

Pharmmenta<sup>TM</sup>



SIPTube<sup>TM</sup>  
Valve

# Pharmenta™ SIPTube™ Valve™

- ☑ Eliminates dead space found between valve seal and the point of delivery in current inoculation and feed device designs
- ☑ Smooth internal passage loop delivers cleaning and sterilizing agents to and from the valve tip seal
- ☑ Optional body insulation protects heat-sensitive processes during valve reesterilization
- ☑ Cleanable- and Sterilizable-In-Place (CIP/SIP) while in operation
- ☑ Installs in existing ports in seconds
- ☑ Body lengths from flush-mounting to 16 inches (400mm) for deep process penetration
- ☑ Simple design for maximum reliability and fast, easy maintenance
- ☑ 316L Stainless Steel construction with a choice of surface finishes
- ☑ Choice of actuators, seal materials and connections
- ☑ Ideal for process inoculating, media feeding and sampling
- ☑ Suitable for research or production applications
- ☑ Application industries: Pharmaceutical, biotech, food, beverage, fine chemical

*The Pharmenta™ SIPTube™ valve is the first and only inoculating, feeding and sampling device that allows repeat cleaning and sterilizing episodes during a production run and can actually deliver feeds to and capture samples from within the fluid body of the process, all without harming the process.*

## **The Problem**

Unless you can guarantee that supply lines leading into your process are clean, clear and unobstructed, no amount of sophisticated and expensive fluid metering and process control equipment can assure you that inoculants, media, acids, bases and other feeds are being supplied to your process as intended. Similarly, if you cannot access the heart of your process to capture samples and transport sampled material to a receptacle through lines that are moisture-free, residue-free and sterile, you may have samples that are diluted or adulterated.

Conventional inoculation, feed and sampling approaches often combine a valve with an inlet and outlet attached to a tube extension that is mounted on a porthole. However, these configurations usually place the inlet, outlet and valve seal outside the process and extend a length of one-way tube down through the porthole to access the process. Without a return flow path, once the process begins, the tube extensions used in these conventional devices represent an uncleanable, unsterilizable dead space.

## **The Solution**

The Pharmenta™ solution has two goals intended to ensure that additives or inocula introduced into your process remain as pure as possible, and that samples you capture are truly representative of what is going on at the heart of your process. These goals are:

- ① Move the process interface seal as close to the process as possible.
- ② Eliminate surfaces that cannot be recleaned and reesterilized during production.

The Pharmenta SIPTube™ valve addresses these goals through a unique combination of patented technologies.

## **Deep-Loop™ Body Design Technology**

The solution begins with Pharmenta Deep-Loop™ body design technology, consisting of an efficient, highly compact deep “U” shaped flow path with supply and return passages that direct flow to and from the valve’s seal which is positioned at the bottom of the “U,” adjacent to or actually within the process. The loop, which is built into a small radius elongated valve body, can be inserted through existing tank or process pipe portholes without equipment modification. Providing both supply and return loop branches

means that SIPTube™ valves can be repeatedly cleaned and sterilized in place without any pause in your processing activities.

## **Vortex-Flo™ Scrubbing Action**

The engineered flow paths through the Pharmenta SIPTube™ valve’s compact internal cavity follow a spiral pattern which, at the high flow rates used during CIP and SIP operations, produces a scouring action on internal surfaces that removes stubborn particulates and adhering residues, leaving passages pristine and contaminant-free.

