



TECHNICAL DATA

HIGH-EXPANSION FOAM GENERATOR MODEL VGH10000

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
 Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page.

1. GENERAL DESCRIPTION

High-Expansion foam generators are designed to expand foam into a large volume of stable bubbles with expansion rates in excess of 830:1. This high performance is achieved without any external power source or moving parts, which gives advantages for installation and reduces ongoing maintenance requirements.

High Expansion Foam Systems are commonly used on hazards such as ordinary combustibles and hydrocarbon ignitable liquids. Such hazards are commonly found in applications such as aircraft hangars, warehouses, cable tunnels, underground storage or recycling plants.

For further information, please contact Viking.

Operation

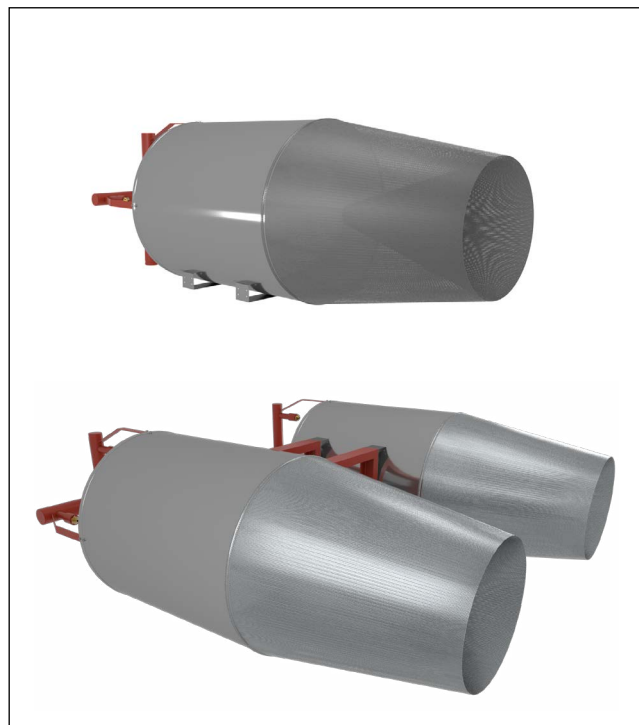
Foam solution enters the inlet manifold of the device and is distributed through the nozzles of the manifold. Air is entrained into the nozzle discharge solution stream. The resulting aspirated solution is passed through the discharge screen resulting in an expanded finished foam. The foam spread rate is 1 foot per second, per generator.

2. LISTINGS AND APPROVALS

The High-Expansion Generator is a UL Listed device that is part of a fire extinguishing system. Listed system components can be found at <https://iq.ulprospector.com>



UL Listed – GLHZ.EX28418
 Generators, High-expansion Foam



3. TECHNICAL DATA

3.1 Construction Features

- No moving parts and no external power requirements.
- Vertical or Horizontal installation
- Stainless Steel body and nozzle manifold
- Integral mounting bracket for single installation points included. Additional mounting brackets are optional.
- Grooved connection
- Brass Nozzles

3.2 Material Specifications (Refer to Figure 3.2.1)

| Table 3.2.1 - Standard Materials | | |
|----------------------------------|-------------------------------------|---------------------------------------------------|
| Ref. | VGH10000 - High Expansion Generator | |
| A | Nozzle manifold pipes | Stainless Steel ASME SA312 Grade TP316 |
| B | Nozzle manifold support arm | SA516 Grade 70 |
| C | Nozzle | Brass EN CW614N |
| D | Body | Stainless Steel AISI-430 |
| E | Support arm nuts, bolts, washers | Stainless Steel AISI-304 |
| F | Pairing bracket kit | Carbon steel painted red (brackets only; RAL3000) |
| -- | Finish - nozzle manifold | RAL3000 Flame Red |
| -- | Finish - body | Natural |

Scan for Installation Animation





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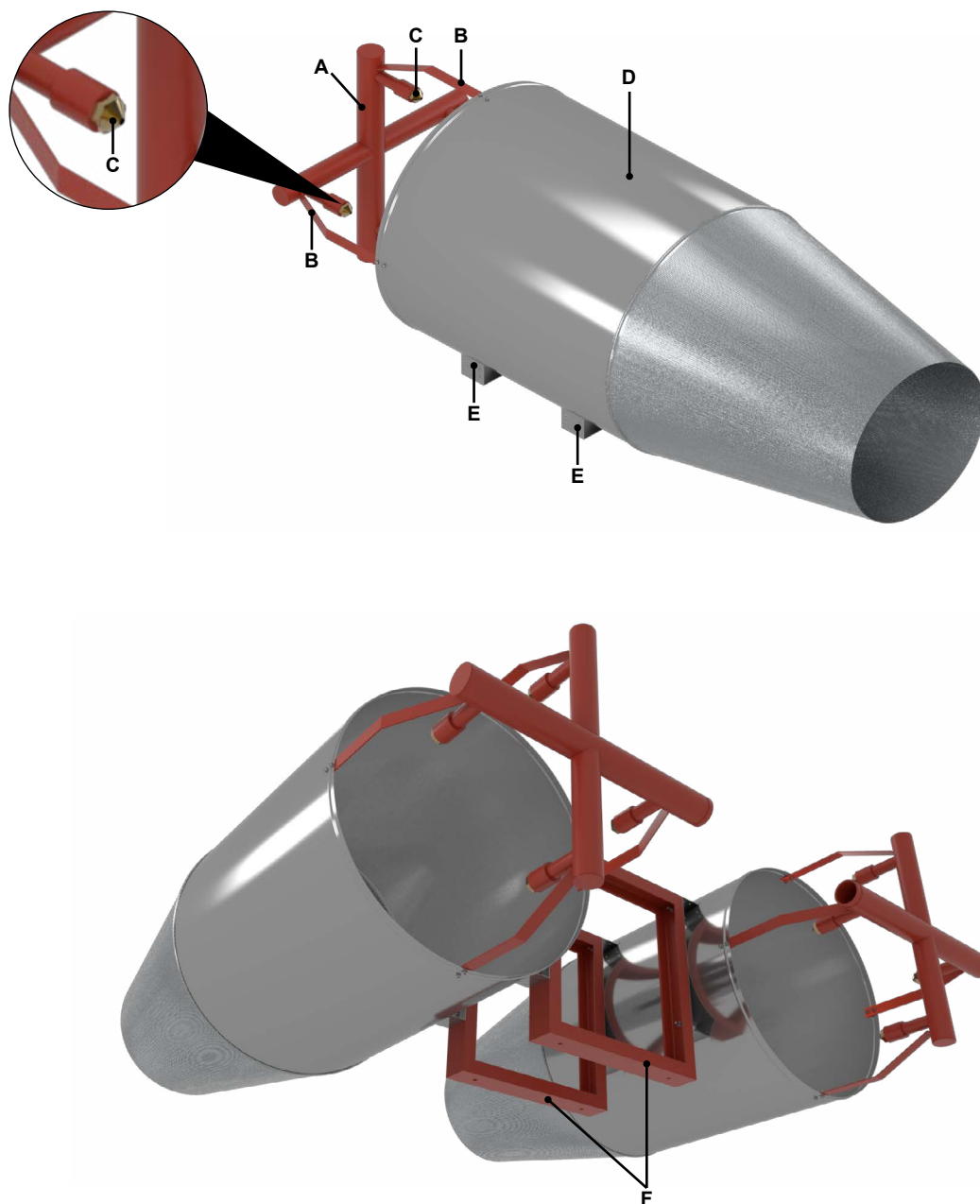


