Mustang Sampling®

# Mustang Intelligent Vaporizer Sampling System® Model 1

## Installation Manual

MIV1®

# Table of Contents

# Introduction

## Disclaimer

Information in this document is subject to change without notice.

Mustang Sampling, LLC makes no representation or warranties with respect to the contents of this manual. Further, Mustang Sampling, LLC reserves the right to make revisions to this manual without obligation to notify any person or organization.

Mustang Sampling, LLC has engineered this product to perform specific functions, or set of tasks. Modifications to the unit or alternative applications of this product are not authorized without express written consent of Mustang Sampling, LLC.

## Potential Hazard Notifications in Manual

This manual will use the convention of labeling Cautions and Warnings in this manner;

**NOTICE**

**CAUTION**

**WARNING**

## Glossary

**BTU** – British Thermal Unit
**CAL** - Calibration
**GC** – Gas Chromatograph
**HTTB** – Heat Trace Tube Bundle
**LEL** - Lower Explosion Limit
**LNG** – Liquefied Natural Gas
**LOTO** – Lock-Out / Tag-Out
**MAOP** – Maximum Allowable Operating Pressure
**MFC** – Mass Flow Controller
**MHR®** – Mustang Heated Regulator
**MIV** – Mustang Intelligent Vaporizer
**PLC** – Programmable Logic Controller
**PS** – Power Supply
**RTD** – Resistance Temperature Detector
**VJT®** – Vacuum Jacketed Tubing

# Introduction

## MIV1® Sampling System Overview

The Mustang Intelligent Vaporizer Sampling System® - Model 1 (MIV1®) is a patented technology, designed to vaporize liquid, providing a fresh sample to a continuous online analyzer. This system is designed with enhanced sample quality, through controlled vaporization, accumulation, and homogenization, accomplished through multiple stages. For the analyzer to meet its stated accuracy, the Mustang Intelligent Vaporizer Sampling System ensures the sample to the analyzer is stable. The multi-path design provides redundancy well suited to critical operations.

## MIV1 Flow Path

1. Cryogenic liquid enters the MIV1 through the VJT® with temperatures monitored and reported by a resistance temperature detector (RTD)
2. The Cryogenic liquid then passes through a thermal isolator to a manifold which feeds four heated coils.
3. The heated coils instantly vaporize the liquid then the vapor is routed to an exit manifold then through a solenoid valve on the way to an accumulator tank.
4. The Accumulator Tank is equipped with mixing wands that ensure the gas is homogenous.
5. The gas then exits the accumulator in two paths, one leads to the Bypass Mass Flow Controller and the other steams to the analyzers through a Mustang Heated Regulator (MHR).
6. The bypass mass flow controller ensures that there is enough flow into the system to keep the liquid from prevaporizing before reaching the heated coils.
7. The MHR ensures the vapor sample remains in the vapor phase and reduces the pressure of the sample to meet the requirements of the downstream analyzers.

## Customer setpoint values are;

- All individual vaporizer temperatures
- MIV1 cabinet temperature
- MHR® temperature and pressure
- Bypass Mass Flow Controller rate

## Benefits

- Instantaneous vaporization of a liquid sample
- Prevents post-vaporization hydrocarbon liquid dropout
- Provides a homogenous sample
- Provides an accurate and stable sample to the gas chromatograph
- Supplies samples, including composite and manual grab samples, to multiple analyzers
- SoftView® Monitor – a dedicated software platform for operating, monitoring, trending, and reporting

