

1



## Installation Instructions for the QMI® Line and Tank Sampling System On Dairy Farms

Darrell L. Bigalke  
Environmental Dairy Microbiologist  
President, QMI® - Quality Management, Incorporated  
(Rev. 20031107)

[www.qmisystems.com](http://www.qmisystems.com)

Copyright ©2003: QMI® Quality Management Incorporated  
426 Hayward Ave. No., Oakdale, MN 55128  
Tel: 651-501-2337; Fax: 651-501-5797  
Email: [info@qmisystems.com](mailto:info@qmisystems.com)

---

---

---

---

---

---

---

---

2

This short presentation describes the mechanical procedures of installing and using the QMI® Aseptic Sampling System on dairy farms for:

- continuous flow monitoring of milk from a group or string of cows
- into a QMI® Composite Sampling Bag, and
- sampling tanks and over-the-road tankers..

For another presentation about the environmental dairy microbiology of sampling, see QMI's presentation on:  
*Effective Line and Tank Sampling On Dairy Farms*  
(available on website: [www.qmisystems.com](http://www.qmisystems.com) along with other resources)

---

---

---

---

---

---

---

---

3

## DAIRY HERD MANAGEMENT SYSTEM

Cow Group Sampling

Bacteriological  
Monitoring

↓

Component  
Analysis

↓

Somatic Cell  
Count Monitoring

↓

Assure Quality And Maximum Profits

---

---

---

---

---

---

---

---

4

Your test is only as accurate as your sample.

QMI® Systems provide:

**Accurate Line Sampling** of cow groups  
- necessary for component analysis of milk for feeding program management, bacteriological and somatic cell counts monitoring, and specific bacteria cultures assessment.

**Accurate Tank Sampling**  
- necessary for accurate testing of milk to achieve bonuses and maximum profits.

Be proactive.

---

---

---

---

---

---

---

5

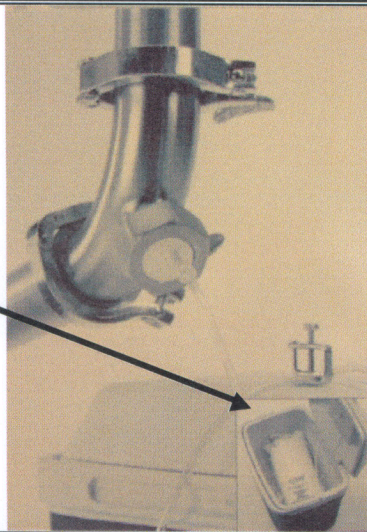
### QMI® - Line Sampling on Dairy Farms

Install a Tri-Clamp Elbow with QMI Fitting facing downward on your existing line for continuous flow sampling into a composite bag (pictured at right).

This arrow shows a QMI® Composite Sampling Bag in a cooler of ice to receive a continuous flow of milk sampling from a line.

The rate of flow is controlled by a clamp and by the size of the needle.

The standard needle size is 18 gauge. Larger 16 gauge and smaller 23 gauge needles are available.



---

---

---

---

---

---

---

6

### QMI® Insulated Tank Fitting welded into an insulated tank door



---

---

---

---

---

---

---

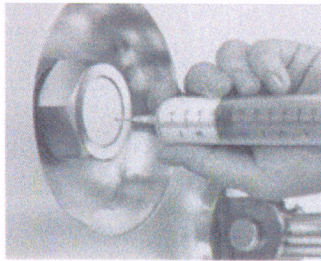
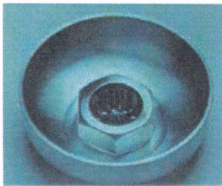
7

### QMI® - Tank Sampling On Dairy Farms

Install a QMI® Tank Fitting in the tank door.

Shown at right is an insulated door.

The QMI® Insulated Tank Fitting spans the inner and out walls of an insulated door when welded into place.



Once the QMI® Tank Fitting is in place, the QMI® 7-port aseptic sampler allows seven samples to be taken with a syringe without allowing contamination into the tank or sample.

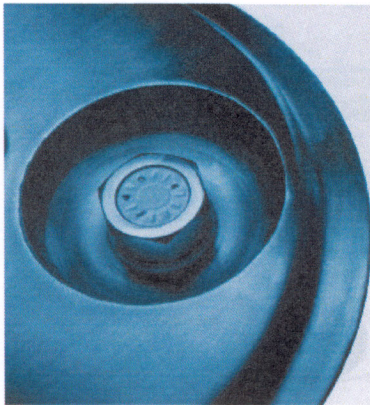
The 12-port system is shown.

8

QMI® Insulated  
Tank Fitting welded  
into an insulated  
tank door.

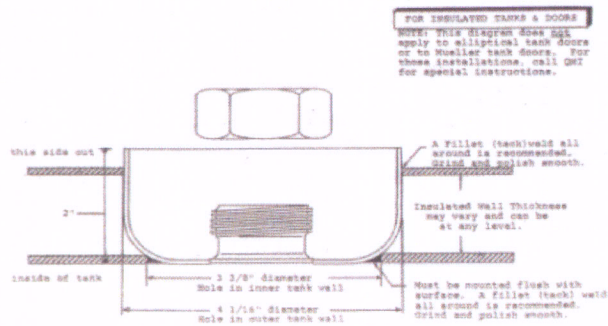
12-port option  
shown.

