



ENGLISH

# Model HFI

## INSTALLATION, OPERATION & MAINTENANCE MANUAL



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## 1. Introduction

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The Model HFI Flush Gas Control Station is used with the Delta Controls Model HIR Infrared Pyrometer. The HFI provides the essential functions necessary for the proper operation of the HIR Infrared Pyrometer and to help provide maintenance free operation. These primary functions are:

- A. Prevents dust and ash from clinging to the pyrometer's lens window glass.
- B. Provides the correct constant purge flow rate regardless of changes in the gas supply pressure.
- C. Prevents excess purge gas flow that may cool the lens window and encourage the condensing of sulfur on the pyrometer lens surface. This condensing of sulfur will, over time, form a film on the glass that would otherwise attenuate the IR signal reaching the sensor, causing temperature measurement inaccuracy.
- D. Provides a very fine (5 micron) filtration of all incoming flush gas. This prevents accumulation of contaminants in the lens body pre-heater chamber. It also provides a trap with a drain valve to catch water droplets and condensables that may be in the gas supply stream.
- E. Provides a single place at the reactor where the operator can regularly monitor and verify proper operation of the HIR flush gas stream. Instrumentation labels indicating correct setpoints are mounted on the HFI faceplate.

## 2. Installation & Mounting

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Install the HFI at eye level (approximately 5 Feet [1.5 M] above the floor), so that it can easily be observed and operated. Locate it beside a catwalk, passageway, etc. which the unit operator uses as he makes his rounds. This allows the operator to regularly verify that the purge is operating properly.

A vertical 2" pipe stand provides an ideal mounting for the HFI, which is furnished with two clamps for securing it to the pipe.

The HFI may also be mounted on a vertical surface. To do this, discard the pipe clamps, drill 4 ea. 7/16" (11mm) holes through the surface and secure the HFI with 3/8" (9mm) bolts.

## 3. Piping

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The HFI is normally connected to the HIR and flush gas supply stream with tubing. The tubing size should be 1/8" (3mm) or larger. 1/4" or 6mm tubing are commonly used.

The ports on the HFI are clearly marked as to what should be connected to each of them. Tubing may enter and leave from bottom, top, right side, left side or any combination thereof. The tubing run should be installed neatly and be easy to follow and understand. Make the runs straight as possible and support them well for best long term operating results.

## 4. Operating

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**Set the Pressure** - Set the pressure to 5 PSI (0.34 bar) above the maximum thermal reactor operating pressure (typically 10 - 12 PSI (0.7 – 0.8 bar)). Set the flow rate control to a flow rate of 28 L/m. No other adjustments are required. These setpoints must be continuously maintained. It serves no purpose to increase either the flow rate or the pressure beyond the recommended settings.

If either the pressure or flow is disrupted beyond a day or two, dust, ash or a film of sulfur may begin to accumulate on the lens window glass. Left uncorrected, eventual inaccuracy of the HIR Infrared Pyrometer may result.

### 4.1 Flush Gas Cooling Effect

The HIR Lens body incorporates a purge pre-heating chamber. This pre-heating is to prevent cool purge gas from cooling the lens window. Maintaining the window glass at elevated temperature helps to avoid any sulfur deposits from coating the glass which would, over time obscure the IR pathway to the sensor causing inaccuracy of the temperature measurement.

Make certain that the purge gas flow is maintained at 28 L/m.

## 5. Maintenance

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The operator is to observe the pressure indicator and flow rate indicator during each unit walk through to verify that the system is operating properly.

On a weekly basis, the filter bowl drain valve should be opened slightly to verify that the supply gas remains dry. If any liquid is observed, open this valve on a daily basis and if traces of liquids are observed, correct the source of the problem.

Liquids of any type in the flush gas can cause operational problems.

### 5.1 Replacement & Spare Parts

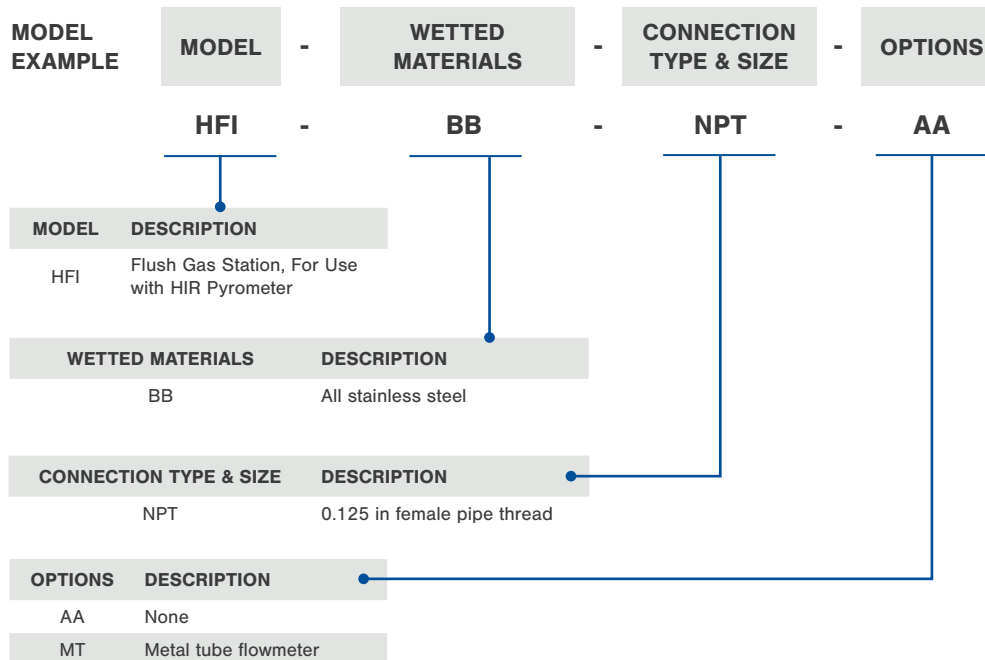
P/N	Description
24-098BB	Pressure Control Unit, all Stainless Steel
24-106AA	5 Micron Filter Element
12-056TT	Pressure Indicator, all Stainless Steel
25-386Z0	Flow Indicator / Control Unit; all Stainless Steel
24-809AA	Flow Indicator / Control Unit; Metal Tube