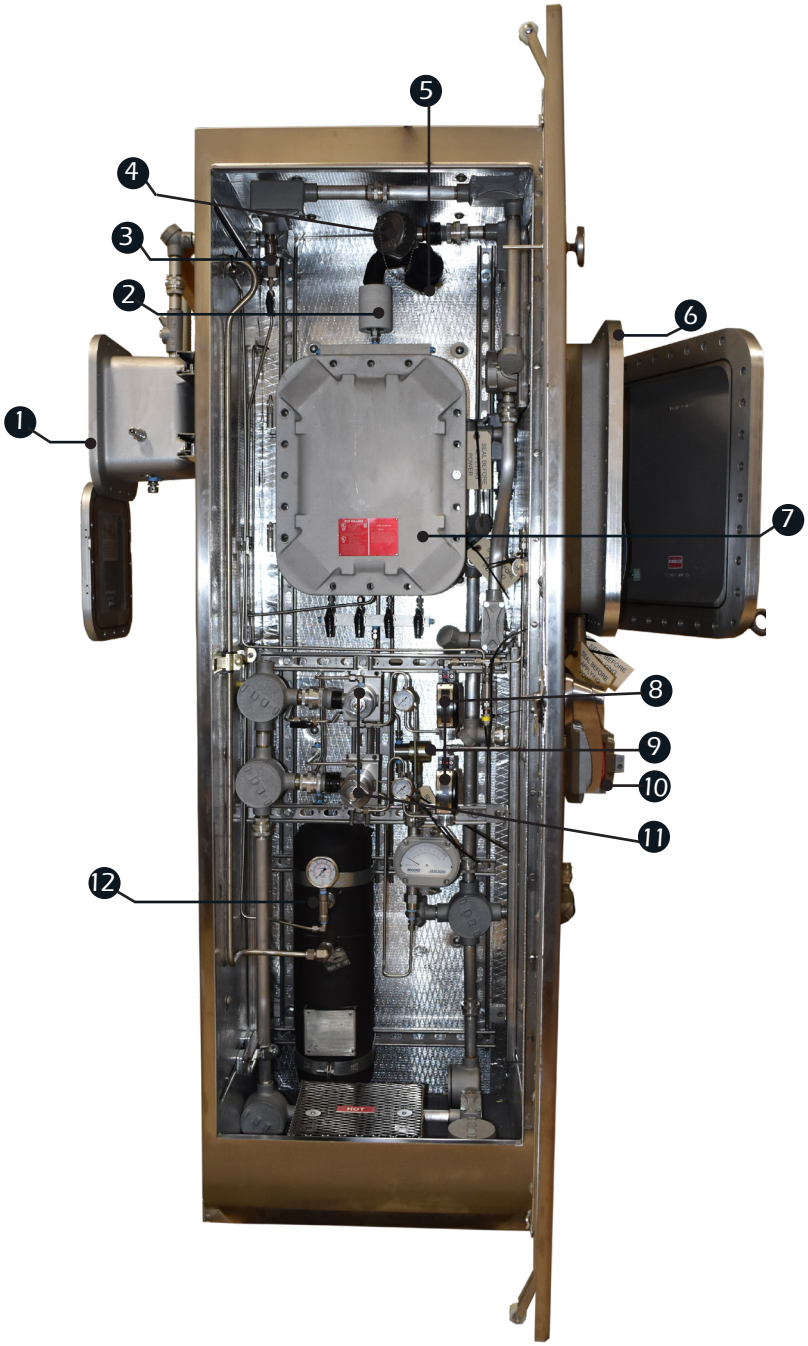
## Features

- Continuous gas flow design
- Easy maintenance
- NEMA 4X Enclosure

## Certifications

- ATEX/IECEx Certifiable
- Conforms to ISO 8943

| Item Number | Description |
|---|---|
| 1 | Fast Loop Mass Flow Controller |
| 2 | Thermal Isolator |
| 3 | Pressure Sensor |
| 4 | Mustang Inlet Resistance Temperatue Detector |
| 5 | Liquefied Natural Gas Input |
| 6 | PID Temperature Controller |
| 7 | Multi-Path Vaporizer |
| 8 | Flow Meters |
| 9 | Cryogenic Solenoid Valve |
| 10 | Power Input |
| 11 | Mustang Heated Regulator |
| 12 | Mustang® Accumulator Cylinder |



# Technical Specifications

Note: * Connections made up during Installation are noted in red type, all other connections are made at the factory, tested & documented
Note: ** Manual controls are labeled "Manual", all other customer controls managed & set electronically via the PLC

| Components | * Mechanical Interface | Electrical Interface | Downstream Component Interfaces | Reports | **Customer Control | Value Range |
|---|---|---|---|---|---|---|
| Power | Field Connection On / Off Switch | Power | Plant Power Feed | N/A | Manual MIV1 Switch or Manual Power Feed Breaker | N/A |
| Comm Link | Field Connection Comm Link Port | RS232, RS485 and/ or Ethernet RJ45 | Control Room | MIV1 Performance | N/A | Communicates MIV1 Performance to Control |
| VJT | Field Connection ¼" Swagelok Tube - both Inlet & Outlet | N/A | RTD and Vaporizer Inlet Manifold | N/A | Manual Supply Valve at Probe | N/A |
| RTD | ¼" Swagelok® Tube | Power & PLC | MIV1 PLC | Inlet Temperature of Liquid Gas | Monitor Temperature Only | -328°F (-200°C) to 152°F (67°C) |
| Vaporizers | ¼" Swagelok Tube - All | Power & PLC | Vaporizer Heater Temp reported to PLC | Gas Temperature at Vaporizer Outlet | Temperature Control & Manual Vaporizer Outlet Shut-Off Valve | 50°F (10°C) - 180°F (82°C), Factory pre-set at 120°F (49°C) |
| Vaporizer Outlet Manifold Thermocouple | 1/4" NPT | Power & PLC | PLC - Solenoid Shut0Off Valve | Vaporizer Outlet Manifold Gas Temperature reported to PLC | Optional - monitor only | N/A |
| Solenoid Shut-Off Valve | ¼" Swagelok Tube | PLC - based on readings from Vaporizer Outlet Manifold Thermocouple | N/A | N/A | N/A | Shuts Down MIV1 if Vaporizer Outlet Manifold Gas Temp falls below temperature set point - typically 50°F (10°C) |
| Accumulator Pressure Guage | ¼" Swagelok Tube | N/A | N/A | Accummulator Tank Pressure | N/A | 0 - 1,000 psi |