Also available in  
7-port option.



9

### QMI® Insulated Tank Fitting Installation Diagram Part # 2236 Insulated Tank Fitting with Nut



Note: The diagram above does not apply to elliptical tank doors or Mueller tank doors -- for those installations, call QMI at 651-507-2337 for special instructions.

← See last page of this  
handout for this diagram  
enlarged for detail.



10

### **Installation and Use of the QMI® Aseptic Sampler:**

1. Remove the QMI® Aseptic Sampler from the sealed packaging without touching the rubber.
2. Place the QMI® Aseptic Sampler into the stainless steel seat on the QMI® Elbow. After installing the Sampler, hand tighten the nut and then give it an additional  $\frac{1}{4}$  to  $\frac{1}{2}$  turn with a wrench. This will prevent leaking.
3. Sanitize the surface of the Sampler with an alcohol prep or other sanitizer. Then insert a needle through the white plastic cover at one of the dimples above a needle-guide channel in the Sampler. Slant the needle toward the center of the Sampler along the needle-guide channel. If resistance is felt, the angle is not proper. Each sampler has seven (7) needle-guide holes which provide seven (7) sterile locations for sampling.

... Continued on next slide ...

---

---

---

---

---

---

---

---

11

### **Installation and Use of the QMI® Aseptic Sampler (continued):**

4. After sampling, remove the needle from the sampler and place the shield over the needle to prevent injury. Remove the shielded needle from the tubing by turning it to the left and properly dispose of the needle in a safety container.
5. Cover the stainless steel nut with the orange Dust Cover to protect the Sampler when it is not being used.
6. After seven (7) samples have been taken, remove and discard the Aseptic Sampler. Then replace it with a new Sampler, shipped sterile in a sealed packet.

---

---

---

---

---

---

---

---

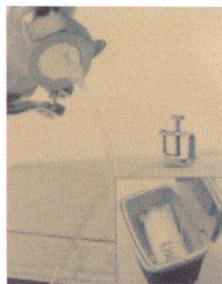
12

### **Proper Use of the QMI® Sampling Assembly Bag:**

1. Tank samples should be taken into a syringe. Line samples should be taken into a QMI® Sampling Assembly Bag. A bag allows a continuous flow over a period of time, such as milking a group of cows.
2. Inserting the needle for bag sampling requires the same procedure as inserting the needle with a syringe (see slides 10 & 11, above).
3. Place the bag into a container of ice or ice water to reduce or eliminate bacterial growth during the sampling process.
4. Using the QMI® Flow Control Clamp, adjust the flow for the proper rate of filling the bag during sampling.

We recommend 3 to 5 ml per cow and 500 to 1500 ml total sample per group. The rate of flow also can be adjusted by using smaller or larger gauge needles.

... Continued on next slide ...




---

---

---

---

---

---

---

---

13

### Proper Use of the QMI ® Sampling Assembly Bag (continued):

5. The needle should have been covered with the shield immediately after taking the sample to prevent injury and the shielded needle removed from the tubing by turning it to the left and properly disposing in a safety container.
6. Mix the milk inside the bag and pour the proper amount into a shipping container.
7. Please be aware that each QMI ® Sampling Assembly Bag is shipped sterile and is intended for a single use.

Each QMI ® Aseptic Sampler also is shipped sterile and will accommodate collecting seven (7) samples per Sampler.

The QMI ® Sampling Assembly Bag is available with 2 liter or 5 liter bags (for herd sampling).

---

---

---

---

---

---

---

---

14

### Dairy Farm Feeding Programs Should Be Managed By Proper Line Sampling of Cow Groups

- ◆ Line sampling elbows with tri-clamp connections offer hassle-free installation
- ◆ The QMI ® Sampling Bags allow timed sampling of cow groups, assuring accurate composite samples, which are necessary for component analysis of milk
- ◆ Accurate analysis of milk is required for proper feeding program management .

---

---

---

---

---

---

---

---

15

### QMI ® Line Sampling of Cow Groups For Herd Health

Necessary for:

- ◆ Bacteriological count to manage quality and assure bonuses.
- ◆ Somatic cell counts to manage quality
- ◆ Specific bacteria culture identification to assure effective treatment programs

---

---

---

---

---

---

---

---

## QMI's Current Research

- ◆ QMI® - Quality Management, Incorporated conducts on-going research in various aspects of dairy farm sampling.
- ◆ For up-dates, ask for QMI's Newsletter. Send your mailing information to QMI.
  - email: [info@qmisystems.com](mailto:info@qmisystems.com)
  - mail: QMI, 426 Hayward Ave. No., Oakdale, MN 55128
  - telephone: 651-501-2337
  - fax: 651-501-5797
- ◆ Visit QMI's website: [www.qmisystems.com](http://www.qmisystems.com)

Detail for PowerPoint Handout, Slide 9, above.

QMI ® Insulated Tank Fitting – Part No. 2236

Installation Diagram