Figure 3.2.1 - Component Identification



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3.3 Standard Design Specifications

| Table 3.3.1 - Standard Design Specifications | | | | | | | | | | | | |
|----------------------------------------------|-------------------------------------|----------------|-----|---------|-----|------------|-----|---------|-----|------------|------------|-----|
| Model | Inlet Size ¹ (Inches) | Inlet Pressure | | | | Flow Range | | | | Nozzle Qty | Net Weight | |
| | | Minimum | | Maximum | | Minimum | | Maximum | | | Lbs | Kg |
| | | PSI | Bar | PSI | Bar | GPM | LPM | GPM | LPM | | | |
| VGH10000 | 3 | 40 | 2.8 | 100 | 6.9 | 77 | 292 | 117 | 442 | 4 | 159 | 72 |
| VGH10000 (Paired) | 3 | 40 | 2.8 | 100 | 6.9 | 154 | 784 | 234 | 884 | 8 | 362 | 164 |

1. The inlet piping may be sized smaller than the inlet if the hydraulic calculations allow.

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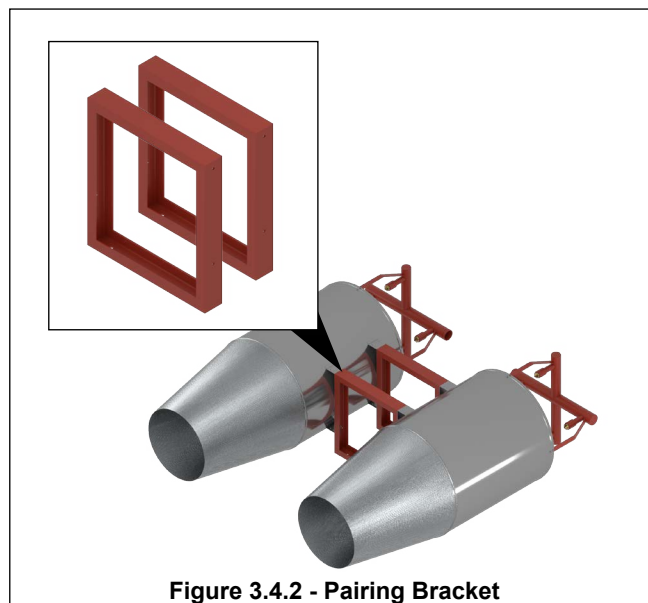
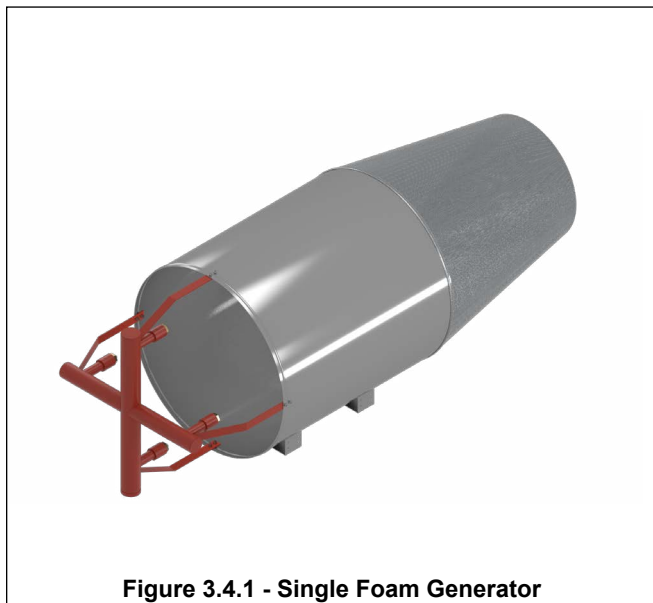
3.4 Ordering Information

The Fomtec Enviro High-Expansion Foam Generators are available through a network of domestic and international distributors. See The Viking Corporation website for the closest distributor or contact The Viking Corporation.

NOTE: Viking does not provide any mounting, hanging, or supporting structures or hardware. All mounting, hanging, or other supporting mechanisms and hardware are the responsibility of the end user. Refer to Section "Installation".

| Table 3.4.1 - Ordering Information | | | |
|------------------------------------|-----------------------------------------------------|------------------|--------------|
| Part Number | Description | Inlet Connection | Figure |
| F23772 | VGH10000 High Expansion Foam Generator ² | 3" | Figure 3.4.1 |
| F23777 | VGH10000 Pairing Bracket Kit ² | N/A | Figure 3.4.2 |

1. Pairing bracket kits are used to join two single generators together to form a paired unit. Pipework supply manifold not included.





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3.5 Dimensions

Table 3.5.1 - Dimensions

| Units | Dimension | | | | | | | | | | | |
|-------------|-----------|------|------|-----|-----|-----------------|-------------------|------------------|------------------|-----|-------------------|-------------------|
| | A | B | C | D | E | F | G | H | I | J | K | L ¹ |
| Inches | 99 | 97 | 46 | 17 | 29 | 9 $\frac{3}{8}$ | 18 $\frac{1}{16}$ | 36 $\frac{1}{4}$ | 41 $\frac{3}{4}$ | 19 | 27 $\frac{1}{16}$ | 99 $\frac{7}{16}$ |
| Millimeters | 2515 | 2464 | 1168 | 432 | 737 | 238 | 475 | 921 | 1060 | 483 | 697 | 2526 |

