



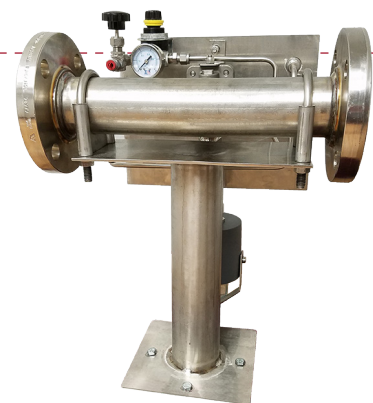
The SENSOR RAM Sample System (RSS) is designed to attach directly to the side of a tank or pipeline without the need to utilize, or create, a pressure differential to take a sample. The RSS uses a Piston Type Ram Sample Valve which works very well in high viscosity or high particulate applications which are prone to plugging. As the valve is rotated the piston draws back and allows the liquid to flow through to the sample port. When the Piston Ram Valve is rotated to close, it pushes back any remaining product to ensure no cross contamination between samples and zero dead volume.

SENSOR RAM Sample System can be supplied with a flanged, threaded, or welded connection to mate up to existing piping. It can also be supplied with a piping spool to fit into an existing pipe line with either a threaded or flanged type of connection. The RAM Valve can be fully purged with use of a purge adapter to eliminate any dead volume below the valve and eliminate potential plugging issues.

Typical Applications for the SENSOR RSS include hot oil, refinery “bottoms”, hot asphalt, resid oil, and any other low vapor pressure hydrocarbons where a fast loop is not present or easily achievable. The RAM Sample valve can be fitted with Teflon® or Graphoil packing to meet the requirements of most applications. We can heat trace any exposed areas to maintain adequate process temperature to ensure a free flowing sample. We can enclose the Ram Sample Valve and sample receptacle in a specially designed enclosure for operator protection while sampling. The enclosure can also be fitted with an optional eductor to exhaust harmful vapors and smoke to a safe location if open top container sampling is preferred.

## Features and Benefits

- Can be provided in virtually any material to match the piping or nozzle in which it is connected to
- Steam purge available for elimination of plugging
- Available with fixed volume, model FVRSS
- Operation & Installation Manual included
- Steam heated dispense tube available to eliminate plugging
- Can be designed to work with existing RAM Valve if desired



## Materials of Construction

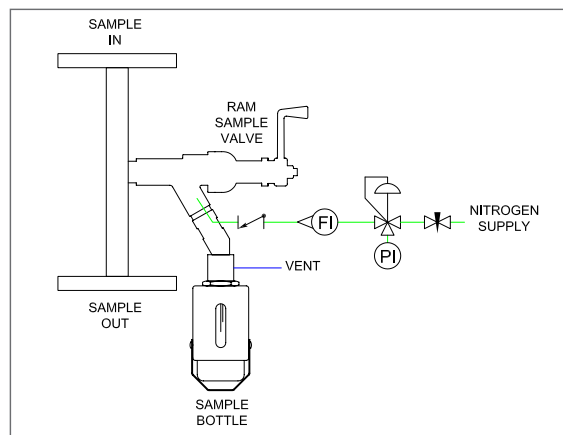
|                 |  |
|-----------------|--|
| Sample Valve    | 316SSL   |
| Spool Piece     | 316L Stainless Steel (SS) standard; flanged process connections  |
| Process Needle  | 316SS; .083" - .148" OD; or 1/4"-1/2" dispense tube  |
| Vent Needle     | 316SS; .083" OD  |
| O-Ring Material | Viton standard; optional Kalrez  |
| Seal Material   | Teflon standard; optional Graphoil   |
| Bottle Shroud   | PVC; 2 oz. - 32 oz. standard (other sizes available)<br>(Note: not recommended for resid and hot oil types of media) |
| Retaining Strap | Stainless Steel  |
| Mounting Plate  | Stainless Steel  |

**Operating Pressure** 1500 psig max; 150 psig maximum recommended pressure when sampling without fixed volume option; unless dispense tube is used

**Operating Temperature** 135°F maximum without cooler; 800°F maximum with cooler and/or graphoil valve packing

## Optional Equipment

|                            |  |
|----------------------------|--|
| Emissions Filter           | Canister with activated carbon for use when no vent to flare is available; also available with indication crystals which change color to indicate saturated filter media |
| Sample Coolers             | For use when process temperature exceeds 135°F (Typical Fixed Volume type Coolers used with RSS unit)  |
| Secondary Block Valve      | Complies with double-block safety requirements   |
| Enclosures                 | Enclosures, available insulated or uninsulated and with steam or electric heater elements  |
| Mounting                   | 2" X 60" pipe stand; galvanized  |
| Eductor                    | Utilizes steam plant air, or nitrogen to create motive force to remove vapor and/or smoke from inside an enclosure   |
| Steam Tracing & Insulation | All components in contact with process are steam traced and insulated  |
| Fixed Volume Chamber       | Repeatable sample volumes, helps prevent overfilling of bottle and isolate bottle from process pressure  |
| Steam Heated Stinger       | Steam-traced stinger, prevents plugging  |