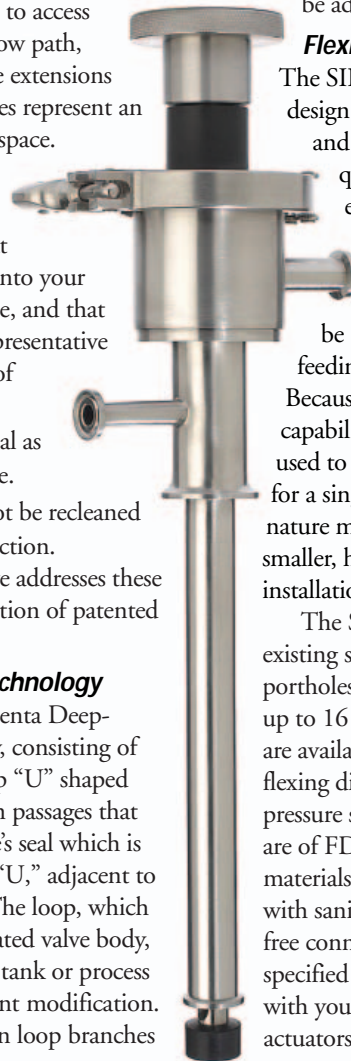
## **Optional HeatShield™ Valve Jacket Insulation**

For processes that require steam reesterilization, the SIPTube™ valve is available with optional HeatShield™ valve jacket insulation, which inhibits heat transfer to the process during steam sterilization, providing shielding to processes that might be adversely affected by sterilization heat.

## **Flexible, Trouble-free Design**

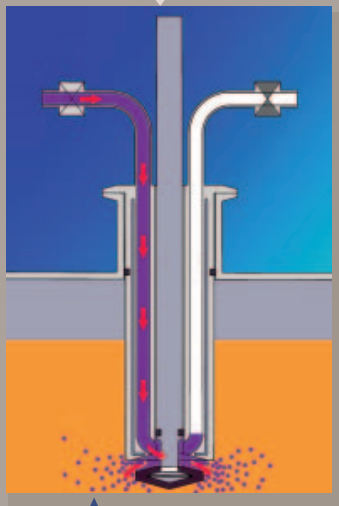
The SIPTube™ valve features a simple, versatile design that provides for improved reliability and fast, easy maintenance. It can be quickly installed in existing portholes, either on top or on the sides of tanks or process piping. It is designed for operation in vertical to horizontal orientations. The SIPTube™ valve can be used in applications for inoculating, feeding media and sampling operations. Because of its CIP/SIP in-operation capabilities, a single SIPTube™ valve can be used to perform all three operations effectively for a single process. This multi-functional nature makes the SIPTube™ valve also ideal for smaller, highly instrumented research installations.

The SIPTube™ valve can be mounted into existing sanitary flange and prespecified custom portholes. It has shaft insertion lengths available up to 16 inches (400mm). O-ring seal designs are available for high pressure applications, and flexing diaphragm designs are available for lower pressure sanitary processing applications. Seals are of FDA and USP 23 Class VI biocompatible materials. The SIPTube™ valve comes standard with sanitary clamp connections for fast, trouble-free connection into your process or custom-specified fittings. The SIPTube™ valve comes with your choice of manual or pneumatic actuators.



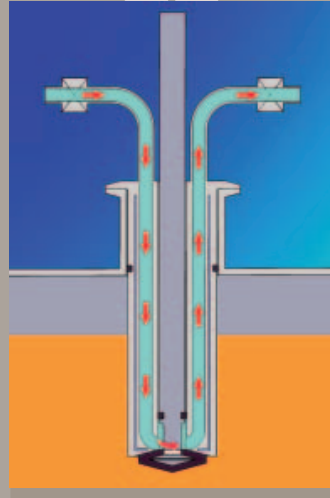
# Pharmenta™ SIPTube™ Valve Feed/Clean/Sample Loops

Inoculating/  
Feeding  
Loop



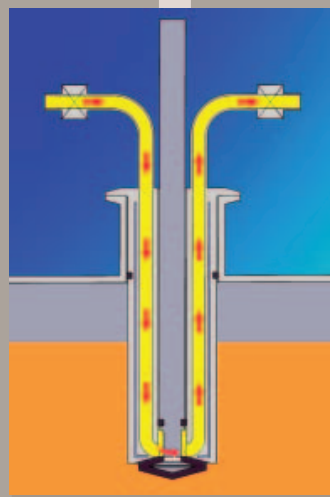
## Inoculate/ Feed

Feed or inoculate directly into any process. Choose a valve length to feed directly into the process fluid or into the headspace at the top of the vessel.