1. * $\pm \frac{1}{2}$

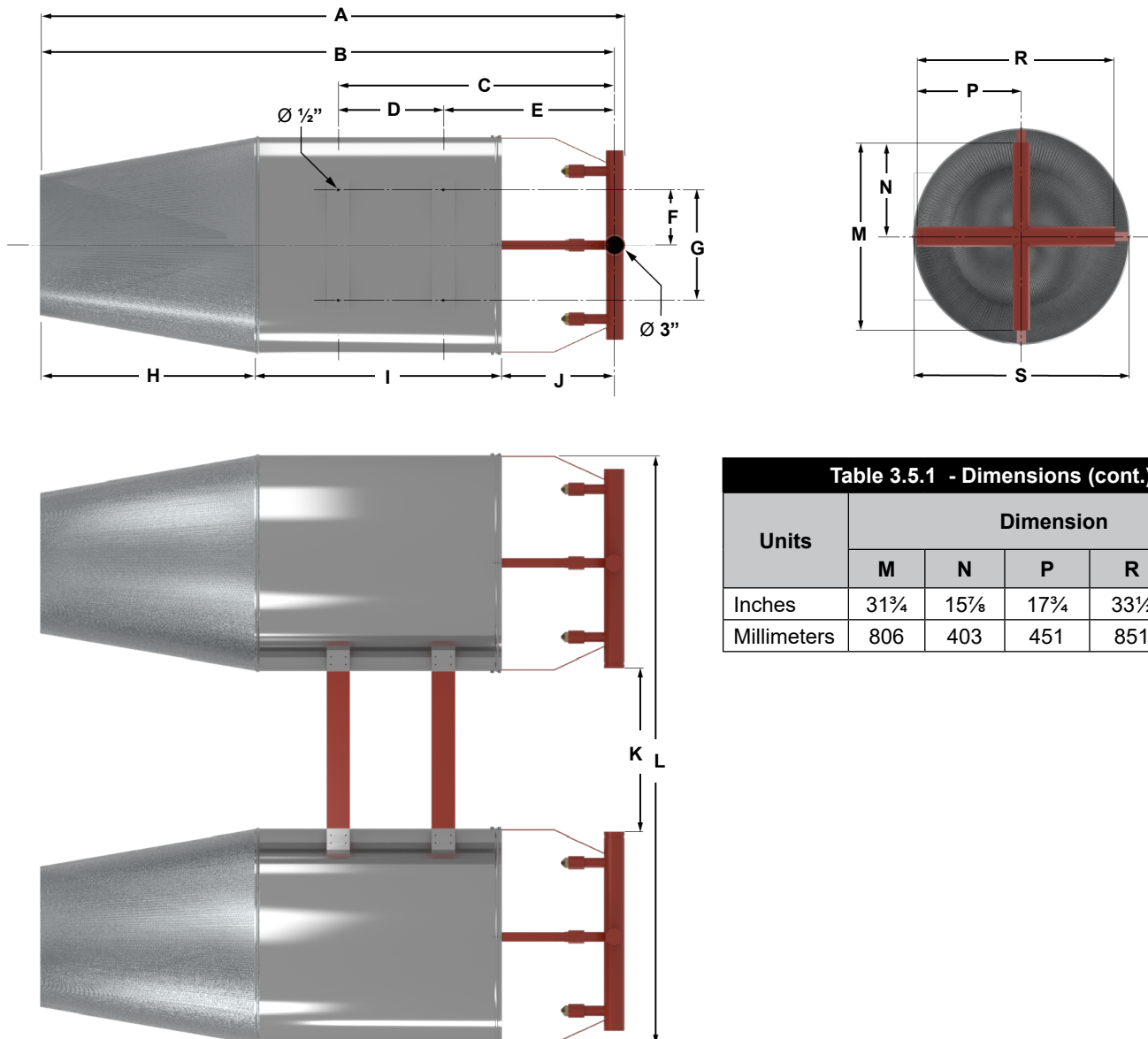


Table 3.5.1 - Dimensions (cont.)

| Units | Dimension | | | | |
|-------------|------------------|------------------|------------------|------------------|-------------------|
| | M | N | P | R | S |
| Inches | 31 $\frac{3}{4}$ | 15 $\frac{5}{8}$ | 17 $\frac{3}{4}$ | 33 $\frac{1}{2}$ | 36 $\frac{7}{16}$ |
| Millimeters | 806 | 403 | 451 | 851 | 926 |

Figure 3.5.1 - Dimensions



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4. DELIVERY AND ASSEMBLY

The High Expansion Foam Generator is packaged in a wooden crate and is shipped with the nozzle manifold (including nozzles) pre-installed backwards into the generator body. Some disassembly and assembly is required. This shipment contains all necessary hardware for assembling the units, the foam generator body and a nozzle manifold with four (4) installed nozzles.

For additional information regarding system applications, refer to the High Expansion Foam System Design technical data page.

4.1 Assembling the Unit

Tools required:

- Crow bar or similar to open crates/boxes
- 10, 13, and 17 mm Wrenches
- Lifting mechanism or 2 people

Procedure:

1. Remove the end of the crate as shown.
2. Carefully remove the generator from the crate.

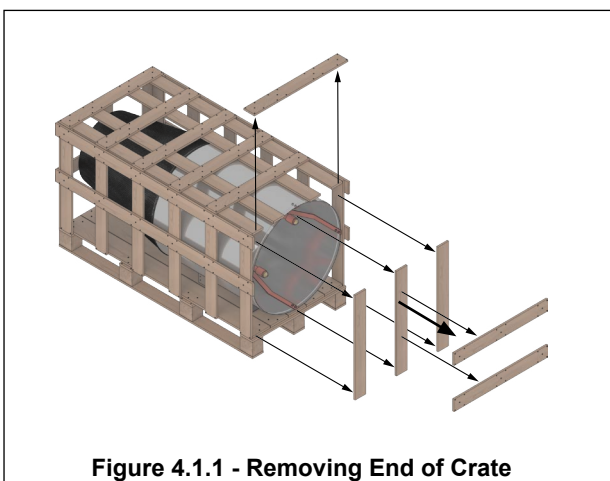


Figure 4.1.1 - Removing End of Crate

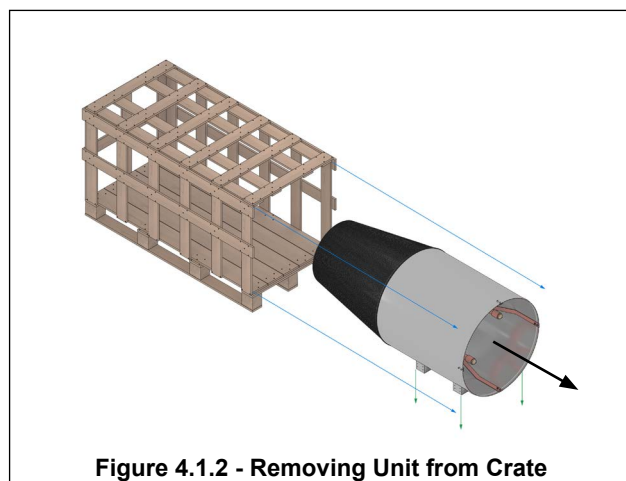


Figure 4.1.2 - Removing Unit from Crate

3. Remove and retain the mounting hardware on the nozzle manifold.
4. Pull the nozzle manifold out of the generator body.
5. Rotate the nozzle manifold 180 degrees as shown.
6. Orient the nozzle manifold as necessary to connect to the supply piping in the mounting location.

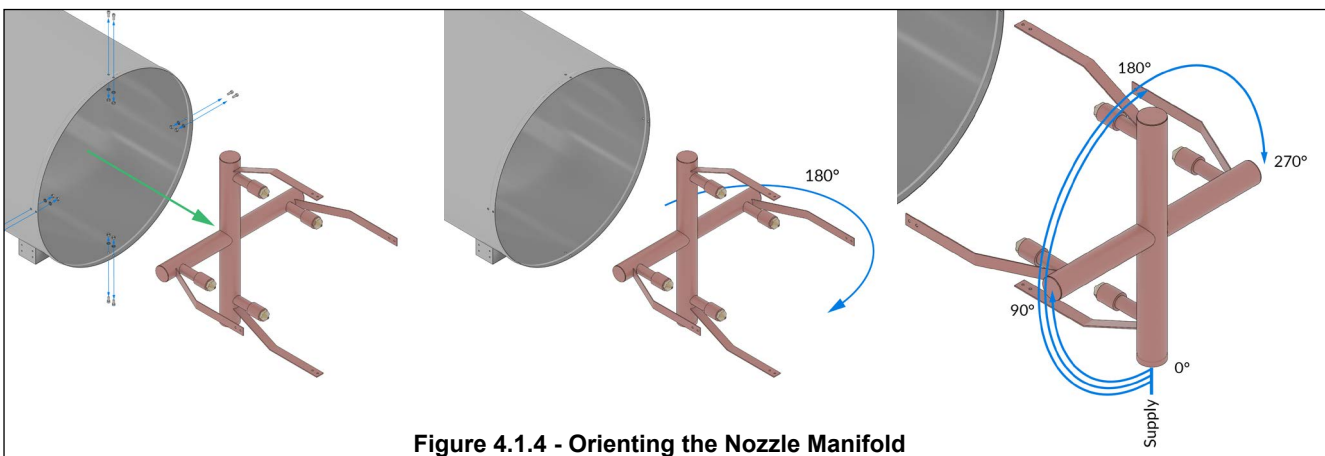


Figure 4.1.4 - Orienting the Nozzle Manifold



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7. Re-install the mounting hardware.
8. The generator is now assembled. Repeat steps 1-8 for each unit. If pairing your units, continue to the pairing units below.

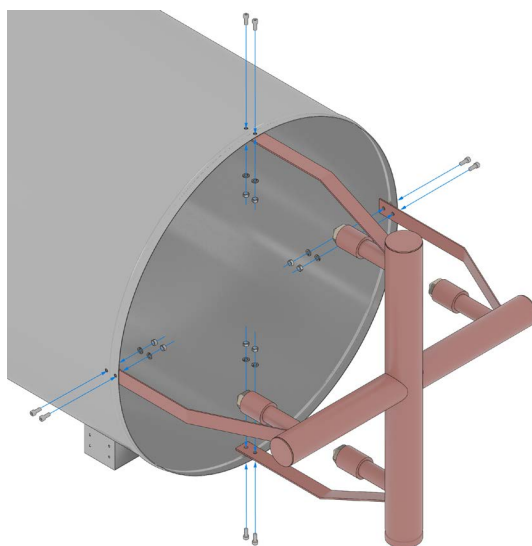


Figure 4.1.5 - Mounting the Nozzle Manifold

4.2 Pairing units:

1. Verify that each unit to be paired is fully assembled.
2. Carefully roll the 2 units on their sides so the mounting feet are facing each other as shown.
3. Remove the pairing kit from the box.
4. Install the mounting brackets as shown.

