

# SUCTION DIFFUSER

## INSTALLATION & OPERATING INSTRUCTIONS

### 1.0 Introduction

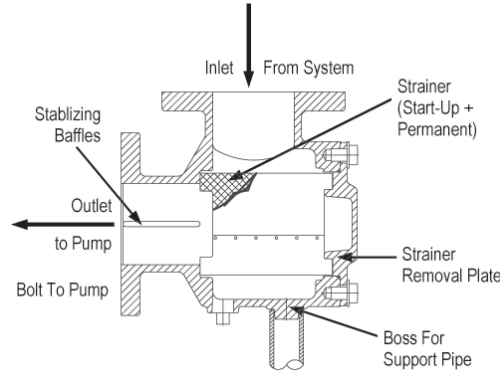
1.1 EnviroSep Suction Diffusers are designed for bolting directly onto the suction flange of horizontal or vertical shaft centrifugal pumps.

1.2 EnviroSep Suction Diffusers are available in two models:

**Model SD** - Suitable for 150 psig ANSI piping flanges

**Model SDH** - Suitable for 300 psig ANSI piping flanges

1.3 Each series is designed to be a *five-function* fitting. Each Suction Diffuser is a 90° elbow, a Pipeline Strainer, a Flow Stabilizer, and a System Drain. It may also be used as a Reducing Elbow, should the suction piping be larger than the pump inlet.



### 2.0 Inspection

2.1 EnviroSep Suction Diffusers are thoroughly tested and inspected before shipment to assure they meet with your order requirements. All units must be carefully examined upon arrival for possible damage during transit. Any evidence of mishandling should be reported immediately to the carrier and noted on the freight bill.

### 3.0 Installation

3.1 Install the Suction Diffuser (SD) with the directional arrow, indicated on the body, being aligned with the system flow direction.

3.2 EnviroSep Suction Diffusers may be installed in any position, providing the guide vanes face the pump inlet flange.

3.3 Centrifugal pumps generally need a minimum of 5 pipe diameters of straight pipe before the pump suction. This length of straight pipe, after the last elbow, tee or fitting, helps to ensure that the flow is stable when entering the pump suction.

3.4 Crosspiece guide vanes are fitted into the Suction Diffuser outlet, where it bolts to the pump flange, to stabilize the flow and eliminate the need of long straight suction pipe.

3.5 Space must be allowed to remove the end cover and remove the strainer.

3.6 A blow-down valve may be installed on the Suction Diffuser drain connection. If inlet is facing down, the blow-down valve must be placed at the bottom of the pipe leg.

3.7 The Suction Diffuser must not be used to support the suction piping. Piping must be supported independently.

3.8 On base mounted pumps, flexible piping connections may allow the Suction Diffuser to be supported by the pump suction flange. A boss is cast on every Suction Diffuser allowing a supporting pipe-stool to be located under the fitting, thereby removing the weight of the Suction Diffuser from the pump suction flange.

3.9 Gauge ports should be connected upstream and downstream of the Suction Diffuser.

Monitoring the differential pressure across the fitting will alert the operator should the strainer need to be removed and cleaned.

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### 4.0 Operation

4.1 No special attention need be paid to the Suction Diffuser at start-up. The fitting is stationary and will strain the pumped fluid and stabilize the flow into the pump automatically.

### 4.2 *Temporary strainer must be removed following system clean up.*

4.3 After all debris has been removed from the system, or a maximum of 24 running hours, stop the pump and close the pump isolation valves. Drain the Suction Diffuser by removing the drain plug or opening the blow-down valve, if installed. Remove the Suction Diffuser cover and remove the strainer assembly from the valve body.

4.4 A temporary fine-mesh start-up strainer is tack-welded around the permanent stainless steel strainer. This temporary strainer should now be removed from the permanent strainer. The fine-mesh strainer is designed to remove small particulate from new piping systems and could easily clog with debris if left in place. This will be detrimental to the operation of the pump.

4.5 Replace the permanent strainer into the fitting body, once the temporary strainer is removed.

4.6 Inspect the cover O-ring and replace if necessary. Replace the cover into the body. Ensuring that the strainer is properly seated, tighten the cover bolts diagonally, evenly and firmly.