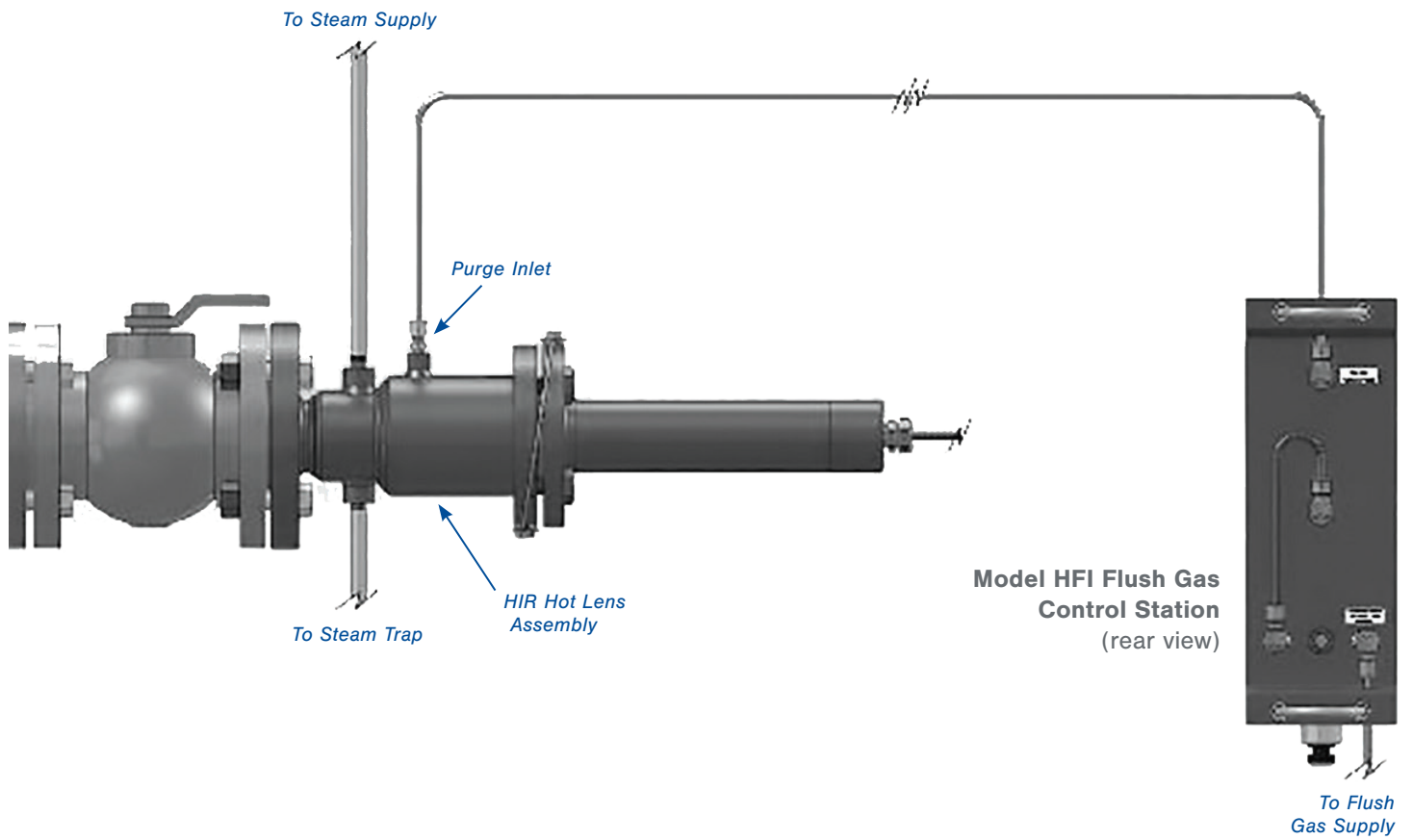
## 7. Specifications

<b>Flow Range:</b>	4 L/m to 38 L/m std
<b>Supply Pressure:</b>	25 psig to 250 psig (1.75 bar to 17 bar)
<b>Supply Gas:</b>	Nitrogen
<b>Pressure Indicator:</b>	2.5 in diameter, 0 psig to 60 psig (0 bar to 4.1 bar)
<b>Flow Control:</b>	Constant mass flow rate type
<b>Pressure Control Range:</b>	2 psig to 50 psig (0.1 bar to 3.4 bar)
<b>Filter:</b>	5 µm sintered polypropylene
<b>Drain:</b>	Manual Valve
<b>Meter Body:</b>	Stainless Steel
<b>Pressure Body:</b>	Stainless Steel