The units are now paired and ready to be installed in the application area. Refer to Section "Installation".

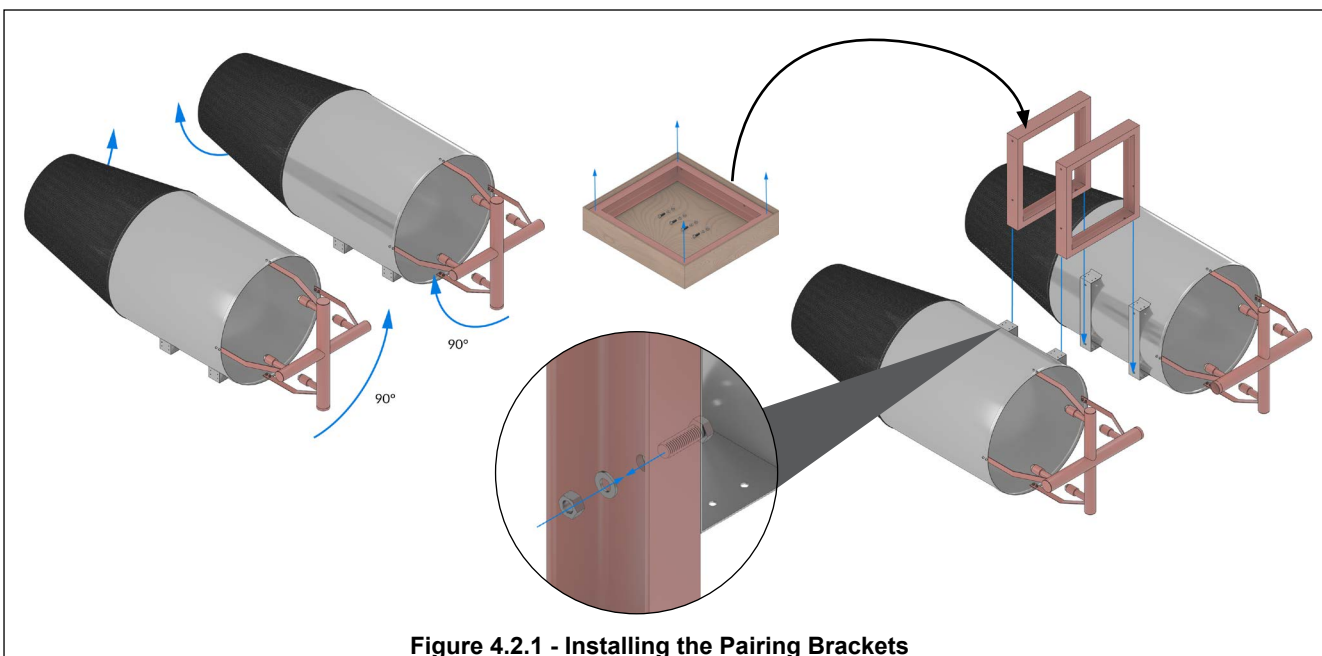


Figure 4.2.1 - Installing the Pairing Brackets



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5. PERFORMANCE DATA

When planning installing and commissioning high expansion foam systems, use system components that have been tested and Listed together.

5.1 Submergence

Refer to applicable standards.

5.2 Expansion Performance

During system design and planning, use the following performance data. See Table 5.2.4 for combined data.

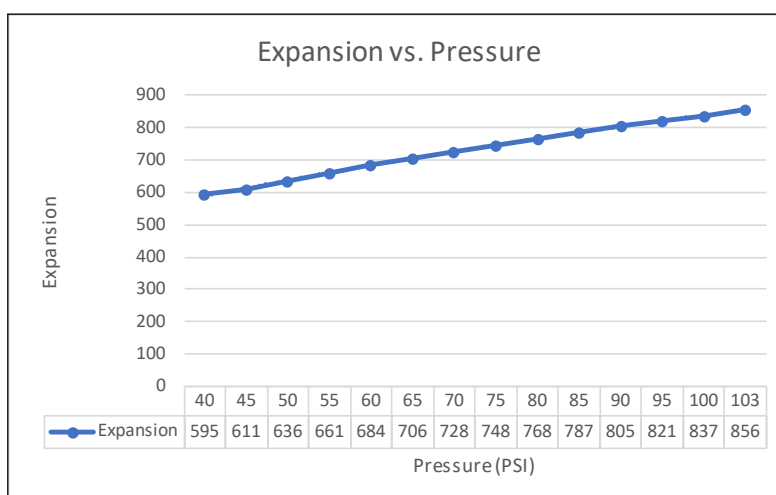


Figure 5.2.1 - Expansion vs Pressure

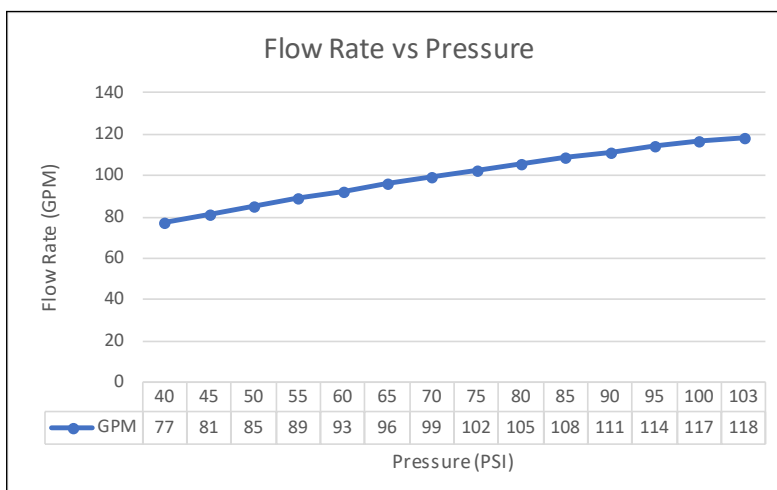


Figure 5.2.2 - Flow Rate vs Pressure



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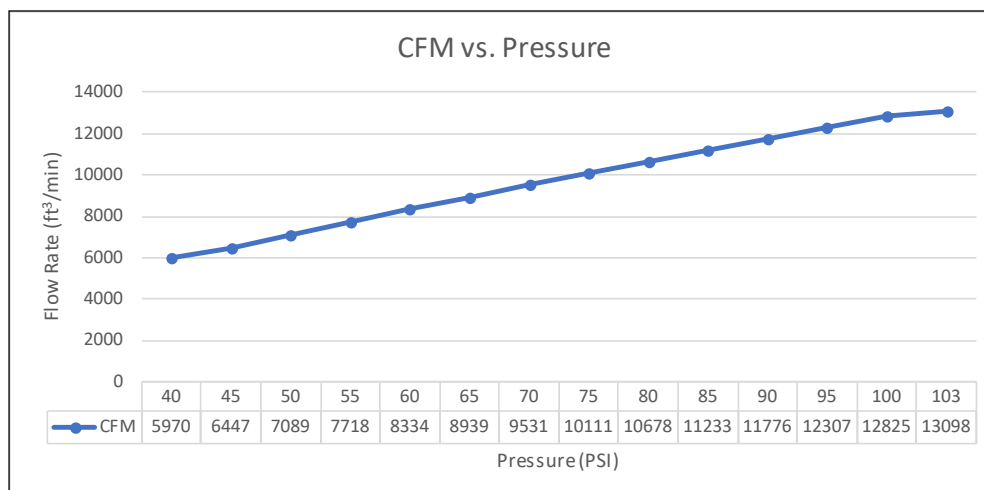