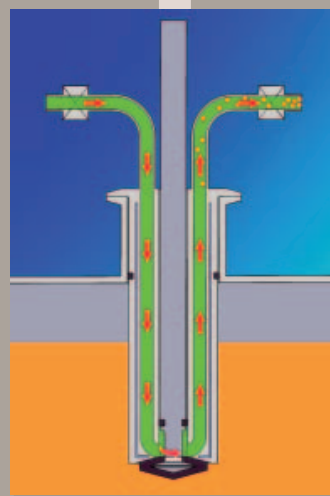
## Dry

Forced air dries any remaining moisture on internal surfaces.



## Sterilize

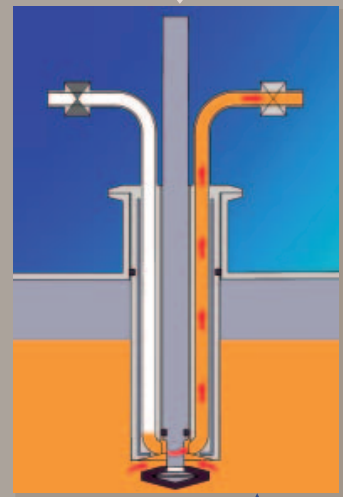
Steam or chemical sterilization. Optional insulation minimizes heat transfer and protects process.



## Clean

Chemical clean, water rinse to remove any inocula, feed or sample residue. Voretex-Flo™ scouring action assists in cleaning and rinsing.

Sampling  
Loop



## Sample

Capture representative samples deep within the heart of any process.

# Pharmenta SIPTube™ Valve™

## Technical Specifications

**Body Material:** 316L stainless steel

**Maximum Temperature:**

O-ring seal: 300° F (149°C)

Diaphragm: 260° F (125°C)

**Maximum Pressure:**

O-ring seal: 100 psi (6.9 bar)

Diaphragm: 60 psi (4.0 bar)

**Autoclavable:** Yes

## How to Specify

To specify your Pharmenta SIPTube™ valve choose desired options from each category:

**Passage Bore and Body Sizes:**

SF (Standard flow, radial design)

3/16" Inlet/outlet bore; 1.36" (35mm) body O.D. (fits 1.5"/37mm ports)

1/4" Inlet/outlet bore; 1.86" (47.5mm) body O.D. (fits 2.0"/51mm ports)

HF (High flow, axial design)

3/8" Inlet/outlet bore; 1.36" (35mm) body O.D. (fits 1.5"/37mm ports)

1/2" Inlet/outlet bore; 1.86" (47.5mm) body O.D. (fits 2.0"/51mm ports)

**Seal Type:**

O-ring

Diaphragm

**Body Shaft Penetration Length** (measured from attachment flange)

4 inches (100mm)    8 inches (200mm)    16 inches (400mm)

**Body Jacket Style:**

Standard

Insulated

**Surface finishes:**

Interior:

Standard 20-25Ra (180 grit)

15-20Ra (240 grit)

Electropolish

Custom \_\_\_\_\_

Exterior:

Standard 20-25Ra (180 grit)

15-20Ra (240 grit)

Electropolish

Custom \_\_\_\_\_

**FDA Compliant Diaphragm or O-ring Material:**

EPDM

PTFE Teflon®

Black Butyl

Viton®

**Actuator Style:**

Manual handwheel

Pneumatic

**Valve Mounting Configuration:**

Sanitary flange

Custom: \_\_\_\_\_

**Inlet End Connection:**

Sanitary flange

Butt-weld

Custom: \_\_\_\_\_

**Outlet End Connection:**

Sanitary flange

Butt-weld

Custom: \_\_\_\_\_

Pharmenta's mission is to improve the safety, quality, efficiency and consistency of industrial products and processes through innovative equipment design.

Pharmenta is a product division of N. L. Technologies, Ltd. Since 1989, N. L. Technologies has provided regulatory and facility design expertise to pharmaceutical, biotech, chemical, food and beverage manufacturers around the world.

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