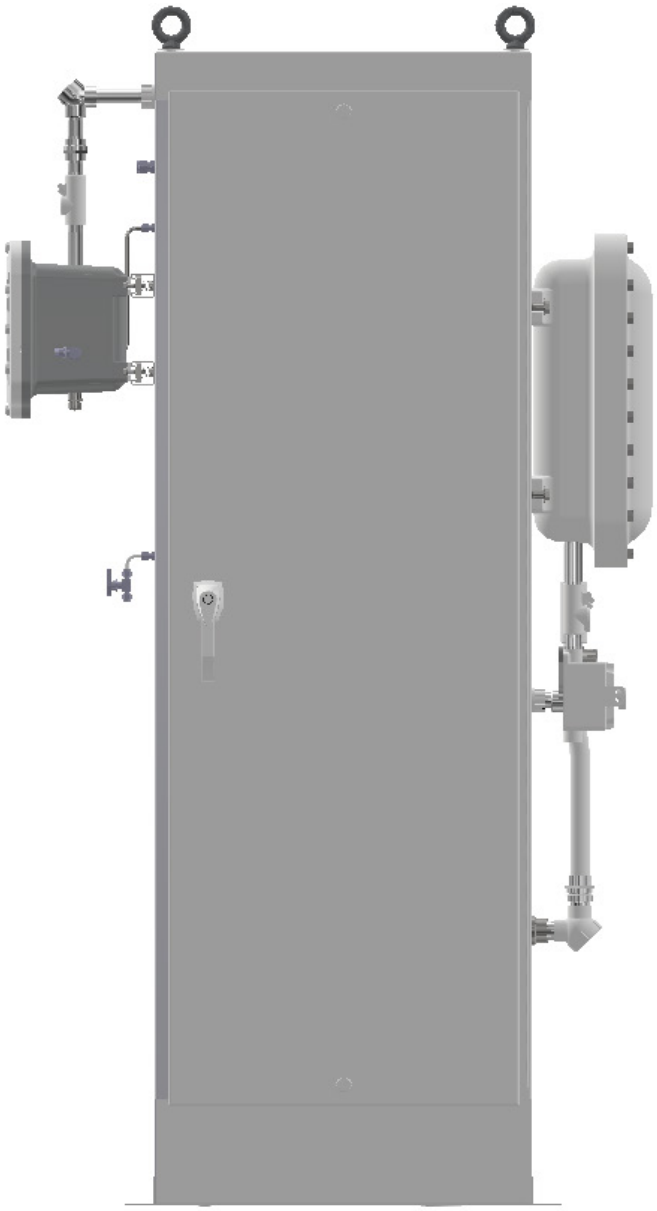
| | | | | | | |
|---|---|---|---|---|---|---|
| Accumulator Burst Disc Relief Valve | Field Connection ½" Swagelok® Tube | N/A | BOG Header, Flare or waste tube | N/A | N/A | 500 psi |
| Cabinet Heater | N/A | Power & PLC | N/A | Cabinet Temperature | N/A | Factory pre-set at 120°F (49°C) |
| Bypass Mass Flow Controller | Field Connection ¼" Swagelok Tube - All | Power & PLC | BOG Header, Flare or waste tube | Bypass Flow Rate | Bypass Flow Rate control | Factory pre-set at 28 liters/min or customer's set point - 0 - 60 liters/min. |
| Backpressure Check Valve - Bypass Mass Flow Controller | ¼" Swagelok Tube - All | N/A | Bypass Mass Flow Controller output tube | N/A | N/A | 0.34 psi |
| MHR | ¼" Swagelok Tube - All | Power & PLC | Pressure Relief Valve & HTTB | Temperature | Temperature Control through PLC, Manual Pressure Valve | Factory pre-set at 120°F (49°C) |
| Pressure Relief Valve | Field Connection ¼" Swagelok Tube | N/A | BOG Header, Flare or waste tube | N/A | N/A | 45 PSI - but may vary to be application specific |
| HTTB | Field Connection ¼" Swagelok Tube - All | Electrical Dead Head in MIV1 cabinet conduit | Analyzer | N/A | N/A | N/A |

# Additional Specifications

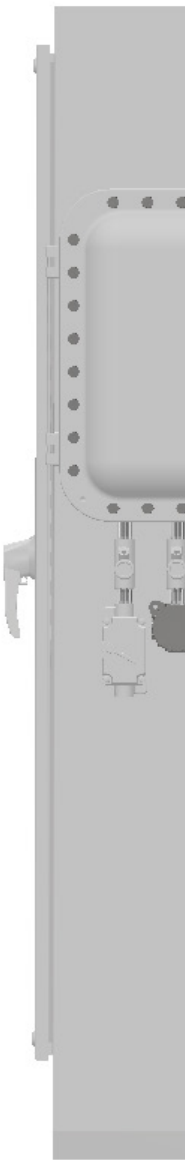
| | |
|---|---|
| Maximum Allowable Working Pressure | Limited by installed burst disc on Accummulator Tank pressure relief system - 500 psi |
| Electrical Enclosure Classification | Class 1, Division 1 & 2, Groups C, D and T3 (CE ExII 2 G Ex d II B T3 Gb Zones 1 & 2) |
| Wetted Materials | Machined parts: 316 Stainless Steel / NACE compliant All other metal parts: stainless steel / NACE compliant; (other materials available upon request) |