Figure 5.2.3 - CFM vs Pressure

| Table 5.2.4 - Performance Data Model VGH10000 with Fomtec Enviro 3% xMax Foam Concentrate | | | | | | |
|-------------------------------------------------------------------------------------------|-----|--------|-------|-----|-----|-----------|
| Model | PSI | US GPM | CFM | Bar | LPM | Expansion |
| VGH10000 | 40 | 77 | 5970 | 2.8 | 292 | 595 |
| | 45 | 81 | 6447 | 3.1 | 308 | 611 |
| | 50 | 85 | 7089 | 3.4 | 323 | 636 |
| | 55 | 89 | 7718 | 3.8 | 337 | 661 |
| | 60 | 93 | 8334 | 4.1 | 350 | 684 |
| | 65 | 96 | 8939 | 4.5 | 363 | 706 |
| | 70 | 99 | 9531 | 4.8 | 376 | 728 |
| | 75 | 102 | 10111 | 5.2 | 388 | 748 |
| | 80 | 105 | 10678 | 5.5 | 399 | 768 |
| | 85 | 108 | 11233 | 5.9 | 410 | 787 |
| | 90 | 111 | 11776 | 6.2 | 421 | 805 |
| | 95 | 114 | 12307 | 6.6 | 432 | 821 |
| | 100 | 117 | 12825 | 6.9 | 442 | 837 |



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6. INSTALLATION

NOTICE

Risk of property damage

Improperly lifting the generator can cause damage.

- Do not lift the units using the mesh; see examples below.
- Lift the generator according to the examples below.

Install mounting hardware as necessary to mount the unit(s) in the application area. Refer to the installation examples below. Refer to applicable Installation Standards (i.e. NFPA, UFC EN13565-2 etc). In addition, the "Authority Having Jurisdiction" (AHJ) may have additional installation requirements that must be followed. For detailed information on the High Expansion Generators installation, please refer to High Expansion Foam System Design technical data page.

6.1 Lifting Examples

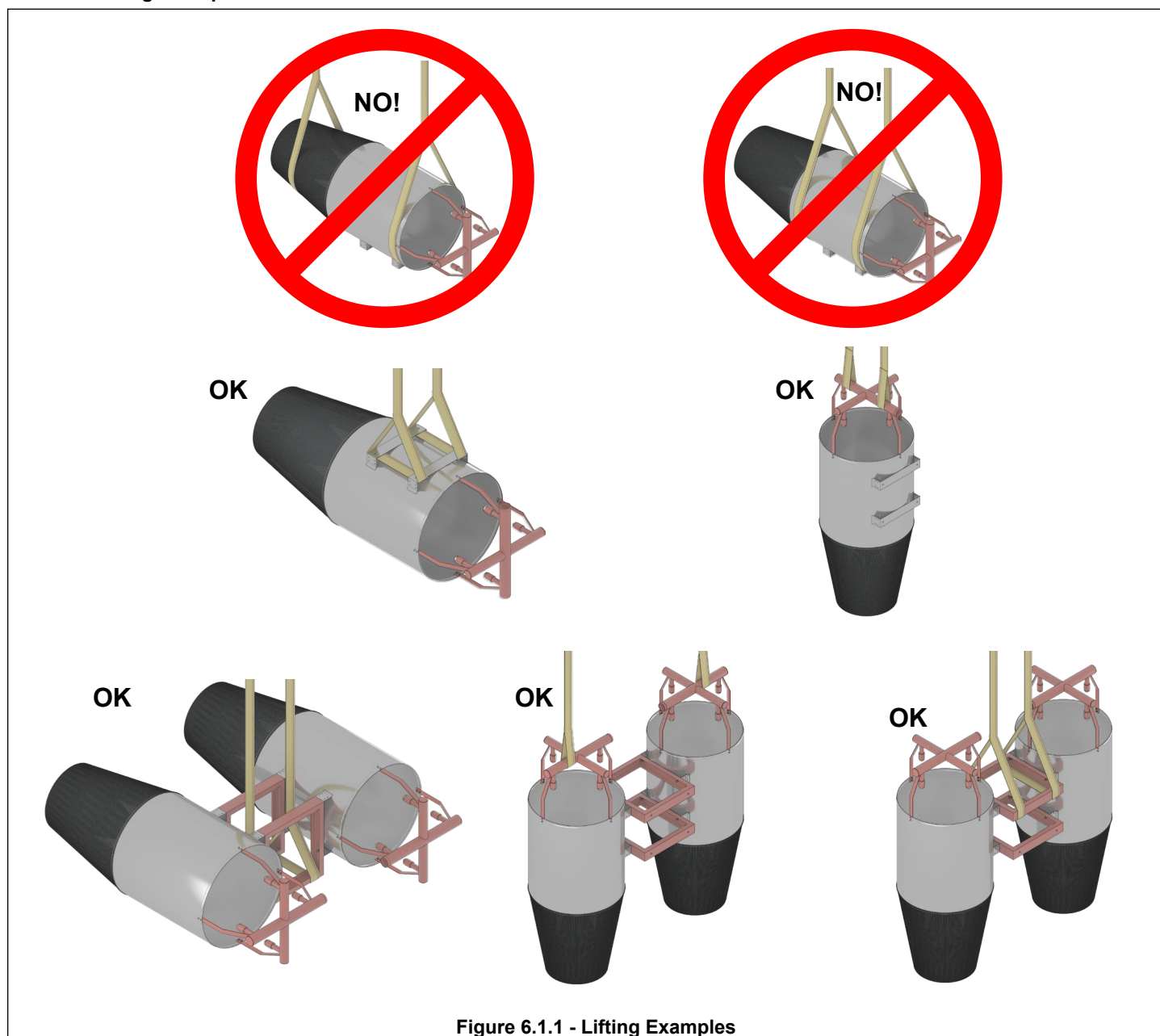


Figure 6.1.1 - Lifting Examples



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6.2 Position

Units can be installed vertically or horizontally using the pairing brackets or mounting feet, or connected directly to adequate supporting structures within existing ceiling beams or similar.

6.3 Mounting Requirements

NOTICE

Risk of property damage

Improperly mounting the units can lead to damage.

- All mounting hardware must be a maximum of 1/2" diameter.
- Do not modify the generator units to accommodate larger hardware.
- Mount the units using methods that maximize vibration isolation to avoid movement or shifting.

NOTE: Viking does not provide any mounting, hanging, or supporting structures or hardware. All mounting, hanging, or other supporting mechanisms and hardware are the responsibility of the end user.

6.4 Strainer

Viking requires a system strainer or a strainer at each individual generator with a screen mesh size of 1/8 inch.

