.5mm) | 0.168 |

Operating Temperature Range

VESDA Pipe and Fittings are suitable for a wide range of operating temperatures from 0°F to 200°F. Although tough and durable, care should be exercised in extremely cold environments to avoid unnecessary rough handling or other forms of mechanical damage.

Fire Resistance

| | | |
|-----------------------|---------------------|-----------------------|
| Flammability Rating | V-O | UL 94 Flame Retardant |
| Limiting Oxygen Index | 60 | ASTM D2863 |
| Flame Spread | 0 | ULC |
| Smoke Generation | 0-25 | ULC |
| Flame Travel | 4 | UL 1887 |
| Optical Density | 0.19 peak 0.03 Avg. | UL 1887 |
| Heat of Combustion | 7,700 BTU's/lb. | |

Physical Properties

CPVC is a unique polymer with many beneficial properties. When produced into pipe form, this product exhibits qualities that are extremely advantageous for use in air sampling applications. It is light in weight, exhibits excellent physical, mechanical, and chemical/corrosion resistance properties, and offers exceptional fire performance.

| | | ASTM |
|---------------------------------|------------------------|-------|
| Cell Classification | 23477 | D1784 |
| Specific Gravity | 1.55 | D792 |
| Tensile Strength | 8400 psi | D638 |
| Modulus of Elasticity | 4.23 x10 ⁵ | D638 |
| Compressive Strength | 9600 psi | D695 |
| Izod Impact | 3.0 | D256A |
| Coefficient of Linear Expansion | 3.4 x 10 ⁻⁵ | D696 |
| Temperature Limit | 0 – 200°F | |
| Electrical Conductivity | Non Conductor | |

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