# Mustang Intelligent Vaporizer Sampling Sysem® (MIV1®)

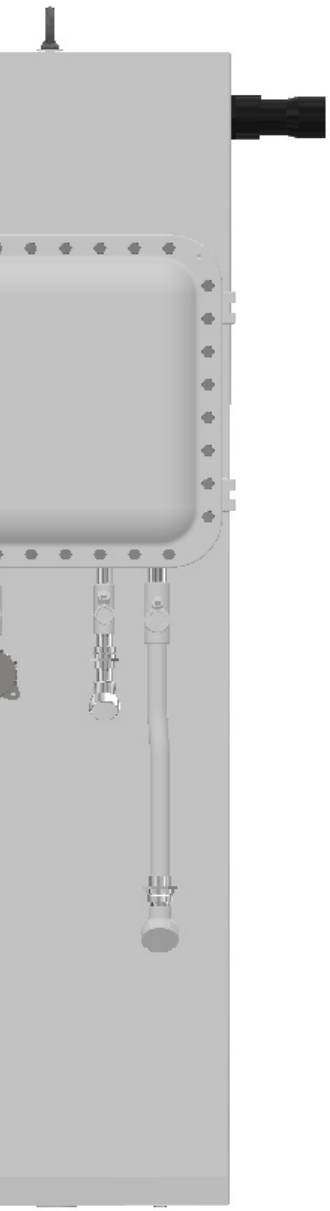
View: Left Side



View: Front Interior



View



**: Right Side**

## PRODUCT SPECIFICATIONS

| | |
|---|---|
| Maximum Allowable Working Pressure | 500 psig at -360°F (35 bar at -218°C) Varies by solenoid selection |
| Proportional Temperature Control Range | 0°F to 200°F (-18°C to 93°C) |
| Thermal Cut-off | Opens at 230°F (110°C) |
| Port Sizes | 1/4" female NPT |
| Conduit Connection | 3/4" female NPT |
| Electrical Enclosure Classification | Class 1, Division 1 & 2, Groups C, D, T3<br>(CE Ex II 2 G Ex d II B T3 Gb Zones 1 & 2) |
| Wetted Materials | Machined parts: 316 stainless steel/NACE compliant<br>All other metal parts: stainless steel/NACE compliant;<br>(other materials available upon request) |
| Input Supply Voltage Options | 120 VAC, 1950 Watts, 50/60 Hz, ± 10% |
| | 240 VAC, 1950 Watts, 50/60 Hz, ± 10% |
| Certification Options | AI Atex/IECEx Certifiable |
| | CE cETLus Certifiable |

**VAPORIZING:** The MIV1® multi-path flash vaporizes liquid samples for introduction into gas analysis systems. Liquid samples are maintained near line conditions until reaching a flash chamber within the vaporizer, preventing pre-vaporization. The energy for vaporization is provided by an electric cartridge heater with sufficiently large surface area to maintain a stable gas temperature throughout the process and send the sample to the Mustang® Accumulator for restructuring.

**ACCUMULATING:** The Mustang® Accumulator Cylinder is designed with a special mixing wand to aid in the absorption of pressure pulsations and homogenization of gasified LNG.

A vapor return bypass flow control system is controlled by a Brooks mass flow controller. The vapor is sent to the vapor return or flare.

**PRESSURE REGULATING:** A Mustang Heated Regulator (MHR®) designed to prevent hydrocarbon dew point dropout and reduce sample pressure which is then delivered to the gas chromatograph through a heated sample tube.

# MIV1® Uncrating

## Cautions, Warnings & Prohibitions

**NOTICE**

Important Note – Shipping Crate is screwed together and MIV1 is screwed to shipping base

- Tipping Hazard - High Center of Gravity, Small Footprint
- Crush Hazard - Heavy
- External Components vulnerable to damage.

### MIV1 Storage

- Recommend MIV1 be stored in a dry location in the shipping crate until installation

### Uncrating and Handling

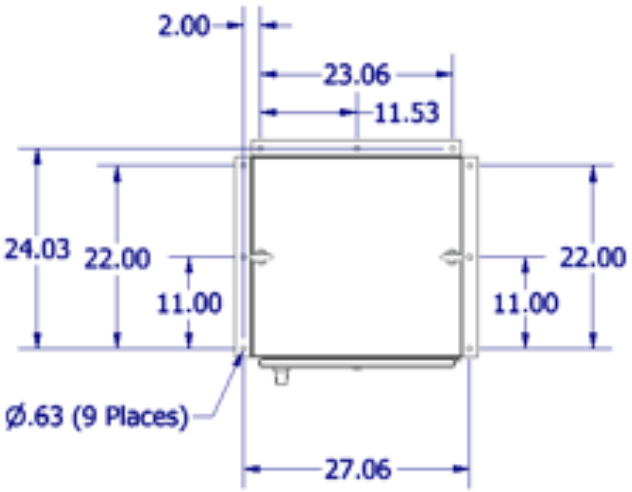
- Unscrew fasteners holding the shipping container together
- Unscrew MIV1 from shipping base
- Lifting Eyes – Cabinet has been provided with Lifting Eyes
- Keep Cabinet upright & vertical