<b>Connection Fittings:</b>	Stainless Steel, 0.125 in FPT pipe or millimeter size tubing
<b>Faceplate and Pipe Clamps:</b>	Stainless Steel

## Model Numbering System

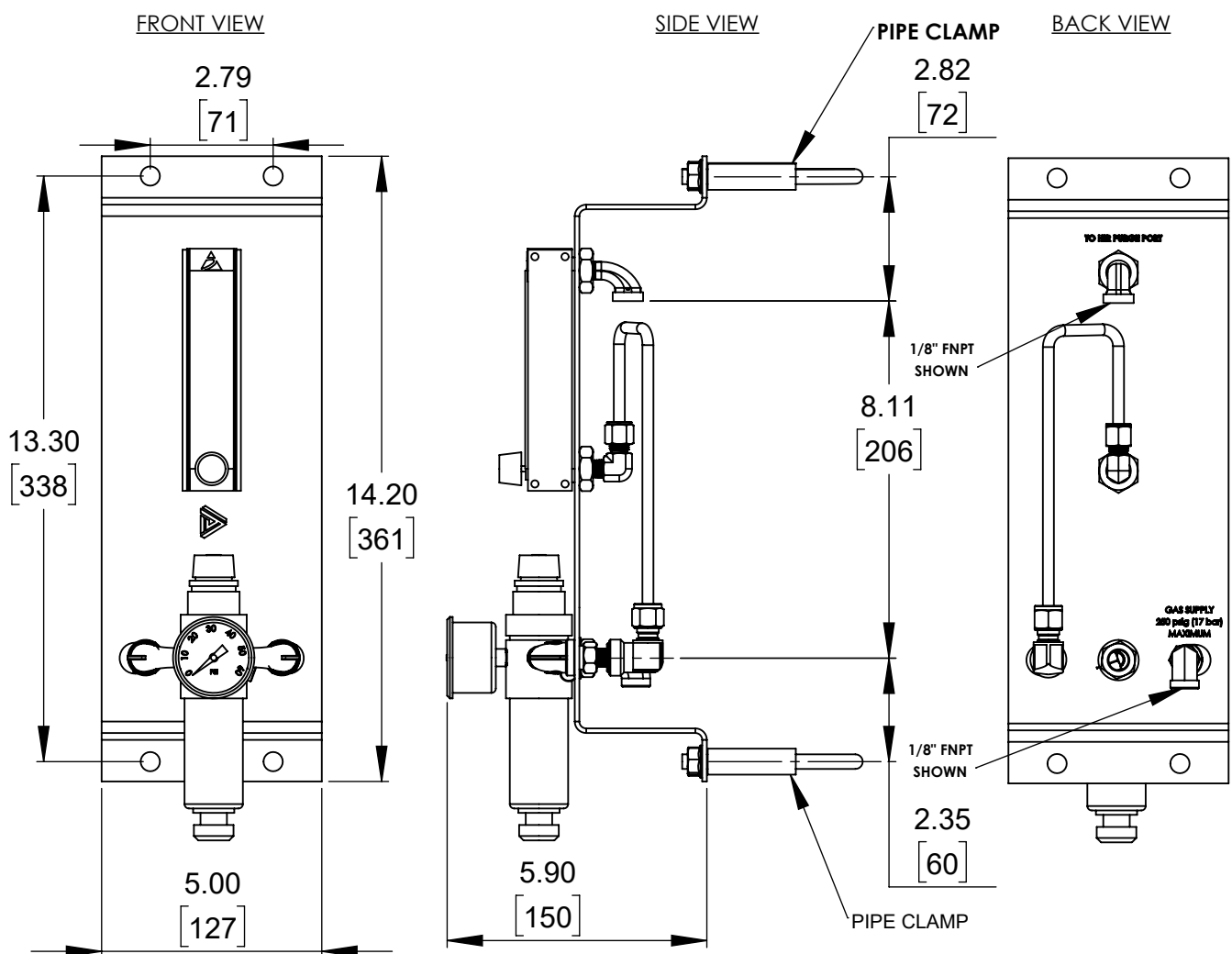


## Typical Flush Gas Connection





## Model HFI Layout & Dimensional Drawing



**Field Connections:** Piping or tubing may arrive at the HFI Station horizontally (from the right and/or left), vertically (from up and/or down) or any combination of these directions. Connection fittings may be rotated  $\pm 200^\circ$ .

## Contact Us

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