6.5 Mounting Examples

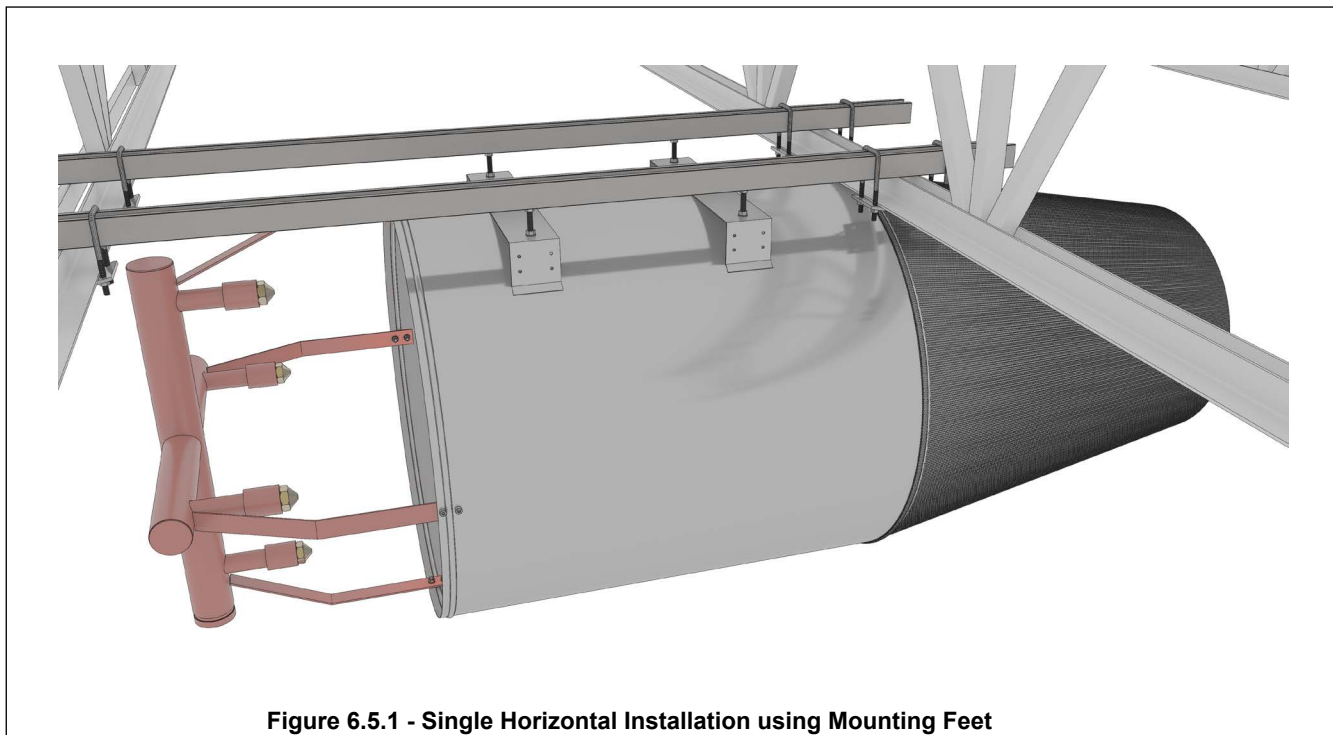


Figure 6.5.1 - Single Horizontal Installation using Mounting Feet



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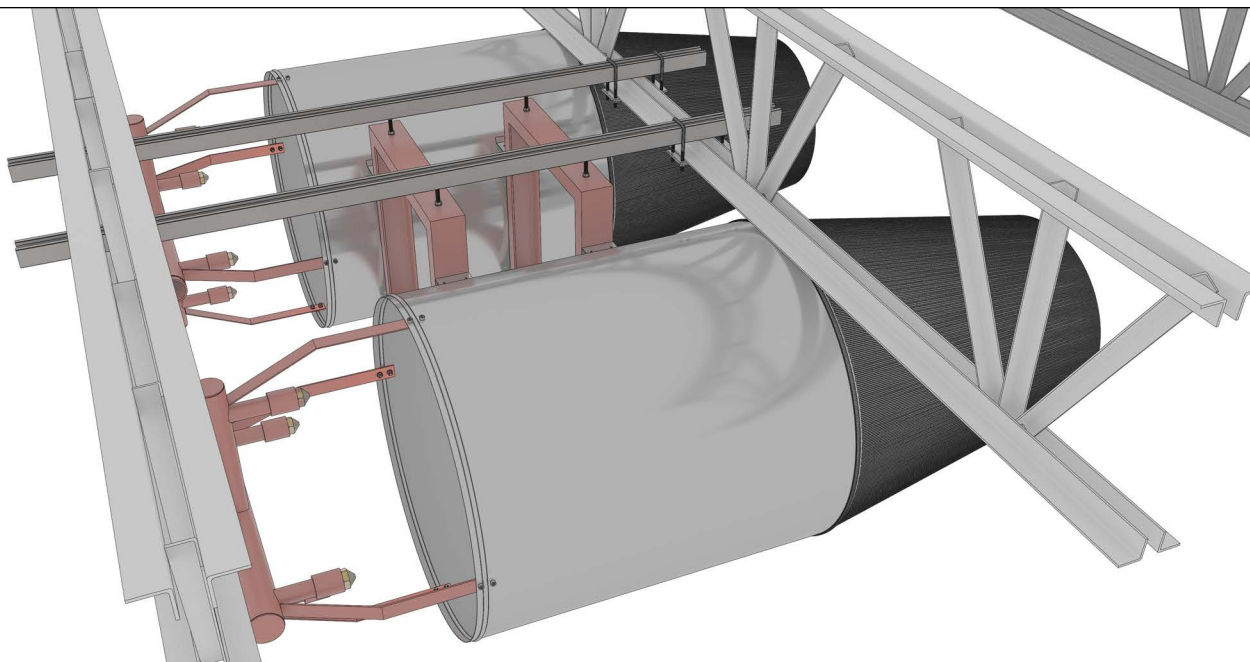


Figure 6.5.2 - Paired Unit Horizontal Installation Using Bracket

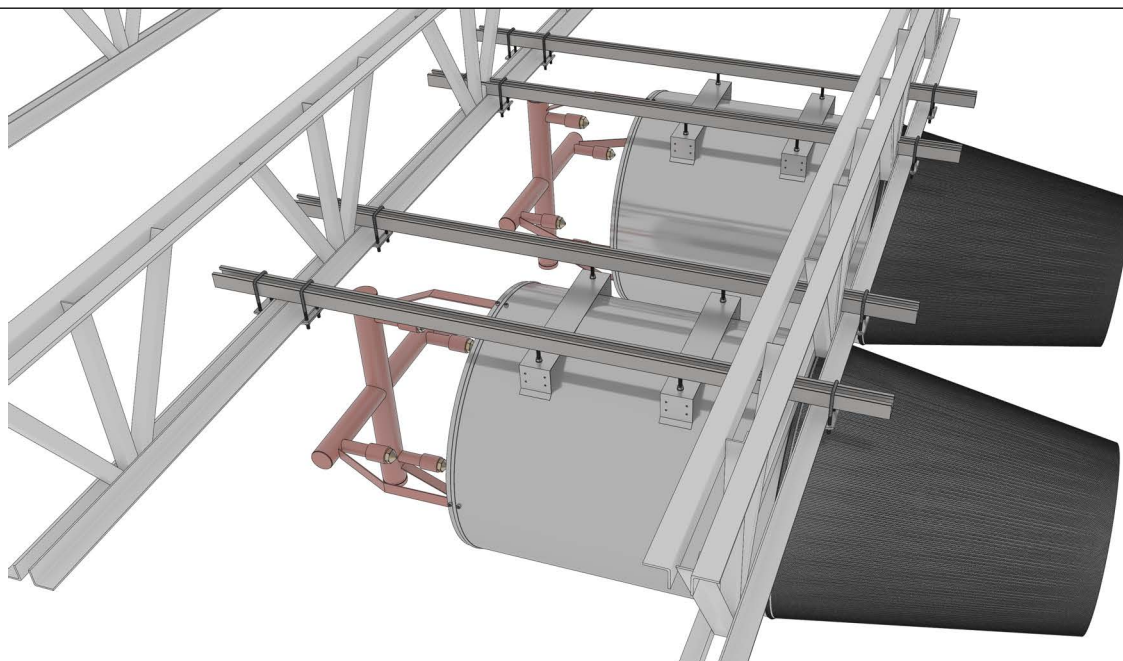


Figure 6.5.3 - Paired Unit Horizontal Installation (without Bracket) Using Mounting Feet