**CAUTION**

MIV1 requires 3 ft. of space on all four sides for safe access to cabinet and external components

## Securing MIV1 to the Base

Recommendations – Threaded rod with nut, anchor bolts, or bolts through flange at bottom of the cabinet depending on base. See Figure 1




# MIV1® Installation Process

## Installation Overview

The following steps must be completed prior to commissioning MIV1

1. Connect Electrical Power
2. Connect Communications
3. Test Power & Communications Connections
4. Connect Bypass Mass Flow Controller Outlet
5. Connect Pressure Relief Valve Outlet and Accumulator Tank Burst Disk Outlet
6. Connect MHR to Analyzer
7. Install Vacuum Jacketed Tubing (VJT®)
8. Leak Test Pipe and Tubing Connections
9. Verify & Complete Installation Checklist

### List of connections in Install Procedure

**Electrical** – Power Feed, Communications cable and HTTB dead head

**VJT®** – Supply Probe and MIV1 Inlet connections

**MHR®/ HTTB** – output to Analyzer

**Vent Lines** – Bypass Mass Flow Controller, TTank Pressure Burst Disc Valve and MHR tubing pressure relief valve

## General Cautions, Warnings & Prohibitions

**CAUTION**

Electrical Shock Hazard

Prevent dirt, grit or other foreign materials from contaminating fastener threads. If needed, clean threads with electrical contact cleaner

- Prevent dirt, grit or other foreign materials from contaminating fastener threads. If needed, clean threads with electrical contact cleaner

**WARNING**

Do not use gasoline or a similar solvent as a thread cleaner as this could create an explosion hazard and will promote oxidation and corrosion

**NOTICE**

MIV1 is shipped with plugs in all tube and conduit openings.Remove plugs before making up connections!

Protect MIV1 from rain and moisture until all electrical seals are completed and all explosion proof enclosures are closed and secured

## What You Will Need (beyond common hand tools)

- 2 ⅜" drill for stainless steel or hydraulic hole punch – Needed if Factory did NOT make cabinet port for VJT® or HTTB entry boots.
- Multi-meter for testing power feed
- Electrical Connection Sealing Materials
- Nitrogen source (or clean, dry air source, with shut-off valve and connection line to connect to the 1/4" stainless steel tube at the VJT inlet, 1/4" and 1/2" stainless steel tubing with Swagelok fittings for relief lines, Also Swagelok Gap Inspection Tool / Gauge

## ❶ Connect Electrical Power

**Cautions, Warnings & Prohibitions**

**CAUTION**

Ensure electrical feed is off and locked out / tagged out before making electrical connections

**Procedure**

- Power feed – see Specifications
- Connect power feed to cabinet external integrated switch. See Figure 2
- Ensure cabinet external integrated switches are "OFF"

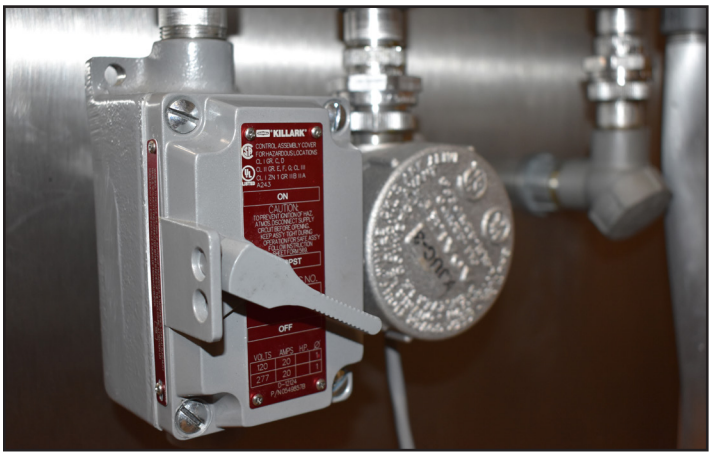



**Figure 2 – On / Off MIV1 Power Switch**

## ❷ Connect Communication

Connect Communications Wire to Control System Multi-meter for testing power feed

- Connection – see Specifications
- Communications Port is inside an explosion proof enclosure on the right side of the MIV1 cabinet – See Figure 3


**Figure 3 – Communications cable entry stub and connection point inside crock**

## ❸ Test Power and Communications Connections

**Cautions, Warnings & Prohibitions**

**CAUTION**

Electrical shock hazard

Possible fire hazard

**What You Will Need (beyond common hand tools**

- Multi-meter
- Control Station or Laptop with monitoring software such as Softview® loaded