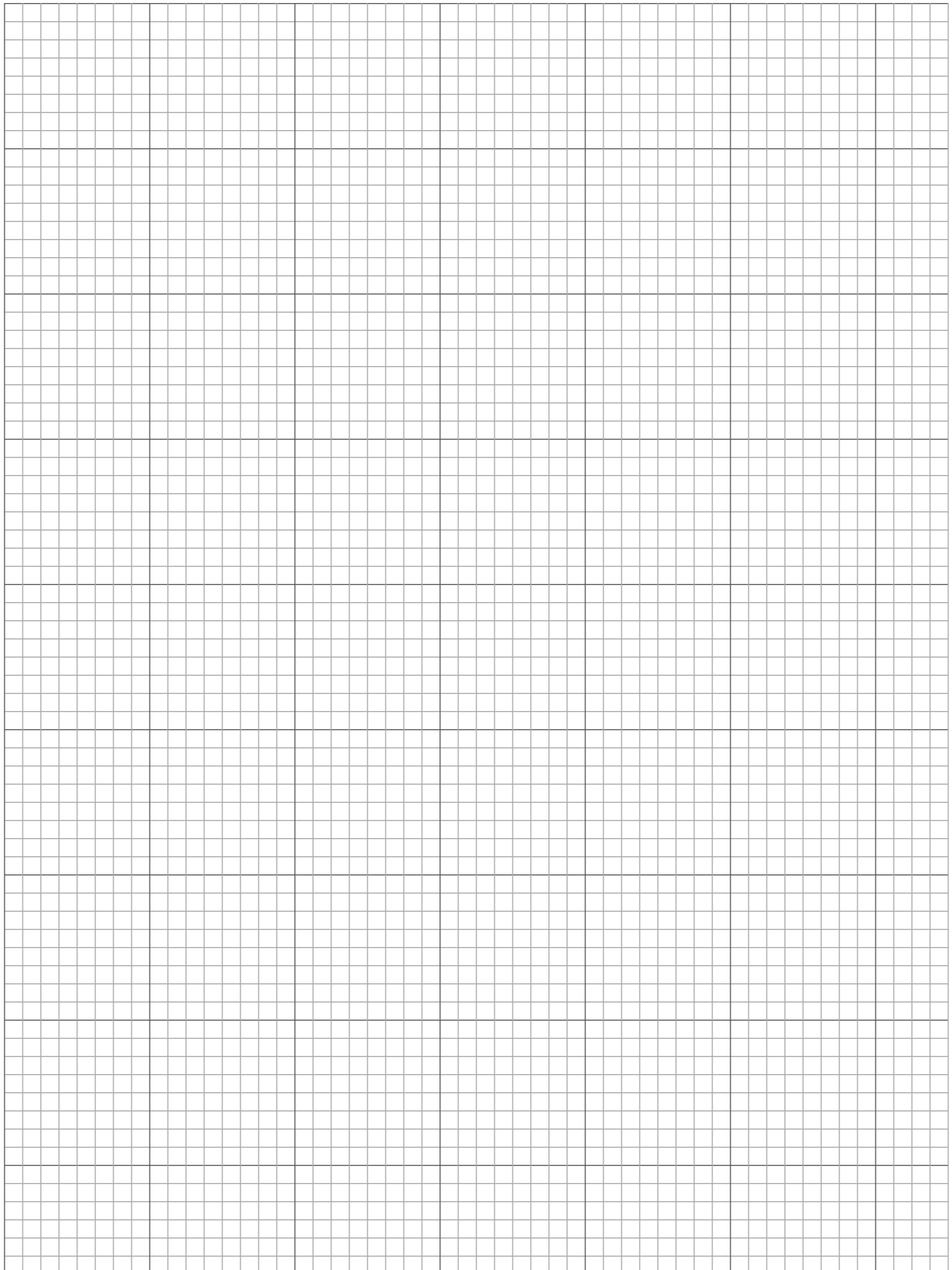




|   |   |
|---|---|
| Date  |   |
| Name  | Phone   |
| Company/Location  | Email   |
| <b>PROCESS DATA</b>   |   |
| Media   | Tag Numbers   |
| *Pressure Inlet   | Pressures over 150 PSI, Fixed Volume System is recommended        |
| *Fast Loop Outlet Pressure  |   |
| *Vapor Pressure   | Vapor Pressures > 19 psiA recommended sampled in Sample Cylinder  |
| *Viscosity (CP) at Sampling Temperature   |   |
| *Temperature  | Temperatures over 135 ° F, Process Cooling is recommended         |
| Particles in Sample <input type="radio"/> Yes <input type="radio"/> No  | Micron Size ____ / ____ (%) if >100 micron y-strainer recommended |
| <b>MATERIALS OF CONSTRUCTION</b>  |   |
| *Wetted Parts <input type="radio"/> 316SS (std.) <input type="radio"/> Monel 400 <input type="radio"/> Hastelloy C276 <input type="radio"/> Other _____ *specify  |   |
| *O-Ring Material (Elastomer) <input type="radio"/> Viton (std.) <input type="radio"/> Kalrez <input type="radio"/> Other _____ *specify   |   |
| *Valve Packing Material <input type="radio"/> Teflon (std.) <input type="radio"/> Graphoil (Hi. Temp)   |   |
| <b>CONNECTION AND MOUNTING</b>  |   |
| *Sample Inlet/Outlet Connection Size (1/4" Tube Standard)   |   |
| *Sample Inlet/Outlet Connection Type (specify tube, NPT, Flange)  |   |
| *Flare Vent Pressure _____ Vent to Flare _____ Vent to Carbon Absorber _____ Tell Tale Crystals _____   |   |
| <b>SAMPLE CONTAINER</b>   |   |
| Size Container  |   |
| *Material of Container <input type="radio"/> Glass <input type="radio"/> Plastic <input type="radio"/> Safety Coated Glass <input type="radio"/> Other _____ *specify   |   |
| *Method of Sampling <input type="radio"/> Septum Bottle (closed loop, captured vent) <input type="radio"/> Open Top Bottle  |   |
| *Type of Container <input type="radio"/> Boston Round <input type="radio"/> Customer (provide sample for manufacturing)   |   |
| <b>OPTIONS (please check if needed)</b>   |   |
| <input type="radio"/> Sample Cooler Additional Data Needed, Please complete heat transfer document  |   |
| <input type="radio"/> PipeStand for Mounting System   |   |
| <input type="radio"/> SENSOR Needle Purge   |   |
| <input type="radio"/> Secondary Sample Isolation Valve  |   |
| <input type="radio"/> Enclosure Type Insulated <input type="radio"/> Yes <input type="radio"/> No<br>Heated <input type="radio"/> Yes <input type="radio"/> No if yes, <input type="radio"/> Steam or <input type="radio"/> Electric if electric, Volts |   |