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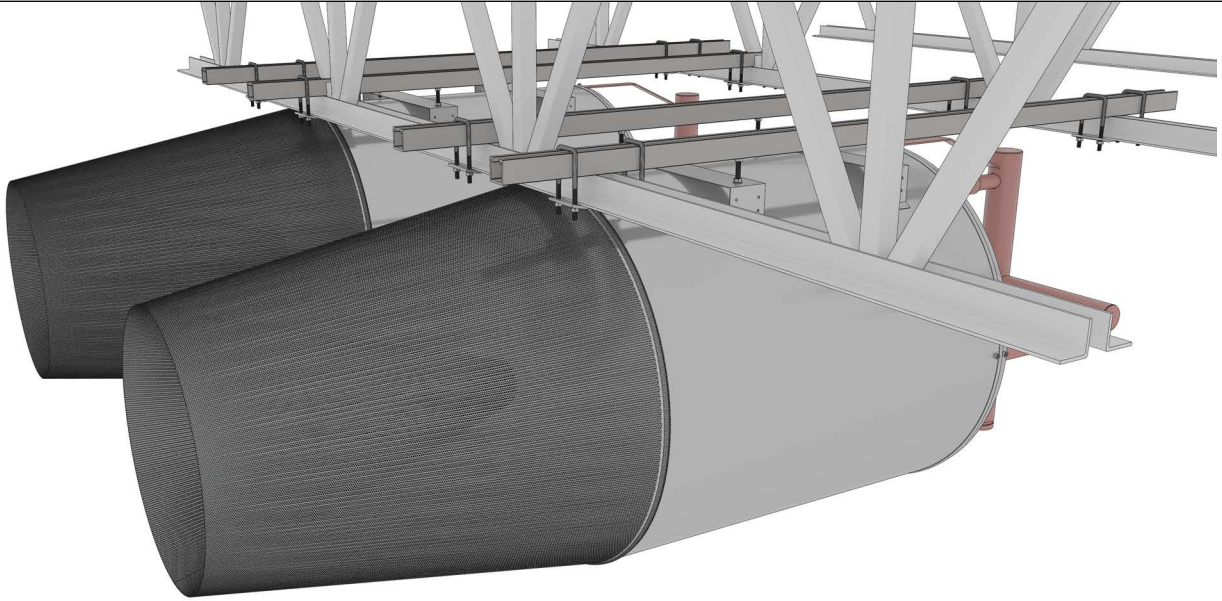


Figure 6.5.4 - Paired Unit Horizontal Installation (without Bracket) Using Mounting Feet - Alternate View

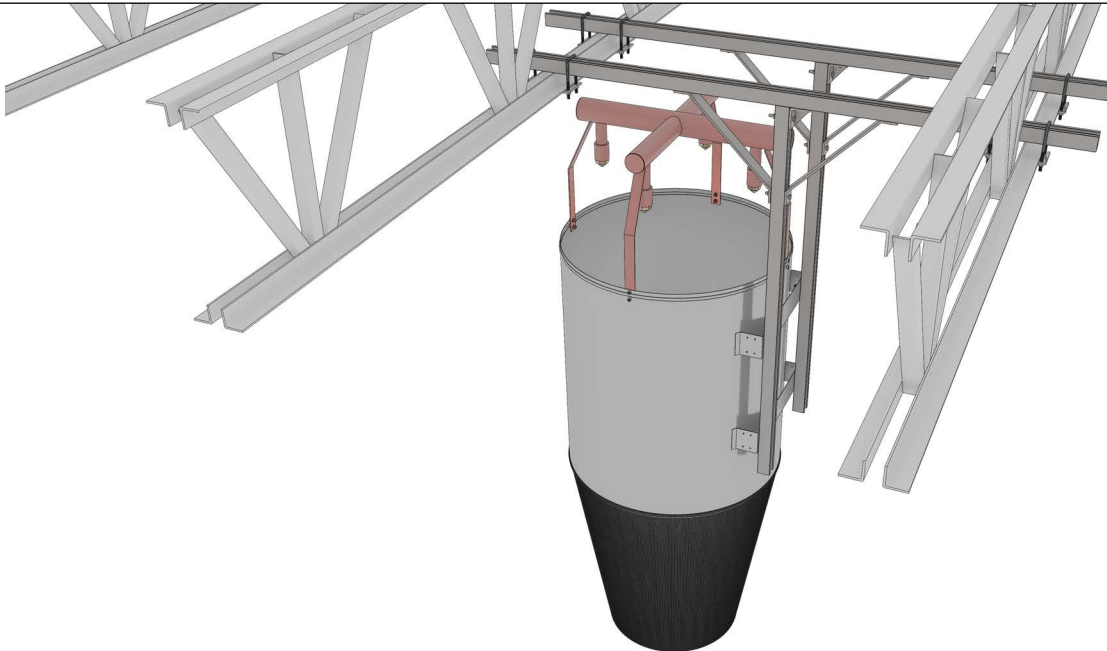


Figure 6.5.5 - Single Unit Vertical Installation Using Mounting Feet



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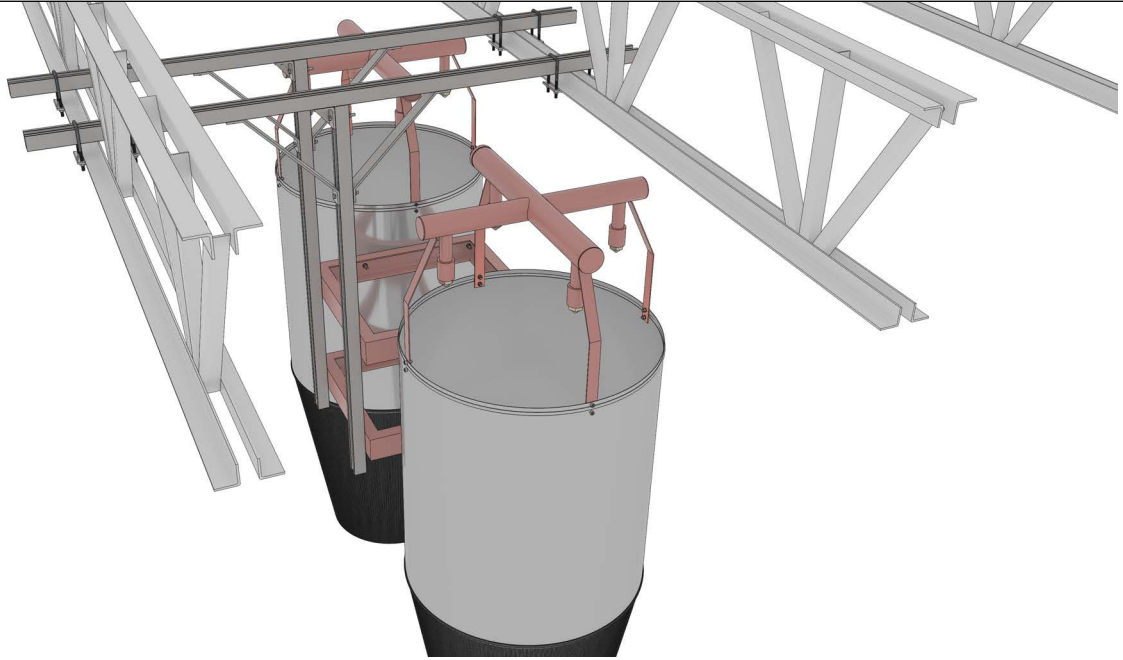