**Procedure**

- Verify MIV1 power switch is "OFF"
- Remove Lock Out / Tag Out and switch on power feed
  - Verify power feed to cabinet
  - Verify ground connections to Supply and MIV1 chassis
- Energize MIV1 – turn power switch to "ON"
- Verify electrical devices work properly
- Ensure Communications Wire is functioning properly and communicating with Control Station and / or Laptop
- Verify Factory Presets

# MIV1® Installation Process

| Number of Components | Components | Factory Preset Values |
|---|---|---|
| 4 | Vaporizer Heaters | 120°F (49°C) |
| 1 | Bypass Mass Flow Controller | 28 liters / minute |
| 1 or 2 | MHR | 120°F (49°C) |

- Turn cabinet power switch "OFF", and / or de-energize power feed to MIV1 and LO/TO

**NOTICE**

Seal all electrical connections per the applicable electrical code, including the communication wire's port in the explosion proof enclosure

## 4 Connect Bypass Mass Flow Controller Outlet

**Procedure** – See Figure 4

- Measure & make lines using stainless steel tubing - the port is the ¼" Swagelok tube fitting on the cabinet's left side, protruding horizontally from the Bypass enclosure
- Remove MIV1 line plugs
- Connect line to Bypass Outlet - route to disposal or collection line (BOG Header, Flare Tube, or atmospheric release. Ensure disposal line meets applicable codes and requirements)
  - Use Swagelok specifications (Appendix B)
  - Verify with Swagelok® gap tool

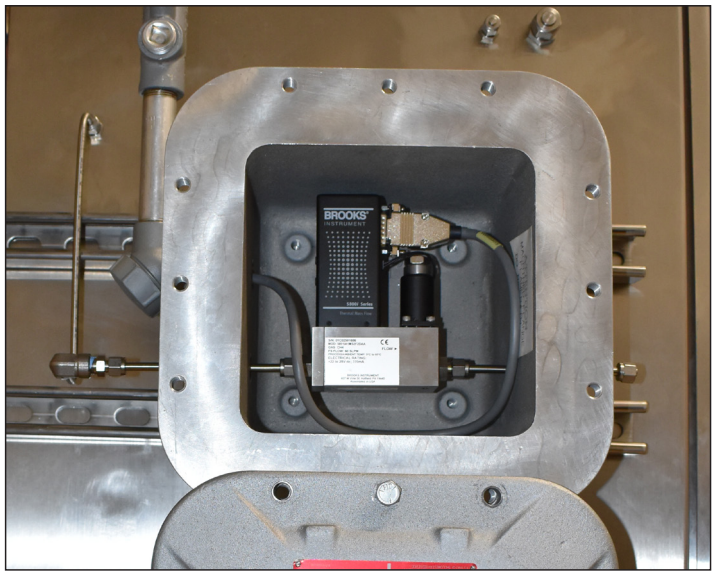



**Figure 4 – Bypass Mass Flow Controller enclosure on left side of MIV1**

## 5 Connect Accumulator Tank Burst Disk Outlet & Relief Valve

**Procedure** – See Figure 5

- Measure and make lines using stainless steel tubing - the Accumulator Tank Burst Disk outlet is the external ½" Swagelok fitting on the upper left side of the cabinet. The Relief Valve is the adjacent ¼" Swagelok fitting
- Remove MIV1 line plugs
- Connect to disposal or collection line - ensure disposal / collection line meets applicable codes and requirements
  - Use Swagelok specifications (Appendix B)
  - Verify with Swagelok gap tool

**Figure 5 – Ports for Accumulator Tank Burst Disk and Relief Valve**

## 6 Connect Heat Trace Tube Bundle to MIV1

**CAUTION**

MIV1 can be commissioned without being connected to the analyzer, however, connecting the MHR® to the analyzer must be completed, and the MHR optimized for the analyzer prior to use

**Procedure**

- Use Heat Trace Tube Bundle (HTTB) to connect MIV1 Outlet to analyzer cabinet
- Install Heat Trace Tube Bundle Entry Boot (supplied) See Figure 6
- Measure & make-up Heat Trace Tube Bundle run
- Remove line plugs
- Install Heat Trace Tube Bundle
  - Thread HTTB into position and connect tubing ends. Refer to Swagelok fitting

install requirements (Appendix B) for tubing connections and check installations with Swagelok gap tool
- Install HTTB Dead Head Kit
- Test HTTB for electrical function
- Seal Entry Boot – heat shrink Entry Boot tubing portion to seal
- Seal HTTB dead end in MIV1 cabinet.

## 7 Install Mustang® Vacuum Jacketed Tubing (VJT®)

**NOTICE**

Recommend VJT be used to transfer Liquid gas from the supply pipe to the MIV1 as proper performance relies on liquid gas to the vaporizer header. Inadequately insulated supply pipes can result in some boil off prior to entering the vaporizer

**Procedure**

- Cabinet / Inlet Connection
  - Install VJT Entry Boot (supplied) See Figure 6
  - Thread VJT into cabinet
  - Remove tubing plugs
  - Connect VJT to Inlet Tube. See Figure 7
    - Swagelok Requirements (Appendix B)
    - Verify with Swagelok® gap tool
    - Seal Entry Boot – heat shrink tubing portion to seal.