| <input type="radio"/> Process Block Valve <input type="radio"/> Sample Inlet <input type="radio"/> Sample Outlet <input type="radio"/> Both   |   |
| <input type="radio"/> Check Valve on Vent   |   |
| <input type="radio"/> Non-standard Process Needle (.083std) <input type="radio"/> .109 <input type="radio"/> .148 <input type="radio"/> 1/4" Stinger  |   |
| <input type="radio"/> Steam Stinger   |   |
| <input type="radio"/> Fixed Volume Size <input type="radio"/> oz. <input type="radio"/> mL (if applicable)  |   |

\*Required information

SKETCH **VESSEL** or **APPLICATION** HERE





# See our full line of Sampling Systems at **SENSOReng.com**

SENSOR sampling systems provide a representative sample that is safe to both the operator and the environment. Our systems are designed to meet Leak Detection Repair (LDAR), Maximum Achievable Control Standards (MACT) and Volatile Organic Compounds (VOC) emission standards. Since no two sampling systems are exactly alike, each of our products is engineered to order.

## Basic Bottle Sampling System

- Simple, flow-thru valve design
- Zero dead volume
- Replaceable process and vent needles
- Available with SENSOR Needle Purge



BBSS



ISS

## Fixed Volume Bottle Sampling System

- Guarantees repeatable sample volume
- Zero dead volume
- Replaceable process and vent needles
- Suitable for high process pressures
- SENSOR needle purge standard



FVBSS

## Inline Sampling System

- Available in wide variety of piping materials and end connections
- Suitable for high temperature, high viscosity service
- Available with open tube "stinger" or process needle

## Liquefied & Vapor Gas Sampling Systems

- Safe, simple methodology for sampling high pressure liquefied gases and process gases
- Single handle operation
- Panel mounted pressure gauge
- Sight glass ensures safe cylinder outage on LGSS
- Ability to depressurize quick connects before removing cylinder

## RAM Sampling System

- Available in wide variety of piping materials and end connections
- Suitable for high temperature, high viscosity service
- Available with open tube "stinger" or process needle
- Can be provided with a variety of connections to mate up to existing piping or vessel



RSS

## LGSS & VSS





[SENSOReng.com](http://SENSOReng.com)

Sampling Systems | Houston, TX | 281-902-3924

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