Figure 6.5.6 - Paired Unit Vertical Installation Using Bracket

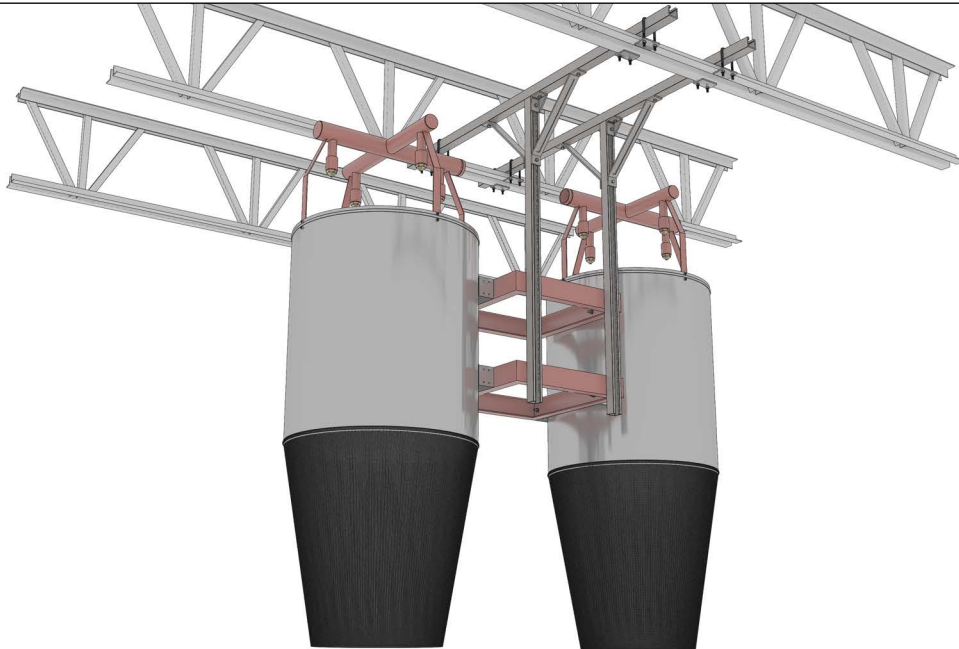


Figure 6.5.7 - Paired Unit Vertical Installation Using Bracket - Alternate View



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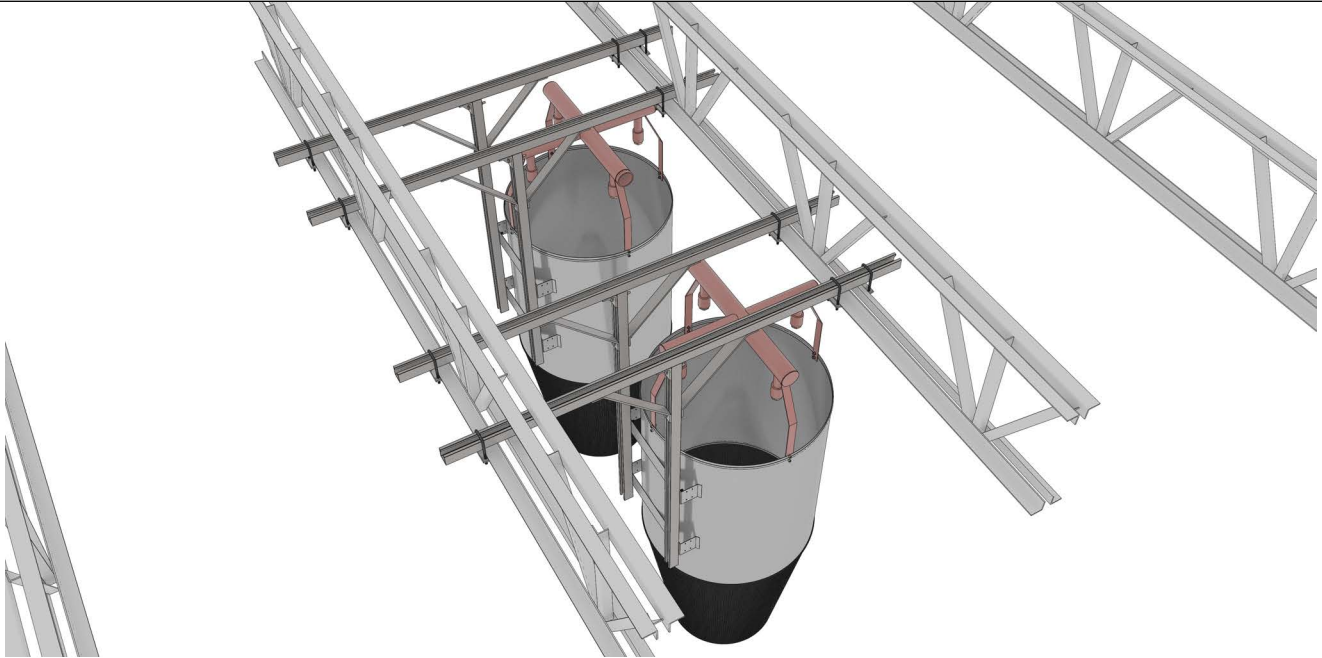


Figure 6.5.8 - Paired Unit Vertical Installation (without Bracket) Using Mounting Feet

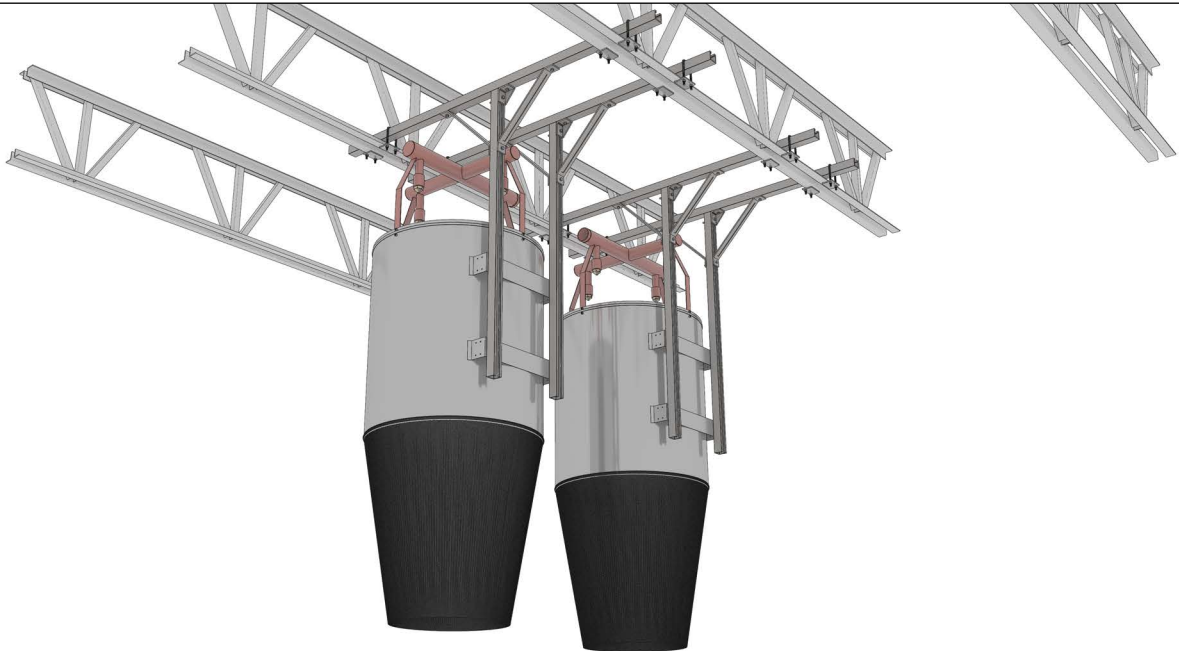


Figure 6.5.9 - Paired Unit Vertical Installation (without Bracket) Using Mounting Feet - Alternate View



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7. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

8. INSPECTION, TESTS AND MAINTENANCE

⚠ WARNING

Any system maintenance or testing that involves placing a control valve or detection system out of service may eliminate the fire protection of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.

Refer to respective requirements of NFPA and UFC. In addition, the "Authority Having Jurisdiction" (AHJ) may have additional maintenance, testing and inspection requirements that must be followed.

9. DISPOSAL



When the product(s) described in this document is being decommissioned, all materials shall be disposed of according to the national recycling system.

10. DECLARATION OF CONFORMITY

If required, contact Viking.