**Figure 6 – VJT entry port and RTD connection point**

- Connect VJT to probe bung.
  - Remove tubing plugs and connect VJT to the supply probe.
  - Swagelok Requirements (Appendix B)
  - Verify with Swagelok gap tool

## 8 Leak Test Pipe and Tube Connections

**Procedure**

**NOTICE**

Factory made tubing connections have been leak tested and documented at the factory

Equipment Needed: Nitrogen or "clean, dry air" source with a ¼" connection tube and valve on the source, wrenches and Swagelok Gauge Tool, plus appropriate PPE and work permit (if required)

1. Connect the gas source's delivery tubing to the LNG inlet and check with Swagelok tool (Appendix B). See Fig aaaa
2. Power up the MIV1, ensure that the solenoid opens and pressurizes the system downstream of the vaporizers
3. Apply test gas at 80-100% of expected process pressure
4. Ensure flow on the MFC and MHR outlets
5. Once the pressure stabilizes, close the ball valves on the MFC and MHR outlets.
6. Close the test gas source valve
7. Note the system pressure via the accumulator gauge, or through the software
8. Wait 15 minutes and verify that the pressure has not dropped
   - If the pressure did not drop, proceed to step 9
   - If the pressure dropped: Open the ball valves on the MFC and MHR outlets and allow all pressure to bleed off. Wrench check all fittings and check with Swagelok tool
   - Begin the test again from step 3
9. Open the ball valves on the outlets of the MFC and MHR and allow the pressure to bleed off
10. Remove the test gas delivery tubing from the LNG Inlet
11. Power down the MIV1

# MIV1® Installation Process

**Figure 7 – Valve Positions post pressure testing**

**NOTICE**

If no leakage detected at VJT® MIV1® Inlet Connection or at the VJT probe connection insulate those connections – See Figure 8

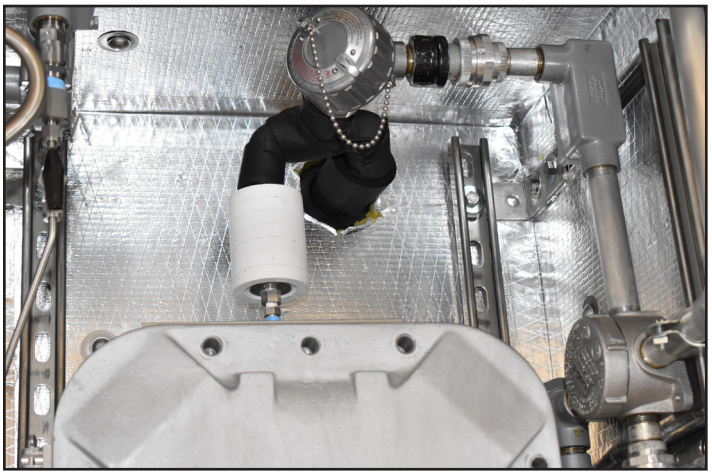


**Figure 8 – Applying insulation to the VJT connections at the RTD and the Probe**

## 9 Verify & Complete Installation Checklist

- Complete checklist – to be used at Commissioning
- See Appendix A for checklist

# Commissioning/Start-up

**See MIV1® Operator's Manual**

- Complete checklist – to be used at Commissioning
- See Appendix 1 for checklist

**CAUTION**

Mustang Sampling strongly recommends that Commissioning be performed by Mustang Sampling technicians – contact Factory at +1 304 273 5357

# Appendix

## Appendix A

### Installation Checklist

**Cabinet Installation**

- Cabinet location provides 3' access space on all sides
- Cabinet secured to base

**Cabinet Electrical Connection**

- Power feed connected according to spec to cabinet terminals
- Ground connections verified
- Switches operate as designed

**Communication Wire Connection**

- Communications wire connected

**Electrical and Communication Wire Connection Testing**

- Ground connection tested
- Electrical components functioning
- Communication functioning
  - Functioning verified at;
    - Control Station
    - Laptop
  - Factory Presets verified
    - Heaters (4) - 120°F (49°C)
    - MHR® (1 or 2) - 120°F (49°C)
    - Bypass Mass Flow Controller (1) – 28 liters / minute

**Bypass Mass Flow Controller Outlet Connection**

- Bypass Outlet line connected to Vapor Collection Line
- Connections meet Swagelok® specifications

**Pressure Relief Outlet Connection**

- Pressure Relief Outlet line connected to Vapor Collection Line
- Connections meet Swagelok specifications

**HTTB to MIV1® Connection Installation**

- HTTB sealing boot does NOT violate cabinet exclusion zones
- HTTB sealing boot installed according to specification provided in kit
- HTTB to MIV1 fitting completed
- All tubing connections made meet Swagelok specifications

**Vacuum Jacket Tubing (VJT®) Installation**

- VJT installation does NOT violate any cabinet exclusion zones
- VJT hole seal installed
- Cabinet Inlet connection completed
- Connection Insulated
- Connection made to Swagelok specifications
- LNG Supply Valve operational

**Leak Test**

- Deactivated circuit breakers to heaters
- All fitting connections leak checked
  - Leaking connections fixed
- Pressure Gauges leak checked
- VJT connections tested
- Restored circuit breakers

**System Status after Installation**

- Circuit Breakers
  - Checked & verified by:
  - Status
- Valves
  - Checked & Verified by:

**Checklist verified by:** _____

## Appendix B

### *Swagelok® Fittings Guidelines (from Swagelok Website)*

**Installation Instructions**

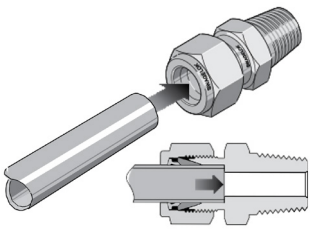
Swagelok tube fittings 1 in ./25 mm and smaller can be installed quickly, easily, and reliably with simple hand tools.

**Safety Precautions**

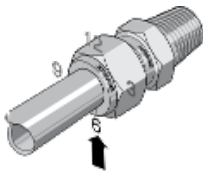
- Do not mix products from different manufacturers – product performance may be compromised.
- Do not bleed system by loosening fitting nut or fitting plug.
- Do not assemble and tighten fittings when system is pressurized.
- Make sure that the tubing rests firmly on the shoulder of the tube fitting body before tightening the nut.
- Use the correct Swagelok gap inspection gauge to ensure sufficient pull-up upon initial installation.
- Always use proper thread sealants on tapered pipe threads.
- Do not mix materials or fitting components from various manufacturers—tubing, ferrules, nuts, and fitting bodies.
- Never turn fitting body. Instead, hold fitting body and turn nut.
- Avoid unnecessary disassembly of unused fittings.
- Use only long reducers in female Swagelok end connections.

**Swagelok Tube Fittings (Up to 1 in./25 mm)**

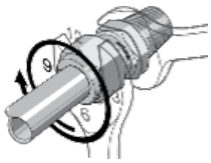
These instructions apply both to traditional fittings and to fittings with the advanced back-ferrule geometry.



- Fully insert the tube into the fitting and against the shoulder; rotate the nut finger-tight.
- **High-pressure applications and high safety-factor systems:** Further tighten the nut until the tube will not turn by hand or move axially in the fitting.
- Mark the nut at the 6 o'clock position.



- While holding the fitting body steady, tighten the nut one and one- quarter turns to the 9 o'clock position.



**NOTICE**

Check that the fitting is properly tightened using the Swagelok Gap Inspection Gauge. Select the appropriate size and insert between the fitting and the nut. If it will not fit into the gap the fitting has not been sufficiently tightened

**Reassembly**

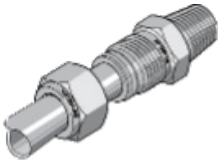
**NOTICE**

You may disassemble and reassemble Swagelok tube fittings many times.

**NOTICE**

Always depressurize the system before disassembling a Swagelok tube fitting.

- Prior to disassembly, mark the tube at the back of the nut; mark a line along the nut and fitting body flats.
- Use these marks to ensure that you return the nut to the previously pulled-up position



- Insert the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body .
- While holding the fitting body steady, rotate the nut with a wrench to the previously pulled-up position, as indicated by the marks on the tube and flats. At this point, you will feel a significant increase in resistance. Tighten the nut slightly.

**NOTICE**

***Do not use the Swagelok gap inspection gauge with reassembled fittings***

Analytically Accurate®
# TECHNOLOGY

## About Mustang Sampling

Mustang Sampling, LLC is the innovator of Analytically Accurate® solutions within sample conditioning systems. We provide custom solutions of products and services globally to the Natural Gas, Natural Gas Liquids (NGL), Renewable Natural Gas (RNG), Liquefied Natural Gas (LNG) industries including Hydrogen Blending and Carbon Sequestration. Mustang Sampling continues to pioneer integrated control systems, allowing our customers to maintain phase stability from sample extraction at the source through sample analysis. Our products are continuously improved and subjected to the highest quality standards which provides our customers with the best sample conditioning solutions.

## About Valtronics Solutions

Valtronics Solutions is a diverse manufacturing and services company within the natural gas, liquefied natural gas, natural gas liquids, petroleum and chemical industries. We provide skids including gas measurement and control systems, monitoring equipment, automation, cabinets and complete analyzer buildings. Our service technicians are fully trained in equipment diagnostics and troubleshooting are capable of rebuilding valves in the field. With over 250 years of skilled experience, our company is dedicated to exceeding customer expectations when fulfilling their needs. Our dedicated staff has driven sustained growth with thousands of customers depending on Valtronics' products and services globally.

Mustang Sampling, LLC
43 Ritmore Glen
Ravenswood, WV 26164
P: +1 304 273 5357
F: +1 304 273 2531

info@MustangSampling.com
www.MustangSampling.com



MS-IOMMIVI-EN-P February 2022